



Catalog of Liverworts (Marchantiophyta) and Hornworts (Anthocerotophyta) from Central America and Cocos Island

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ABSTRACT

Dauphin, Gregorio, Lars Söderström, Anders Hagborg, Noris Salazar Allen, Adriel M. Sierra, Tamás Pócs, José Gudiño L., Mervin E. Pérez, Juan Carlos Villarreal, Yarency Rodríguez, Matt von Konrat, and Alan Whittemore. *Catalog of Liverworts (Marchantiophyta) and Hornworts (Anthocerotophyta) from Central America and Cocos Island*. Smithsonian Contributions to Botany, number 119, xvi + 431 pages, 15 figures, 4 tables, 2025. — This catalog represents the first enumeration of all species of liverworts (Marchantiophyta) and hornworts (Anthocerotophyta) for Central America, including Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama, and Cocos Island of Costa Rica. It includes 846 liverwort species in 126 genera as well as 19 hornwort species in 7 genera and 4 families. The catalog is based on more than 1,500 publications and from more than 900 herbarium specimens examined by the authors. There are 184 new country or region records reported: Belize (17), Costa Rica (10), El Salvador (22), Guatemala (7), Honduras (51), Nicaragua (45), Panama (7), and Cocos Island of Costa Rica (25). Accepted names are listed alphabetically, and auxiliary information including basionyms and heterotypic synonyms is presented for each taxon where appropriate. Broader geographical distribution is also provided for each taxon for context. There are 42 reported taxa (species and infraspecific taxa) that are considered doubtful and 38 reported taxa that are excluded. Sixteen taxa are reported as new to Central America. *Harpalejeunea exocellata* Herzog is synonymized under *Harpalejeunea tridens* (Besch. et Spruce) Steph., and *Leucolejeunea nana* S.Winkl. is placed under the synonymy of *Cheilolejeunea conchifolia* (A.Evans) W.Ye et R.L.Zhu. The taxonomic, geographic, and auxiliary information included here will have broad utility beyond liverwort and hornwort systematics, extending to the study and analyses of species richness, conservation, and systematic research at both country and regional levels.

Keywords: checklists, taxonomy biodiversity hotspot, bryophytes, floristics, bryological exploration, tropical ecoregions

[Abstract in Spanish (resumen) provided on page v.]

Cover images (from left): Laguna Jilgueros, Parque Nacional Rincón de La Vieja, Guanacaste, Costa Rica; *Colura tenuicornis*, from Escazú, Costa Rica; and *Riccia* sp. from Ciudad Colón, Costa Rica. Photos by G. Dauphin.

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RESUMEN

Este catálogo representa la primera enumeración de todas las especies de hepáticas (Marchantiophyta) y antocerotas (Anthocerotophyta) para Centroamérica, incluyendo Belice, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panamá, y la Isla del Coco de Costa Rica. Este catálogo incluye 846 especies de hepáticas en 126 géneros, así como 19 especies de antocerotas en siete géneros y cuatro familias. El catálogo se basa en más de 1500 publicaciones y en más de 900 especímenes de herbario examinados por los autores. Se reportan 184 nuevos registros para los países o regiones: Belice (17), Costa Rica (10), El Salvador (22), Guatemala (7), Honduras (51), Nicaragua (45), Panamá (7), e Isla del Coco de Costa Rica (25). Los nombres aceptados se enumeran alfabéticamente, así como la información auxiliar, incluidos los basónimos y sinónimos heterotípicos de cada especie y taxones infra específicos, cuando procede. La distribución geográfica más amplia también se proporciona para cada taxón para contextualizar. De los reportes, 42 se consideran dudosos y 38 se excluyen. Se comunican 16 taxones como nuevos para Centroamérica. *Harpalejeunea exocellata* Herzog se sinonimiza bajo *Harpalejeunea tridens* (Besch. et Spruce) Steph. y *Leucolejeunea nana* S.Winkl., se pone bajo la sinonimia de *Cheilolejeunea conchifolia* (A.Evans) W.Ye et R.L.Zhu. El catálogo se completa con una lista de sinónimos. La información taxonómica, geográfica y auxiliar incluida aquí tendrá una amplia utilidad más allá de la sistemática de las hepáticas y antocerotas, extendiéndose al estudio y análisis de la riqueza de especies, la conservación y la investigación sistemática tanto a nivel nacional como regional.

Palabras clave: checklists, taxonomía, hotspots de biodiversidad, briofitas, florística, exploración briológica, ecorregiones tropicales

[Resumen en inglés (Abstract) en página iv.]

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Catalog of Liverworts (Marchantiophyta) and Hornworts (Anthocerotophyta) from Central America and Cocos Island

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INTRODUCTION

Central America harbors an estimated 5%–12% of the planet's biodiversity (Morales-Marroquín et al. 2022). The region forms the majority of the landmass that has been identified as the Mesoamerica biodiversity hotspot, which is the third largest of the thirty-six global hotspots (Myers et al. 2000; Conservation International 2011). The Mesoamerican and Chocó biodiversity hotspots were evaluated to be among the top twelve most important on the world's terrestrial surface based on species richness, endemism, natural habitat loss, and conservation status (Hrdina and Romportl 2017). Central America includes regions with extraordinary plant species richness and is among the top five global centers of vascular plant diversity (Barthlott et al. 2007). Central America has had a rich and dynamic geological history, especially since the Miocene, creating diverse and new ecological niches and playing a key role in understanding ecological and evolutionary processes between the North and South American biota (Cano et al. 2022; Morales-Marroquín et al. 2022).

Central America has variously been defined as including some parts of Mexico and the Caribbean but is here defined as consisting of the seven countries on the Central American Isthmus south of Mexico to northwest of Colombia (Figure 1). With a total area of 522,800 km², Central America contains an estimated 10.9% of the world's diversity of liverworts and hornworts (Early Land Plants Today [ELPT] unpublished database 2024.04.01). Gradstein et al. (2001b) found that in terms of liverwort genera Central America is the second-richest area in the Neotropics, surpassed only by the Northern Andes. Despite its great biodiversity, it is clear that liverworts and hornworts have been generally overlooked or understudied compared to seed plants, arthropods, birds, mammals, and amphibians throughout Central America. Moreover, the state of our floristic knowledge of liverworts and hornworts is deficient compared to many other biodiversity hotspots and other ecologically significant areas of the globe. Almost four decades ago, Matteri (1985) highlighted that bryological exploration remains at a very early age, and later Stotler et al. (1998) stressed, especially, the lack of floristic knowledge for liverworts and hornworts. Although there has been great progress in some regions within Central America, a lack of foundational floristic knowledge remains for the region. Knowledge about the Central America flora has been accumulating from local records and checklists

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FIGURE 1. Central America and Central American Pacific islands and their position globally (inset map).

over time since the nineteenth century (see “Exploration of the Liverwort and Hornwort Flora of Central America”). Nevertheless, bryological research in Central America has been uneven. Costa Rica and Panama stand out as the best-explored countries, while there is a remarkable gap in floristic knowledge in countries such as Nicaragua. Notably, in a comprehensive global survey of checklists Söderström et al. (2008) identified a lack of lists for most of Central America.

The significance of checklists was summarized by Söderström et al. (2008), outlining the utility of checklists as powerful and important tools and their applicability to taxonomy, systematics, and conservation. The checklist, which verifies accepted and synonymized taxonomic names generated from herbarium specimens and records in the literature, represents a useful source of information for hypothesis-driven biodiversity science (Droege et al. 2008). Here, we present the first checklist, in the form of a catalog, of liverworts and hornworts covering the whole of Central America in an effort to further promote bryological research in the region and provide a foundation for revisionary studies and floristic research. The checklist provides the critical distinction between reports from the literature where authors have cited specimens (“firsthand reports”) and reports only citing earlier reports

(“secondhand reports”). This checklist fills a major gap in our knowledge of Central American terrestrial plants.

ECOLOGICAL, EVOLUTIONARY, AND BIOLOGICAL SIGNIFICANCE OF LIVERWORTS AND HORNWORTS

Liverworts and hornworts (Figure 2) are of critical biological, ecological, and evolutionary significance (e.g., Longton 1992; Asakawa 1998; Hallingbäck and Hodgetts 2000; Gradstein et al. 2001b; Wellman et al. 2003; Qiu et al. 2007). Bryophytes are the second-largest group of land plants after flowering plants and are pivotal in our understanding of early land plant evolution (e.g., Ligrone et al. 2012; Zhang et al. 2020). Bryophytes play a significant ecological role including CO₂ exchange (De Lucia et al. 2003), plant succession (Cremer and Mount 1965), production and phytomass (Frahm 1990), nutrient cycling (Coxson et al. 1992; Cornelissen et al. 2007; Markham and Fernández 2021), atmospheric chemistry (Edtbauer et al. 2021), and water retention (Pócs 1980; Gradstein et al. 2001b). Liverworts are found on soil, rocks, and trees throughout the world, from coastal Antarctica to the tundra in the Northern Hemisphere and from semiarid

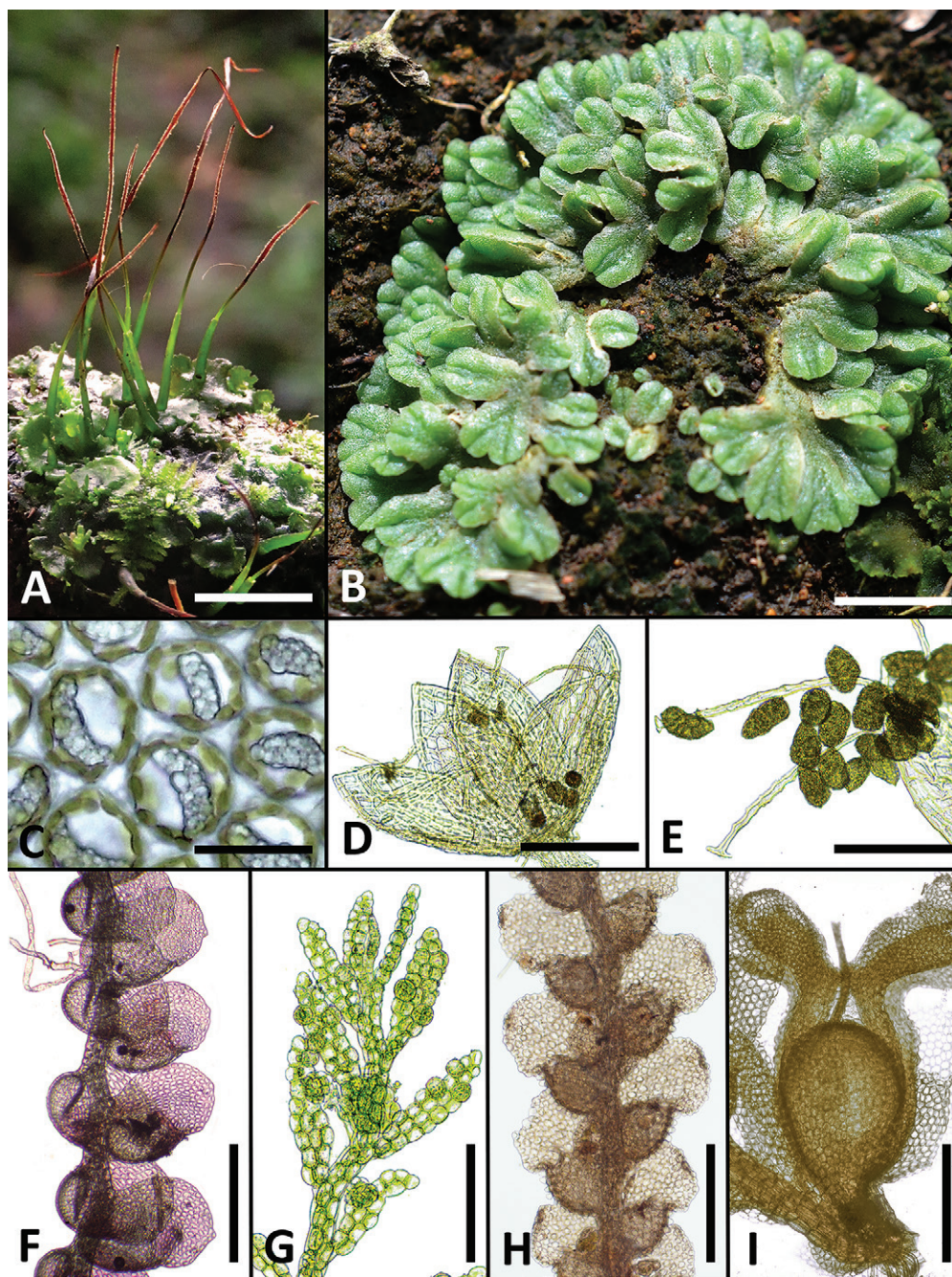


FIGURE 2. Liverworts and hornworts. (A) *Nothoceros vincentianus* (Lehm. et Lindenb.) J.C.Villarreal (J.C. Villarreal s.n.; Santa Fe, Veraguas, Panama). Scale bar: 2 cm. (B) *Riccia* (Ciudad Colón, Costa Rica). Scale bar: 5 mm. (C) *Pycnolejeunea contigua* (Nees) Grolle, oil bodies (Zartman 10097; Brazil). Scale bar: 22 μ m. (D–E) *Colura tenuicornis* (A.Evans) Steph., sporophyte: (D) seta and valves and (E) spores and elaters (*Dauphin s.n.*; Escazú, Costa Rica). Scale bars: 310 μ m in D, 141 μ m in E. (F) *Nowellia reedii* H.Rob. (*Dauphin* 2462; Volcán Cacao, Costa Rica). Scale bar: 300 μ m. (G) *Cololejeunea minuscula* Pócs (*Dauphin s.n.*; Escazú, Costa Rica). Scale bar: 129 μ m. (H) *Cheilolejeunea norisiae* G.Dauphin et Gradst. (*Sierra* 5762; Santa Fe, Veraguas, Panama). Scale bar: 248 μ m. (I) *Cera-tolejeunea spinosa* (Gottsche) Steph. (*Dauphin* 2712; Esmeraldas, Ecuador). Scale bar: 349 μ m. Photos by A.M. Sierra (A, C, H) and G. Dauphin (B, D–G, I).

areas of Australia to the Amazon rainforests (Hallingbäck and Hodgetts 2000). Although there are xerotolerant taxa, the majority of liverworts are found in relatively humid and shaded terrestrial ecosystems (Gradstein and Costa 2003). Liverworts and hornworts are an important component of the vegetation in many regions of the world, constituting a major part of the biodiversity in moist forest, wetlands, mountain, and tundra ecosystems (Hallingbäck and Hodgetts 2000). Liverworts, hornworts, and mosses offer microhabitats that are critical to the survival of a tremendous diversity of organisms such as single-celled eukaryotes, protozoa, and numerous groups of invertebrates and microcrustaceans (Gerson 1982; Acosta-Mercado et al. 2012). Their structural contribution to levels of diversity might be as significant as that of vascular plants, albeit at a smaller scale (von Konrat et al. 2008; Acosta-Mercado et al. 2012). These groups of land plants are also important environmental and ecological indicators (Rao 1982; Pitcairn et al. 1995; Gradstein et al. 2001b; Giordano et al. 2004) and have been used as indicators of past climate change, to validate climate models, and as potential indicators of global warming (Gignac 2001; Ötvös and Jócsák 2011).

ADMINISTRATIVE AND PHYSICAL DESCRIPTION OF THE AREA

With a total area of 522,800 km², the Central American Isthmus joins the southern part of Mexico with Colombia (Figure 1). As a geographic and tectonic unit, Central America extends from the Tehuantepec Isthmus in Mexico to the lowlands of Río Atrato in Colombia (Gómez 1986; Bergoing 2015). Geologically, the Isthmus can be divided into two units, the Septentrional Central America and Meridional Central America. The former is an extension of the North American Continent, with its limit in Central Nicaragua; the latter shows more geological affinity with the Caribbean, Pacific, and NW Colombia (Gómez 1986). The closing of the land bridge between North America (part of the ancient Laurasia continent) and South America (part of the ancient Gondwana continent) only happened at the end of the Pliocene with the collision of the Caribbean and Cocos tectonic plates, i.e. ~2.7 million years ago (Malzer and Fiebig 2008; Bergoing 2015).

The Central American Isthmus constitutes a narrow bridge between North America and South America, surrounded by the Caribbean Sea and the Pacific Ocean. Its main axis is made up of a chain of volcanoes in the Septentrional Central American unit and the tectonic tertiary mountain ranges of Tilarán and Talamanca in the southern Meridional Central America unit. The eastern slopes of the mountains, facing the Caribbean, are very moist due to their exposure to the moisture-laden trade winds and are covered by evergreen rainforests. The western, Pacific slopes are normally drier, especially below 1,000 m, being located in the rain shadow; they are covered mainly by deciduous woodlands and scrub (Gradstein et al. 2001b). Farther south, starting at the Tárcoles River, Costa Rica, the Pacific coastal climate becomes wetter, and moist evergreen forests occur.

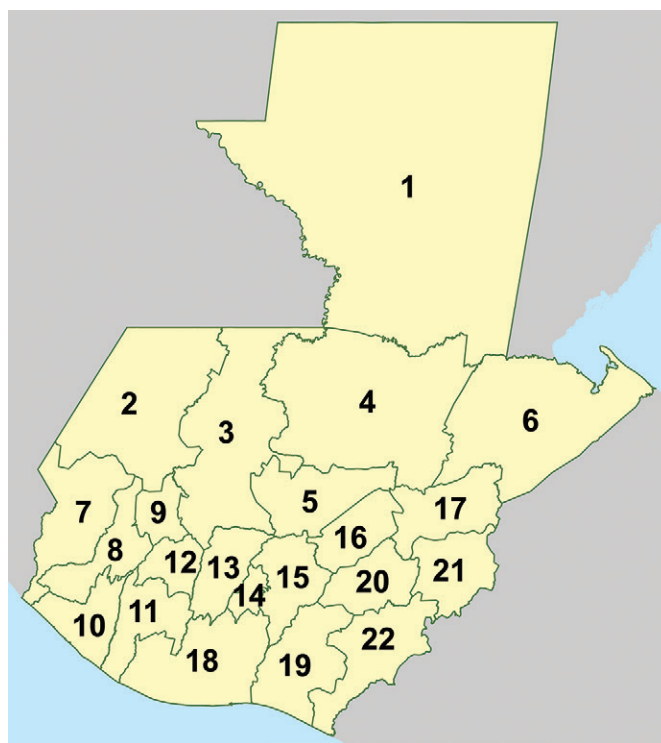


FIGURE 3. Guatemala with first-order administrative divisions. (1) El Petén. (2) Huehuetenango. (3) Quiché. (4) Alta Verapaz. (5) Baja Verapaz. (6) Izabal. (7) San Marcos. (8) Quetzaltenango. (9) Totonicapán. (10) Retalhuleu. (11) Suchitepéquez. (12) Sololá. (13) Chimaltenango. (14) Sacatepéquez. (15) Guatemala. (16) El Progreso. (17) Zacapa. (18) Escuintla. (19) Santa Rosa. (20) Jalapa. (21) Chiquimula. (22) Jutiapa.

ADMINISTRATIVE DIVISION. Central America consists of seven countries: Belize, Costa Rica (including Cocos Island), El Salvador, Guatemala, Honduras, Nicaragua, and Panama (Figure 1). Each country is divided into first-order administrative subdivisions, as shown in Figures 3–9.

There are three smaller islands off the coast of Central America, often referred to as the Central American Pacific Islands (e.g., Brummitt 2001), that are included in this catalog: Clipperton Island, belonging to France; Malpelo Island, belonging to Colombia; and Cocos Island, belonging to Costa Rica. However, liverworts and hornworts are only reported from Cocos Island, although at least Malpelo Island should have liverworts.

PHYTOGEOGRAPHY OF CENTRAL AMERICA

There have been several historical and more recent attempts to classify Central American vegetation (Gómez 1986). Although other classification systems have been proposed (e.g., Gómez 1982) for Central America, Holdridge's Life Zone



FIGURE 4. Belize with first-order administrative divisions. (1) Corozal. (2) Orange Walk. (3) Belize. (4) Cayo. (5) Stann Creek. (6) Toledo.

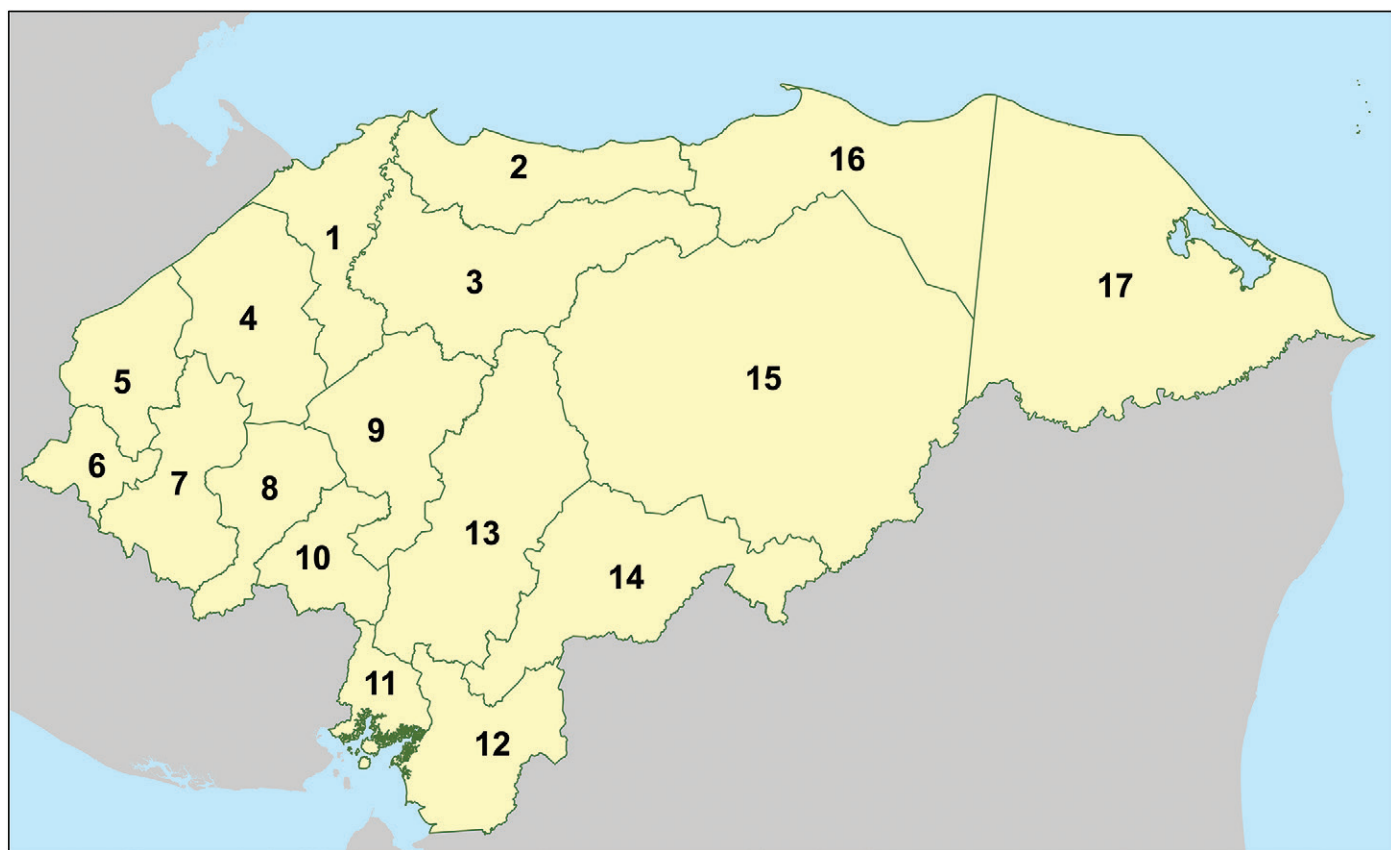


FIGURE 5. Honduras with first-order administrative divisions. (1) Cortés. 2) Atlántida. 3. Yoro. 4. Santa Bárbara. 5. Copán. 6. Ocotepeque. 7. Lempira. 8. Intibucá. 9. Comayagua. 10. La Paz. 11. Valle. 12) Choluteca. 13. Francisco Morazán. 14. El Paraíso. 15. Olancho. 16. Colón. 17. Gracias a Dios.

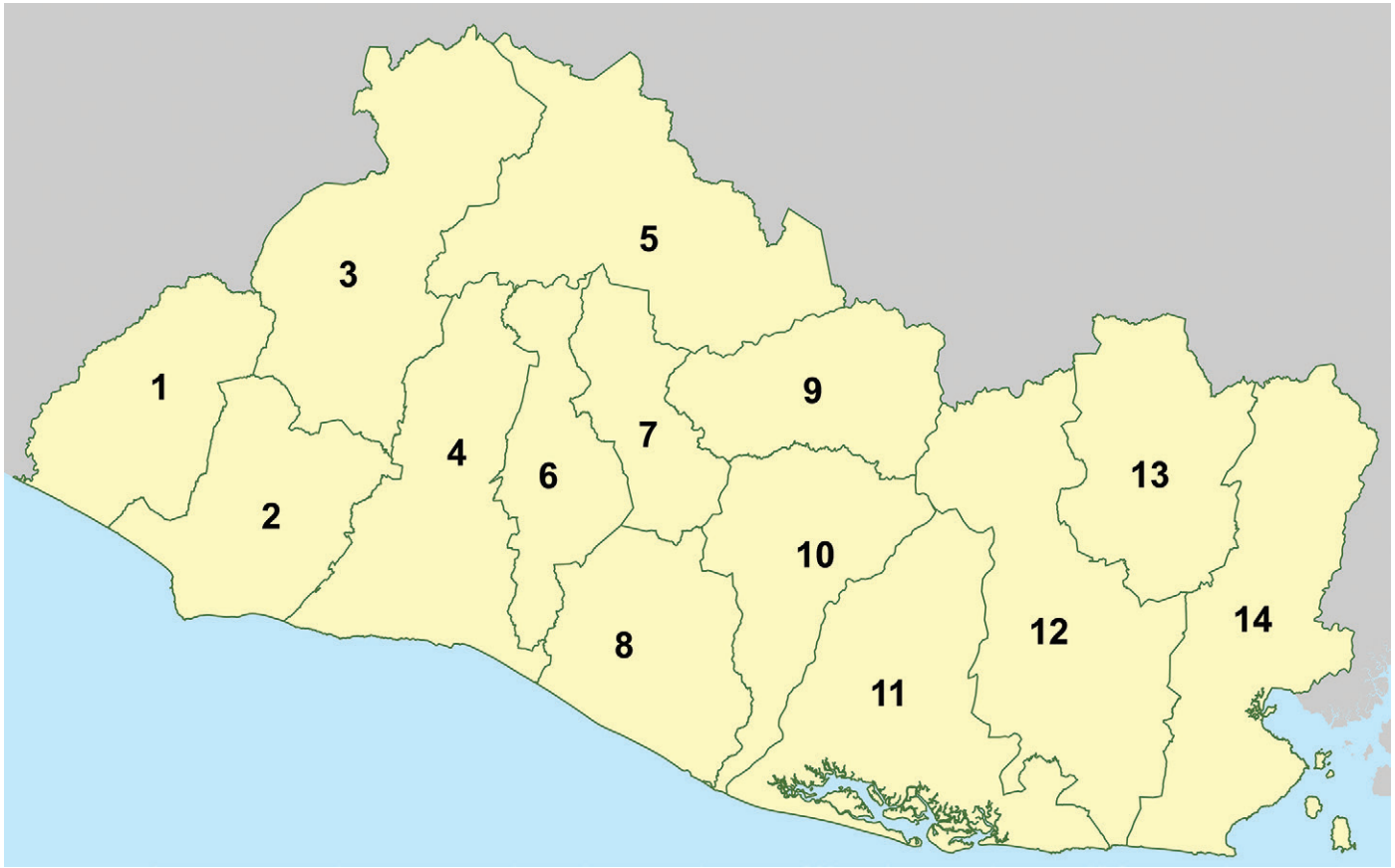


FIGURE 6. El Salvador with first-order administrative divisions. (1) Ahuachapán. (2) Sonsonate. (3) Santa Ana. (4) La Libertad. (5) Chalatenango. (6) San Salvador. (7) Cuscatlán. (8) La Paz. (9) Cabañas. (10) San Vicente. (11) Usulután. (12) San Miguel. (13) Morazán. (14) La Unión.



FIGURE 7. Nicaragua with first-order administrative divisions. (1) Madriz. (2) Nueva Segovia. (3) Jinotega. (4) Chinandega. (5) Estelí. (6) León. (7) Managua. (8) Matagalpa. (9) Boaco. (10) Carazo. (11) Masaya. (12) Granada. (13) Rivas. (14) Chontales. (15) Río San Juan. (16) Atlántico Norte. (17) Atlántico Sur.



FIGURE 8. Costa Rica with first-order administrative divisions. (1) Guanacaste. (2) Alajuela. (3) Heredia. (4) Puntarenas. (5) San José. (6) Cartago. (7) Limón.

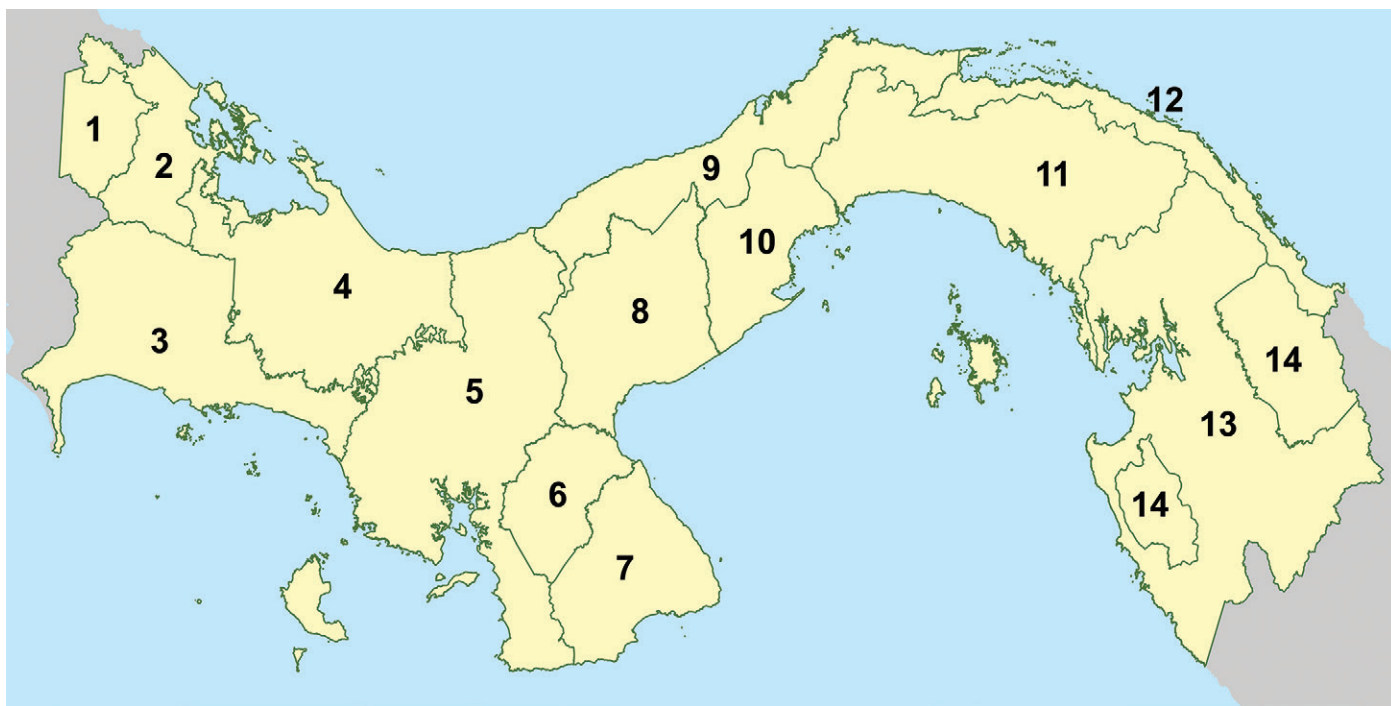


FIGURE 9. Panama with first-order administrative divisions. (1) Naso Tjër Di comarca. (2) Bocas del Toro. (3) Chiriquí. (4) Ngäbe Buglé comarca. (5) Veraguas. (6) Herrera. (7) Los Santos. (8) Coclé. (9) Colón. (10) Panama West. (11) Panama. (12) Guna Yala comarca. (13) Darién. (14) Emberá-Wounaan comarca.



FIGURE 10. Realms of the world, with the Central American subrealm in red (after Olson et al. 2001; Dinerstein et al. 2017).

System has been commonly used in the last decades (e.g., Holdridge 1967; Tosi 1969).

An attempt to classify the earth into large-scale biogeographic regions is called the “Ecoregions of the World” (Dinerstein et al. 1995, 2017; Olson et al. 2001; for an interactive map, see <https://ecoregions.appspot.com/>). Ecoregions provide a large-scale conceptual framework for the identification of habitats that can serve as a tool to compare biodiversity and for conservation by mapping the status of their natural habitats and degree of protection (Olson et al. 2001; Strassburg et al. 2020).

Central America lies within the Neotropical realm (Figure 10), where it forms the Central American subrealm (Olson et al. 2001; Dinerstein et al. 2017). Of the 14 global biomes recognized by Olson et al. (2001) and Dinerstein et al. (2017), 5 occur in the Central American subrealm (Table 1, Figure 11). Twenty-one different ecoregions occur in Central America.

Tropical and Subtropical Moist Broad-Leaved Forests

The biome that covers the largest part of Central America is the tropical and subtropical moist forests (Figure 11), covering approximately 55% (319,184 km²) of the land area and represented by 11 ecoregions (Dinerstein et al. 2017; Table 1).

Petén-Veracruz Moist Forests

The Petén-Veracruz moist forests ecoregion (Figure 12) covers 162,819 km² (Table 1), of which 70,674 km² extends in Central America. It lies in coastal lowlands along southern Mexico, Belize (18,322 km²), and northern Guatemala (52,352 km²)

between the Gulf of Mexico and the northern Sierra Madre de Chiapas and consists of a matrix of wetlands, riparian habitats, and moist forests (Corrales et al. 2015). The climate is tropical humid with rain during eight months of the year. Precipitation levels are high (mean 2,245 mm/year; Corrales et al. 2015).

This ecoregion has been relatively undisturbed in the past, with 60% of its original habitat remaining and 52% of its area protected (Corrales et al. 2015). However, human settlement, land clearing for agriculture, and major industrial development are severely threatening this ecoregion (Bullock et al. 2019; Devine et al. 2020). This is of real concern, at least for Guatemala, since the buffer zone of the largest protected biosphere reserve in the country will be completely deforested by 2030 if the current deforestation rate is maintained (Bullock et al. 2019).

Based on herbarium specimens, Fulford (1938) reported 27 species of corticolous Lejeuneaceae from the Caribbean coastal plain forest. Most are widespread, common lowland moist or wet forest species. A recent study in three protected areas of Petén (Cerro Cahuí, El Zotz, and Laguna del Tigre) reported 15 liverwort species distributed in 5 families, where Lejeuneaceae is the most diverse family, with 11 species (Morales Can 2011). In a preliminary checklist of liverworts of Alta Verapaz, 37 species were reported. Lejeuneaceae is also the most diverse family there, with 18 species (Pérez and López-Medina 2012).

Sierra Madre de Chiapas Moist Forests

The Sierra Madre de Chiapas moist forests ecoregion (Figure 12) covers 12,015 km² (Table 1) of Mexico, Guatemala (6,119 km²), and El Salvador (68 km²) on the Pacific side of the

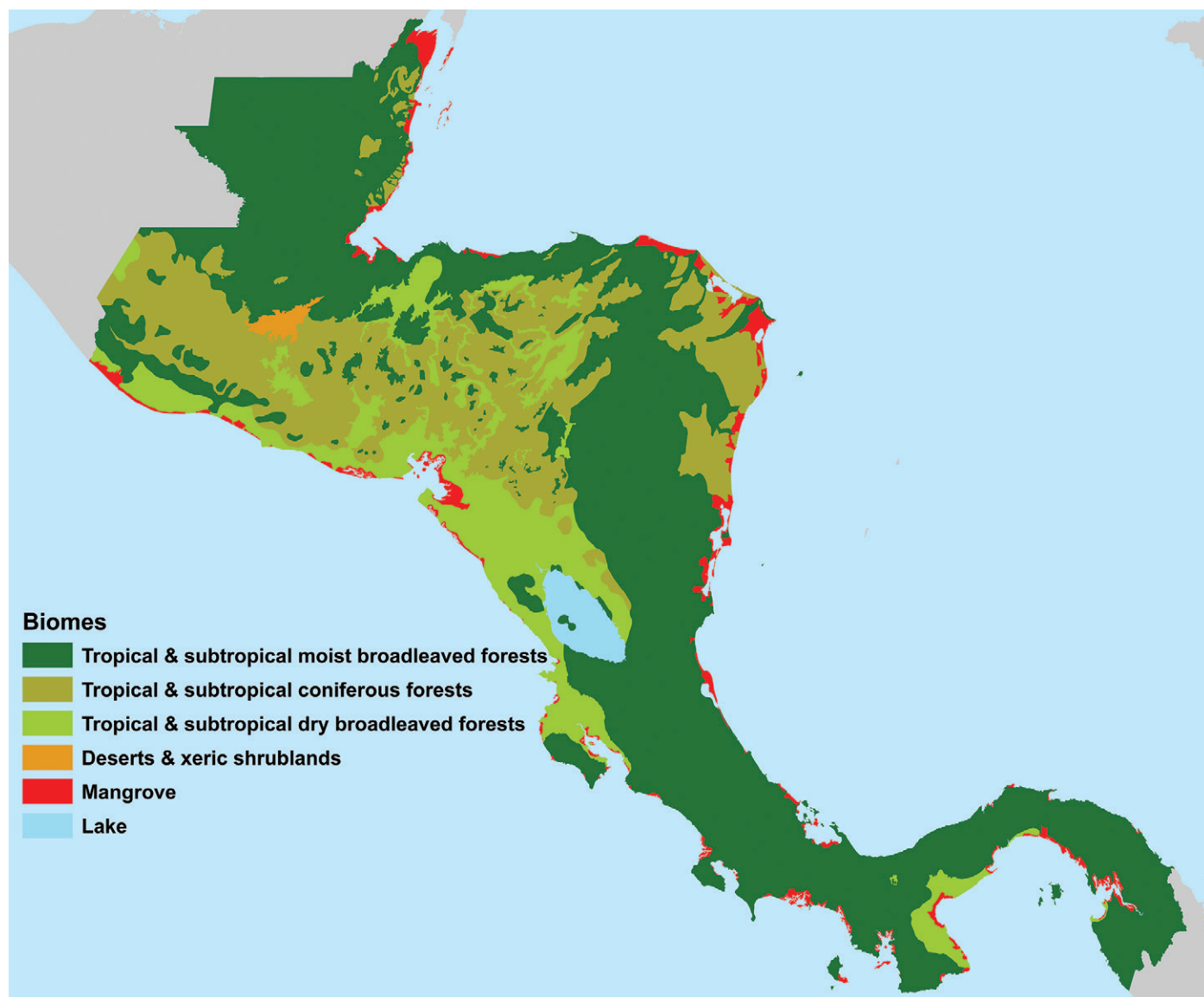


FIGURE 11. Biomes of Central America (after Dinerstein et al. 2017).

Sierra Madre de Chiapas, where it forms a transition between high-elevation pine-oak forests and low-elevation dry forests. It is characterized by high precipitation (average 2,796 mm/year; Corrales et al. 2015) and deep soil rich in organic material on calcareous rocks. It forms one of the richest and most diverse ecosystems in the region, with the vegetation dominated by dense moist forests rich in epiphytes and with almost no ground vegetation due to the shady conditions.

The ecoregion is heavily disturbed, and only 14% of the original cover is intact, with only 1% in protected areas (Corrales et al. 2015). The average annual habitat loss in 1990–2000 was among the highest in the region (1.16%; Corrales et al.

2015). Fires, extensive logging, agricultural practices, and human settlement are the main threats.

Gradstein and Váña (1994) examined bryophyte communities on logs from the pine forest of Chiapas, close to the border with Guatemala, at an altitude of 2,400–2,500 m. These communities were composed of characteristic elements of boreal conifer forests found in North America and Europe. This community is defined by the presence of the boreal elements *Nowellia curvifolia* (Dicks.) Mitt.; *Crossocalyx hellerianus* (Nees ex Lindenb.) Meyl.; *Syzygiella autumnalis* (DC.) K.Feldberg, Váña, Hentschel et Heinrichs; *Lepidozia reptans* (L.) Dumort.; and *Lophozia guttulata* (Lindb. et Arnell) A.Evans. Although some of the species

TABLE 1. Size of biomes and ecoregions occurring in Central America. All values (km^2) were calculated from Dinerstein et al. (2017). A dash (—) indicates either not occurring in the country or not applicable.

Biome and ecoregion	Global total	Central America	Belize	Guatemala	El Salvador	Honduras	Nicaragua	Costa Rica	Panama	Cocos Island
Tropical and subtropical moist broad-leaved forest	—	319,184	—	—	—	—	—	—	—	—
Petén-Veracruz moist forests	162,819	70,674	18,322	52,352	—	—	—	—	—	—
Sierra Madre de Chiapas moist forests	12,015	6,187	—	6,119	68	—	—	—	—	—
Central American montane forests	14,155	14,155	—	6,372	1,030	5,783	970	—	—	—
Central American Atlantic moist forests	94,989	94,989	—	9,086	—	35,972	49,930	—	—	—
Costa Rican seasonal moist forests	10,944	10,944	—	—	—	—	2,192	8,752	—	—
Isthmian-Atlantic moist forests	60,048	60,048	—	—	—	—	19,306	17,219	25,523	—
Isthmian-Pacific moist forests	29,453	29,453	—	—	—	—	—	9,241	20,212	—
Talamancan montane forests	16,710	16,710	—	—	—	—	—	9,397	7,313	—
Eastern Panamanian montane forests	2,229	2,229	—	—	—	—	—	—	2,229	—
Chocó-Darién moist forests	74,158	13,773	—	—	—	—	—	—	13,773	—
Cocos Island moist forests	22	22	—	—	—	—	—	—	—	22
Tropical and subtropical dry broad-leaved forest	—	73,909	—	—	—	—	—	—	—	—
Chiapas depression dry forests	15,154	971	—	971	—	—	—	—	—	—
Central American dry forests	71,565	67,771	—	7,023	8,712	20,273	25,489	6,273	—	—
Panamanian dry forests	5,167	5,167	—	—	—	—	—	—	5,167	—
Tropical and subtropical coniferous forests	—	123,789	—	—	—	—	—	—	—	—
Belizean pine forests	3,083	3,083	3,083	—	—	—	—	—	—	—
Central American pine-oak forests	118,591	101,292	—	31,450	11,433	47,330	11,079	—	—	—
Miskito pine forests	19,423	19,423	—	—	6,691	12,731	—	—	—	—
Desert and xeric shrublands	—	2,494	—	—	—	—	—	—	—	—
Motagua valley thornscrub	2,494	2,494	—	2,494	—	—	—	—	—	—
Mangrove forests	—	16,941	—	—	—	—	—	—	—	—
Mesoamerican Gulf-Caribbean mangroves	29,610	9,506	2,508	392	—	2,361	3,454	307	485	—
Southern Mesoamerican Pacific mangroves	8,233	5,529	—	1,188	673	784	950	832	1,103	—
South American Pacific mangroves	13,539	1,906	—	—	—	—	—	—	1,906	—

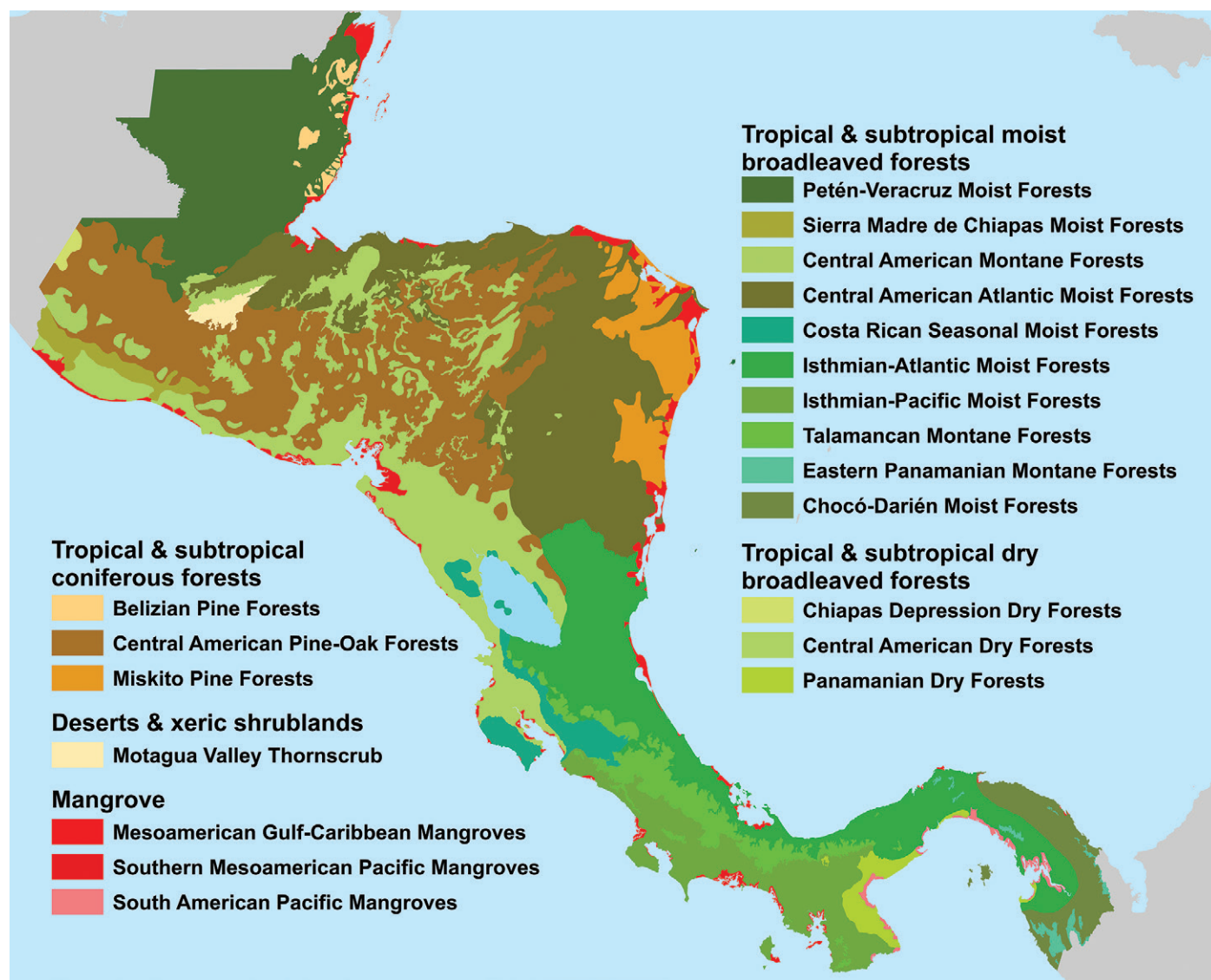


FIGURE 12. Ecoregions of Central America (after Dinerstein et al. 2017).

mentioned above have wider distributions in the Neotropics, this community seems limited to this area (Gradstein and Váňa 1994).

Central American Montane Forests

The Central American montane forests ecoregion (Figure 12) covers 14,155 km² (Table 1) of Guatemala (6,372 km²), El Salvador (1,030 km²), Honduras (5,783 km²), and Nicaragua (970 km²) at 1,800–4,000 m. It is made up of forest patches occurring in an island-like mosaic on the isolated tops and slopes of the highest mountains of northern Central America where the tropical climate gives way to a more temperate-like climate with fairly high precipitation (1,774 mm/year; Corrales et al. 2015).

The vegetation is a mix of northern and southern elements combined with high endemism. These mountains are essentially the southern limits for several mainly boreal genera of conifers such as *Abies* Mill., *Juniperus* L., *Cupressus* L., and *Taxus* L., which tend to grow on the wetter, north-facing slopes near the tops of the higher mountains and form stands of large, tall trees interspaced with broad-leaved evergreen forests associated with southern tropical habitats (Powell and Palminteri 2023a). These isolated mountain tops support high levels of biodiversity and endemism.

The ecoregion is relatively intact, with 65% of the original cover remaining (Corrales et al. 2015). Most of the higher elevations of the Central American mountains have been declared

protected areas (47%), although enforcement, or even infrastructure, is missing in most cases (Powell and Palminteri 2023a).

The upper reaches of the mountains are typically too cool, wet, and/or rugged to be hospitable to human activities and are therefore still largely intact. The lower slopes of the montane ecoregion have already been heavily modified for cash crops, coffee, cattle grazing, and subsistence agriculture (particularly corn and beans), as well as for firewood (Powell and Palminteri 2023a), a process that is causing an accelerated loss of habitat. The average annual rate of deforestation in 1990–2000 was 1.05% (Corrales et al. 2015).

The liverwort flora of this ecoregion remains largely unexplored. Winkler (1967) studied the ecology of epiphylls in cloud forests of El Salvador and reported 66 liverworts and 12 moss species. In a cloud forest from Baja Verapaz, Guatemala, Freire et al. (2005) found 187 liverwort species along an altitudinal gradient of 300 m, from 1,620 to 1,925 m. More than 45% of the species were found on a single site, which suggests a high species turnover along the gradient. Totaling 159 species in 52 genera, foliose liverwort richness (23 species/6 genera) surpassed simple and complex thalloid liverworts (5 species/3 genera). An ecological study in the montane forest comparing liverwort composition in three successional vegetation types (mature forest, secondary forest, and crop) reported a total of 129 species (Pérez 2006). Ramírez (2007) found 117 species while evaluating the liverwort composition in two landscapes in Sierra de las Minas protected area.

Central American Atlantic Moist Forests

The Central American Atlantic moist forests ecoregion (Figure 12) is the second-largest ecoregion in Central America, covering 94,989 km² (Table 1) of the lowland coastal forests of Guatemala (9,086 km²), Honduras (35,972 km²), and Nicaragua (49,930 km²). They show a tropical monsoon climate with an even annual temperature and a pronounced dry season. The mean annual precipitation is 2,333 mm (Corrales et al. 2015). Half of the ecoregion is closed-canopy broad-leaved evergreen rainforest, while the remainder is open-canopy evergreen forest or herbaceous wetland. It is in the middle range of species richness in Central America (Corrales et al. 2015), with a characteristic tropical evergreen forest with canopy trees reaching 50 m in height (Powell and Palminteri 2023b).

The once vast Atlantic lowland forests have been seriously fragmented in recent years, with only 53% of the original cover remaining, of which 20% is protected (Corrales et al. 2015). From 1990 to 2000, the ecoregion experienced deforestation at a rate less than 1% (0.94) per year (Corrales et al. 2015). The main drivers of habitat conversion are agricultural and infrastructure expansion, wood extraction, and other indirect causes (Geist and Lambin 2001). Flat areas with alluvial soils have come under banana cultivation, while forests on less fertile soils have more recently been logged and converted to cattle pasture. New access roads and incentives for migration to these areas in the past few decades have encouraged settlement and resource extraction in

the area, such as logging. The northern part of Honduras has been particularly affected by agriculture and cattle-ranching expansion (Schipper 2023a).

Standley (1931) studied the vegetation, including bryophytes, in the Lancetilla Valley on the north coast of Honduras from sea level up to 200 m elevation. He reported 30 liverwort taxa that T. Herzog had identified. Later, Herzog (1938, 1951) identified and published many more species collected by P. C. Standley, many of them from Lancetilla Valley.

Costa Rican Seasonal Moist Forests

The Costa Rican seasonal moist forests ecoregion (Figures 12, 13C) is transitional between surrounding wet and dry forest regions, covering 10,944 km² (Table 1) in Nicaragua (2,192 km²) and Costa Rica (8,752 km²) on the Pacific slope between the crest of the central chain of volcanoes and the Pacific Ocean. The climate is a tropical monsoon with a pronounced dry season. The mean precipitation is 1,968 mm/year (Corrales et al. 2015). The deciduous vegetation distinguishes this ecoregion from wetter ecoregions to the south and east and quickly increases in dominance as one moves west from the cloud forest habitat of the mountain peaks. During the dry season, most canopy trees are leafless, and at lower elevations only riparian forests are evergreen (Powell et al. 2023a). The flora of this seasonal moist forest ecoregion changes rapidly over short distances as one moves away from the adjacent highland cloud forests, down the mountains into areas increasingly impacted by the rain shadow (Powell et al. 2023a).

The Costa Rican seasonally moist forests have been extensively altered by human intervention. Only 32% of the original cover remains, with only 12% protected (Corrales et al. 2015). Lowland areas have been cleared for cattle, while mountain slopes, regardless of their steepness, have been cleared to grow beans, corn, and coffee, as well as to support dairy cattle. Most of Costa Rica's population and a significant portion of Nicaragua's live within this ecoregion (Powell et al. 2023a). There has been substantial regeneration of lower-elevation hillsides following the collapse of Costa Rica's cattle industry in the past decade. However, above 800 m, the situation remains critical, with a growing human population (Powell et al. 2023a).

There are no liverwort inventories from this ecoregion. Haupt (1942) collected liverworts in this ecoregion, focusing on thalloid liverworts, and reported ten species and one hornwort.

Isthmian-Atlantic Moist Forests

The Isthmian-Atlantic moist forests ecoregion (Figures 12, 13F) covers 60,048 km² (Table 1) of lowlands below 500 m along the Caribbean coast in Nicaragua (19,306 km²), Costa Rica (17,219 km²), and Panama (25,523 km²), extending to the Pacific side in Panama. Mean annual precipitation is as high as 3,187 mm (Corrales et al. 2015). The forest species are a mix of North American and South American taxa, as this region only

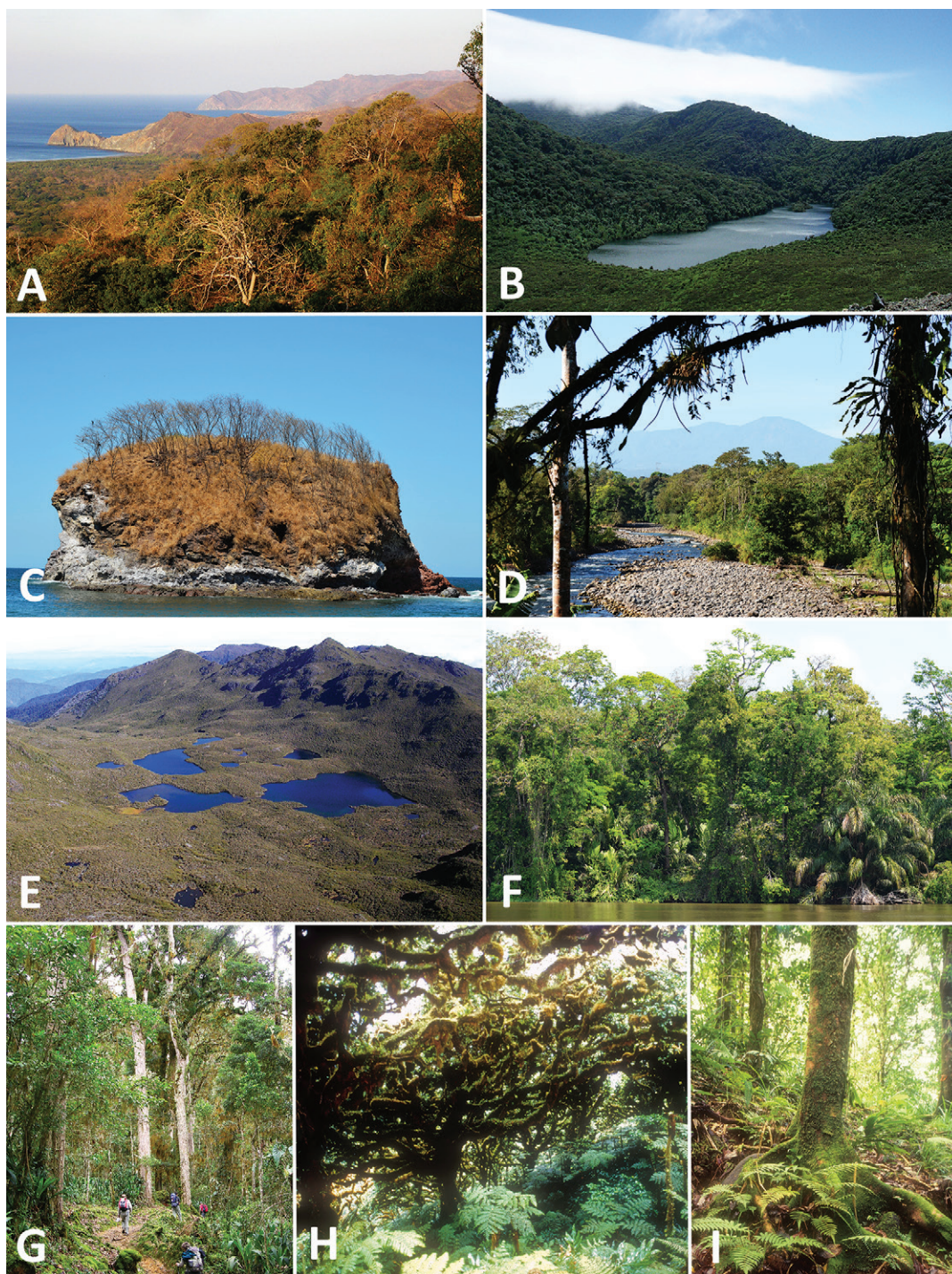


FIGURE 13. Central American landscapes and ecoregions. (A) Central American dry forest (Santa Elena Peninsula, Costa Rica). (B) Talamancan montane forest (Rincón de La Vieja National Park, Costa Rica). (C) Costa Rican seasonal moist forest (Isla Guayabo, Nicoya Gulf, Costa Rica). (D) Isthmian-Atlantic moist forest (Sarapiquí, Costa Rica). (E) Talamancan montane forest (páramo, Parque Nacional Chirripó, Costa Rica). (F) Isthmian-Atlantic moist forest (Tortuguero, Limón, Costa Rica). (G) Talamancan montane forest (páramo, Parque Nacional Chirripó). (H–I) Cocos Island, Costa Rica: (H) montane forest on Cerro Yglesias and (I) understory at lowland forest. Photos by G. Dauphin (A–G, I) and Jay Ireland (H).

became a land bridge in the past 3 million years. The forests have a complex structure that includes palms in the medium-canopy strata and a very rich epiphyte flora (Corrales et al. 2015). Seasonal swamp forests occur in the lowest and flattest areas in Nicaragua and northern Costa Rica (Powell et al. 2023b).

Much of the original rainforest has now become land for commercial or subsistence agriculture, and only 55% of the original ecosystem remains, with 16% protected (Corrales et al. 2015). The soil of the forests is subject to leeching. This and the trees feeding from the soil make it poor for farming or other agricultural purposes. Humans are still logging and clearing the area. Flat areas with alluvial soil are being used for banana farming, while hilly areas with less fertile soil are being logged and converted into pastures for cattle (Powell et al. 2023b).

Epiphyllous liverworts were studied in this ecoregion by Marino and Salazar Allen (1992), Mežaka et al. (2020), and Rodríguez-Castro and Flores (2021) on Barro Colorado Island, Panama, and by Lücking (1995) in Braulio Carrillo National Park, Costa Rica. Lücking (1995) reported 83 species of epiphyllous bryophytes from the Caribbean slope at the foothills of the Central Volcanic Cordillera. Her inventory included 78 species of Lejeuneaceae in 26 genera. Dauphin et al. (2022) studied liverworts from all substrates on Barro Colorado Island and reported 166 liverwort species on the ~15 km² surface area of the island. More than 80% of the species belong to Lejeuneaceae. *Cheilolejeunea rigidula* (Nees ex Mont.) R.M.Schust., the most common species found in the Amazon basin (Mota de Oliveira 2010), is also dominant on Barro Colorado Island. Studies on *Cyathodium* Kunze (Salazar Allen and Korpelainen 2006) were done in this ecoregion, and the type material of *Cyathodium bischlerianum* N.Salazar Allen, a species so far only known from Panama, comes from here (Salazar Allen 2001a).

Isthmian-Pacific Moist Forests

The Isthmian-Pacific moist forests ecoregion (Figure 12) covers 29,453 km² (Table 1) of the Pacific side of the lowlands from sea level to 2,282 m of the central mountains of southern Costa Rica (9,241 km²) and western Panama (20,212 km²). The climate is a tropical monsoon with a pronounced dry season. Its location in the Intertropical Convergence Zone makes it one of the wettest in the region, with a mean annual rainfall of 2,686 mm, with up to 6,000 mm at higher altitudes (Corrales et al. 2015). The mountains are an active volcanic zone, and most of the soils derive from the parent basalt bedrock. The ecoregion is covered by closed broad-leaved evergreen forest, open forests of various types and seasonal swamp forests in the lower elevations, grading into mangroves near the coast. As the meeting zone between North and South American floral communities, the area is one of very high biodiversity. Many species of South American affinity have their northern distribution limit here (Corrales et al. 2015).

Much of the rainforest has been cleared for subsistence agriculture and cattle grazing, and the annual deforestation rate was

high (1.05%) between 1990 and 2000. Only 37% of the original area remains, and only 5% is protected (Corrales et al. 2015).

Salazar Allen and Chung (1997a, 1997b) signaled the occurrence of moisture indicator liverwort species, such as *Bryopteris filicina* (Sw.) Nees, *Fulfordianthus pterobryoides* (Spruce) Gradst., and species of *Bazzania* Gray, at the highest elevations of Isla Coiba, on the Panamanian Pacific. They also reported 18 liverwort species from lowland, Lejeuneaceae-dominated forests of Isla Canales de Tierra and Bahía Honda (Salazar Allen and Chung 2003).

Sonnleitner et al. (2009) made quantitative analyses of the factors driving the distribution of bryophytes in the phyllosphere of tropical forest, analyzing epiphylls on four monocotyledon phorophyte species. They reported 60 epiphyllous liverwort species, most of which were rare: only 14 species were found on more than ten hosts.

Talamancan Montane Forests

The Talamancan montane forests ecoregion (Figures 12, 13B,E,G) covers 16,710 km² (Table 1) in Costa Rica (9,397 km²) and Panama (7,313 km²), located in the highlands above 750 to 1,500 m, up to approximately 3,000 m, where they grade into páramo grasslands. The forest habitats of this ecoregion include Atlantic slope nonseasonal rainforests, Pacific slope seasonally dry but mostly evergreen forest, and “perpetually dripping” cloud forest on the mountain tops above approximately 1,500 m (Haber 2000). The high annual rainfall (average 3,049 mm), wind-blown mist, and frequent presence of clouds produce a lush, dense forest with a broken canopy and high species diversity. Abundant epiphytes cover tree branches, and tree ferns are common. The understory is characterized by the presence of several species of dwarf bamboo. Higher peaks and ridges exposed to moisture-laden trade winds support an elfin forest characterized by thick mats of bryophytes covering short, dense, gnarled trees (Haber 2000). The variety of vegetation types across steep elevational gradients and among the various mountain massifs in this ecoregion has produced very high regional plant biodiversity (high beta diversity; Haber 2000). The Talamanca Range alone is estimated to contain about 90% of Costa Rica’s known flora. La Amistad International Park contains some 10,000 vascular and 4,000 nonvascular plant species, including several hundred endemic plant species (Davis et al. 1997). More than 30% of the ecoregion’s flora is endemic to this area (Corrales et al. 2015).

This montane moist forest is one of Central America’s most intact habitats, with 77% of its original forest cover remaining intact without significant fragmentation, and the rate of deforestation (0.41% annually, 1990–2000) is not among the highest in the region. More than 60% of the ecoregion is under protected areas (Corrales et al. 2015).

The premontane and lower-montane belt on the Cordillera Volcánica de Tilarán, Costa Rica, has received particular attention in the Reserva Biológica Bosque Nuboso de Monteverde, with multiple floristic and ecological studies on bryophytes, including those of Reed and Robinson (1971), Sillett et al. (1995),

Gradstein et al. (2001b), and Merwin et al. (2001). The Central American hornwort *Nothoceros superbus* J.C.Villarreal, Hässel et N.Salazar is only known from this ecoregion (Villarreal et al. 2007). Two species of *Cyathodium* Kunze previously known from the Paleotropics were reported from this area by Salazar Allen et al. (2004). In Panama, this altitudinal belt has been studied by Salazar Allen (2001b) and by Salazar Allen et al. (2021) in the Fortuna Forest Reserve. In General de División Omar Torrijos Herrera National Park (El Copé), Sierra et al. (2019a) studied the composition of metacommunities of epiphyllous bryophytes on *Piper grande* Vahl. and found 55 species, whose dispersal capacity best explained their assembly order on the substrate. Eight species (~15%) occurred in more than 50% of the sampled patches; ~22% of them were less frequent, and 16% were single occurrences, while most of the species (62%) were considered rare, occurring in less than 15% of the patches.

In the montane belt, bryophyte species attain their largest size and relative mass within the ecosystem and probably their greatest diversity along the altitudinal gradient. Most bryophyte floristic and ecological studies in Central America have been performed in this altitudinal belt. These include, among others, studies by Van Dunné and Kappelle (1998), Holz (2003, 2006), Gradstein and Holz (2005), Holz and Gradstein (2005a, 2005b), Markham and Fernández (2021), and Rodríguez-Quiel et al. (2022).

The greatest part of the bryophytic biomass in the montane belt is composed of mosses. In a secondary *Quercus* L. forest, Van Dunné and Kappelle (1998) found that six species accounted for up to 90% of the bryophyte biomass; among them the only liverwort was *Plagiochila raddiana* Lindenb. In some samples, *Plagiochila heterophylla* Lindenb. (= *Plagiochila macra* Taylor) could make up to 50% of the bryophyte mass (Markham and Fernández 2021). Holz (2003) studied the diversity and ecology of epiphytic bryophytes in mature and secondary *Quercus* L. forests and reported 251 species (128 liverworts, 122 mosses, and 1 hornwort). He studied bryophyte communities on standing trees of *Quercus copeyensis* C.H.Mull. and *Quercus costaricensis* Liebm. and compared secondary and primary forest. He found that “still after 40 years, one third (46 species) of the primary forest species had not re-invaded the secondary forest” (Holz 2003: 160). Holz’s results echo those of Bowers (1970), who studied mosses in different ecosystems of this ecoregion and found more substrate diversity and thus greater species diversity in the secondary upper montane forest, where terrestrial species from the páramo would also occur.

Usually located above 3,000 m above sea level, the upper ecosystem in this ecoregion is called grassland páramo. Gradstein (1999a) listed 291 liverwort species in 88 genera and 34 families for this ecosystem distributed from Costa Rica to Peru. He stated that about 26.5% of the páramo species are exclusive and do not occur in other ecosystems. Dauphin (2007) listed 48 species from the pristine páramo of Cerro Fábrega. About 30% of the species were restricted to páramos, and more than 60% of them were known only from that area in Panama. Gradstein and Holz (2005) listed 117 mosses and 113 liverworts from the

Costa Rican páramos but estimated that total bryophyte diversity may surpass 300 species. Most of the species are shared with Colombian páramos (98%), except *Aneura crumii* L.Söderstr., A.Hagborg et von Konrat, until now only known from the type.

Even though the ecosystems are protected, bryophytes, especially mosses, have suffered continuous extraction by the local population for yearly use in nativities or pots. Costa Rican laws allow the extraction of bryophyte species growing in pastures or on isolated trees to be collected and sold in the local market. Arrocha (1996) reported the use of 28 bryophyte species (including *Frullania* Raddi and *Lepidozia* Dumort. species) in this traditional practice in the Province of Chiriquí, Panama, and warned of its damage to bryophyte populations.

Eastern Panamanian Montane Forests

The Eastern Panamanian montane forests ecoregion (Figure 12) covers 2,229 km² (Table 1) in southeastern Panama, between 500 and 1,800 m. The precipitation is high, up to 5,000 mm/year, on the Caribbean side of the high mountains but a bit less in the central mountains. This ecoregion includes various vegetation types (marshes, swamp forests, semi-deciduous tropical forests, premontane wet forests, cloud and elfin forests) and has high species endemism (Powell et al. 2023c).

The ecoregion is relatively intact and stable, with only 0.1% of the region deforested between 1990 and 2000 and 96% of the original cover remaining; 63% of this region is in protected areas (Corrales et al. 2015). However, the construction of the Pan-American Highway through this region has caused rapid colonization from central Panama and subsequent deforestation at lower elevation (Powell et al. 2023c).

No bryophyte inventories are known from this ecoregion.

Chocó-Darién Moist Forests

The Chocó-Darién moist forests ecosystem (Figure 12) covers 74,158 km² (Table 1) in Colombia and eastern Panama (13,773 km²) from sea level up to 1,000 m elevation. The region has extremely high rainfall (an average of 2,514 mm/year in Panama but up to 13,000 mm/year in some parts of Colombia), and the forests hold great biodiversity with a high level of endemism, including bryophytes (Frahm 2012a).

The region is relatively intact and stable, with as much as 98% of the original area intact (with only 0.05% annual deforestation between 1990 and 2000), although only 10% is protected (Corrales et al. 2015). The major threat to this ecoregion is deforestation. In the Darien region, the major threat is the construction of the Inter-American Highway and the degradation associated with it.

Gradstein and Salazar Allen (1992) studied liverwort communities along an altitudinal transect on Cerro Pirre. Their collection sites extended from 50 to 1,200 m altitude. They found 86 liverwort species across all sites. The greatest number of species was found in the submontane belt (800–1,100 m), including

the “Chocó elements” *Fulfordianthus pterobryoides* (Spruce) Gradst. and *Luteolejeunea herzogii* (Buchloh) Piippo. In the elfin forest at the highest altitude, liverworts were the major part of the epiphytic biomass. The dominant Lejeuneaceae from the lower-elevation belts are replaced by robust species of *Bazzania* Gray, *Herbertus* Gray, *Calypogeia* Raddi, and *Plagiochila* (Dumort.) Dumort., which form massive colonies.

Cocos Island Moist Forests

The Cocos Island off the Pacific coast of Costa Rica is covered completely by the Cocos Island moist forests (22 km²; Table 1, Figure 13H,I). The climate is strongly influenced by the equatorial countercurrent and extremely wet, with average annual rainfall higher than 6,000 mm and rain throughout the year (Dambrosio 2023). The island has dense vegetative cover of moist tropical forest, with 235 known species of vascular plants, and 70 of these, or nearly 30%, are endemic (Dambrosio 2023). There are 122 liverwort species registered, which is very high for such a small and remote island.

The entire island is a national park, and most of its natural habitat can be considered intact, despite the negative influence of introduced plants and animals (Dambrosio 2023).

Bryophytes from all substrates were studied by Dauphin (1995, 1999), while Bernecker-Lücking (2000) focused on the epiphylls. Ranging from 0 to 700 m elevation, the Cocos Island forest shows at its upper elevation a submontane or montane character, as described for the Chocó-Darién moist forest (Gradstein and Salazar Allen 1992). The dominant Lejeuneaceae from the lower belts make up most of the diversity (60%) of this species-rich island. Complex thalloid liverworts are absent, and simple thalloid liverworts are represented by single species of *Aneura* Dumort. and *Riccardia* Gray. Although present on Galápagos (Evans 1902a; Gradstein 2021), the common Neotropical *Bryopteris filicina* (Sw.) Nees is absent from Cocos Island. Only *Lophocolea fragrans* (Moris et De Not.) Gottsche, Lindenb. et Nees subsp. *cocosana* G.Dauphin, Gradst. et M.I.Morales has its distribution restricted to Cocos Island.

Tropical and Subtropical Dry Broad-Leaved Forests

The tropical and subtropical dry broad-leaved forest biome covers 73,909 km² (Figure 11, Table 1) and consists of three ecoregions (Dinerstein et al. 2017). Although they occur in climates that are warm year-round and still receive much rain annually, they have a marked dry season that lasts several months. Forests with deciduous trees are largely leafless during the dry period.

Chiapas Depression Dry Forests

The Chiapas depression dry forests ecoregion (Figure 12) covers 15,154 km² (Table 1) in Mexico with a small part in Guatemala (971 km²). It consists of lowland forests between 420 and 800 m.

Only a few portions of intact forest still remain (Valero et al. 2018). Cattle grazing and human settlements have largely converted the rest. The deforestation rate between 1990 and 2000 was not high (0.30% annually), but earlier deforestation was severe; little habitat remains, and no part of the ecoregion is protected in Guatemala (Corrales et al. 2015).

There are no bryophyte studies from this ecoregion in Central America.

Central American Dry Forests

The Central American dry forests ecoregion (Figure 12, 13A) is by far the largest dry forest ecoregion in the area, with a cover of 71,565 km² (Table 1) in Mexico, Guatemala (7,023 km²), El Salvador (8,712 km²), Honduras (20,273 km²), Nicaragua (25,489 km²), and Costa Rica (6,273 km²). It previously formed a continuous strip in the lowlands and submontane areas of the Pacific coast of Central America. It is characterized by a dry period of five to eight months, “with average annual precipitation between 1,000 and, 2,000 mm and a generally bimodal pattern of rainfall, with a shorter and a longer dry period” (Andraka 2023). Forests are semideciduous with up to 30 m high trees, mostly Fabaceae, which often are associated with nitrogen-fixing bacteria. The lower story includes more evergreen trees, and the understory is often made up of thorny trees. The ecoregion is rich in endemic plant species (Andraka 2023).

Humans have settled in these areas for at least 11,000 years (Bullock 1995), with a legacy of high anthropogenic disturbance over a long time. Today, cattle grazing and agricultural expansion are the biggest threats. The deforestation rate is still high (0.60% annually between 1990 and 2000), and only 22% still remains, with only 2% protected (Corrales et al. 2015).

A single study of bryophytes is available for this large and disturbed ecoregion (Dauphin and Grayum 2005). They reported 21 liverworts and 34 moss species from the Santa Elena Peninsula and Murciélago Islands in northern Costa Rica. This peninsular area, protected as part of the Guanacaste Conservation Area, contains a mosaic of dry forest ecosystems. In the lowland areas of the Santa Elena Peninsula there are small stands of primary dry lowland forest. In this forest, bryophytes are absent from tree trunks and grow on logs. The rare *Cephaloziella subtilis* (Lindenb. et Gottsche) Steph., previously known from Sonora, Mexico, seems restricted to this habitat and was the only liverwort found. The upper region of the Santa Elena Peninsula, at 700 m, consists of a tropical moist forest island surrounded by dry forest areas. Widespread liverworts are abundant at higher elevations, growing on trunks, twigs, and rocks, including *Frullania intumescens* (Lehm. et Lindenb.) Lehm. et Lindenb., *Cheilolejeunea rigidula* (Nees ex Mont.) R.M.Schust., *Marchesia brachiata* (Sw.) Schiffn., and *Bryopteris filicina* (Sw.) Nees. Lejeuneaceae is the dominant family at higher elevations, where 18 species of foliose liverworts were found. In contrast, the only liverwort found on the dry calcareous islands of the Murciélago

archipelago is the complex thalloid species *Riccia vitalii* Jovet-Ast, growing abundantly under the tree cactus *Stenocereus aragonii* (F.A.C.Weber) Buxb. On the serpentine Isla Pelada close by, no liverworts were found.

Panamanian Dry Forests

The Panamanian dry forests ecoregion (Figure 12) is a small ecoregion covering 5,167 km² (Table 1) around the Gulf of Panama from sea level up to 800 m. It is characterized by a five-month dry period and an annual precipitation of about 1,500 mm. The original forests consist mostly of open broad-leaved deciduous forests with a marked annual cycle. Annual bryophytes of the moss family Pottiaceae and the liverwort *Riccia* L. species thrive in the region (Schipper 2023b).

This ecoregion is significantly altered by cattle ranching, fires, and hunting, and only 5% remains unaltered, although almost all of that is protected (Corrales et al. 2015).

No bryophyte studies have been done in this ecoregion.

Tropical and Subtropical Coniferous Forests

Tropical and subtropical coniferous forests (Figure 11) cover about 123,789 km² of Central America (Table 1) from Belize to Nicaragua, where three ecoregions can be recognized (Olson et al. 2001). They are characterized by relatively low precipitation with a high proportion of conifers.

There are no bryophyte studies known from this biome in Central America.

Belizean Pine Forests

The Belizean pine forests ecoregion (Figure 12), sometimes called pine savannas, is a small ecoregion covering 3,083 km² (Table 1) in Belize. The pine forest is adapted to xeric, acidic, and nutrient-poor conditions (Horwich and Lyon 1990) and requires a periodic low-intensity burn for regeneration (Perry 1991).

More than 70% of the original cover remains, and 32% is under protection (Corrales et al. 2015).

Central American Pine-Oak Forests

The Central American pine-oak forests ecoregion (Figure 12) covers 118,591 km² (Table 1) in Mexico, Guatemala (31,450 km²), El Salvador (11,433 km²), Honduras (47,330 km²), and Nicaragua (11,079 km²). It is situated between 600 and 2,300 m; the temperature ranges from 14°C to 25°C, and the precipitation is between 900 and 3,700 mm/year. The forests are dominated by species of *Pinus* L. and *Quercus* L., with varying mixtures of species of *Ostrya* Scop., *Alnus* Mill., and *Liquidambar styraciflua* L. (Peréz et al. 2008).

Only 47% of the original forest remains and is highly fragmented due to high population density. The loss of natural

habitat was one of the highest in Central America, 1.16% annually between 1990 and 2000. Although some areas remain intact (especially in Honduras), only 2% is protected (Corrales et al. 2015). This ecoregion is highly diverse and has a high degree of endemism (Peréz et al. 2008).

Miskito Pine Forests

The Miskito pine forests ecoregion (Figure 12) covers 19,423 km² (Table 1), restricted to the Caribbean coast of Honduras (6,691 km²) and Nicaragua (12,731 km²). The ecoregion is much less species rich than the surrounding areas due to a combination of poor soils and frequent burning. The burning events and vegetation clearances maintain the dominance of a single tree species, the Caribbean pine (*Pinus caribaea* Morelet), giving it a savanna-like appearance (Powell et al. 2023d).

More than 95% of the ecoregion's forests remain, although only 4% are protected, with a moderate deforestation rate of 0.41% between 1990 and 2000 (Corrales et al. 2015).

Desert and Xeric Shrublands

Deserts and xeric shrublands cover only 2,494 km² (Figure 11, Table 1) of Central America, all in one ecoregion confined to Guatemala.

There are no bryophyte studies from this biome in Central America.

Motagua Valley Thornscrub

The Motagua Valley thornscrub ecoregion (Figure 12) in southeast Guatemala is the driest ecoregion in Central America and experiences a rain shadow from the trade winds caused by the surrounding mountains (such as the Sierra de las Minas Biosphere Reserve, the main natural barrier to humidity coming from the Atlantic) that leads to the extreme dry conditions of the region (Nájera Acevedo 2006). The annual rainfall is less than 500 mm, falling mainly from May to September, with the rest of the year being dry. The most representative vascular plant families are Asteraceae, Euphorbiaceae, Fabaceae, and Poaceae, while species typical in the Motagua valley are *Guaiacum sanctum* L., *Caesalpinia velutina* (Britton et Rose) Standl., *Bursera schlechtendalii* Engl., *Bursera graveolens* (Kunth) Triana et Planch., *Acacia farnesiana* Wall., *Prosopis juliflora* (Sw.) DC., *Amphipterygium adstringens* (Schltdl.) Standl., *Stenocereus pruinosus* (Otto ex Pfeiff.) Buxb., *Pereskia lychnidiflora* DC., *Nopalea guatemalensis* Rose, *Pilosocereus leucocephalus* (Poselg.) Byles et G.D.Rowley, *Cordia dentata* Poir., and *Cordia truncatifolia* Bartlett (Véliz et al. 2004).

The valley has been almost entirely converted to irrigated croplands, while subsistence agriculture prevails on the slopes. Although more than 60% of the original cover remains, only 22% is protected (Corrales et al. 2015).

Mangrove Forests

Mangrove forests cover 16,941 km² (Table 1, Figure 11) of Central American coastal areas on both the Caribbean and Pacific sides. Three main types occur in Central America (Dinerstein et al. 2017). Mangrove forests are heavily threatened worldwide today (United Nations Environment Programme 2023).

Mesoamerican Gulf–Caribbean Mangroves

All mangrove forests on the Caribbean side of Central America are classified as the Mesoamerican Gulf–Caribbean mangroves ecoregion (Figure 12), which covers 29,610 km² (Table 1) in the Caribbean, Mexico, Belize (2,508 km²), Guatemala (392 km²), Honduras (2,361 km²), Nicaragua (3,454 km²), Costa Rica (307 km²), and Panama (485 km²). This is a heterogeneous ecoregion classified by several subregions.

This ecoregion is severely disturbed, and large areas have been cleared to give access to “waterfront” infrastructure (Schipper 2023c).

Salazar Allen et al. (2022) provided the first bryophyte inventory of this ecoregion in Central America, reporting 26 liverworts and 7 moss species. The liverwort flora found in the mangroves of Bocas del Toro comprise mostly foliose species and typical sun epiphytes, including widespread, usually xerotolerant species from the genera *Acrolejeunea* (Spruce) Schiffn., *Frullanoides* Raddi, and *Lopholejeunea* (Spruce) Steph. The simple thalloid liverwort *Riccardia regnellii* (Ångstr.) K.G.Hell grows on the lower stems of the fringe mangrove *Laguncularia racemosa* (L.) C.F.Gaertn. and on decomposing logs or mangrove roots in areas exposed at low tides.

Southern Mesoamerican Pacific Mangroves

Most of the mangrove forests on the Pacific coast of Central America belong to the Southern Mesoamerican Pacific mangroves ecoregion (Figure 12), which covers 8,233 km² (Table 1) in Mexico, Guatemala (1,188 km²), El Salvador (673 km²), Honduras (784 km²), Nicaragua (950 km²), Costa Rica (832 km²), and Panama (1,103 km²). This is a heterogeneous ecoregion with several subregions.

The mangrove forests have largely been altered or destroyed for tourism development, settlements, shrimp farming, etc. For example, in Guatemala only 165 km² of the forest remains. Pollution and sediment runoff from soil erosion and pollution from fertilizers and pesticides also have a large impact on these habitats (Schipper 2023d).

South American Pacific Mangroves

The South American Pacific mangroves ecoregion (Figure 12) covers 13,539 km² (Table 1) in Peru, Ecuador, Colombia, and Panama (1,906 km²).

This ecoregion faces the same threats as the previous mangrove ecoregions.

EXPLORATION OF THE LIVERWORT AND HORNWORT FLORA OF CENTRAL AMERICA

EARLY EXPLORATIONS

The early botanical explorations in Central America, as in other areas of Latin America, were carried out since the first part of the nineteenth century by European collectors and botanists. The collected material was therefore mostly deposited in European herbaria, and the results consequently appeared in European periodical publications.

The specimens of *Symbleizidium transversale* (Sw.) Trevis., *Riccardia fucoidea* (Sw.) C.Massal., and *Marchantia chenopoda* L., held in the herbarium of the Naturhistorisches Museum in Vienna (W) and collected in Guatemala by the Austrian noble Emanuel von Friedrichsthal (1809–1842) between 1840 and 1841, may represent the oldest liverwort specimens collected in Central America. Only a few of von Friedrichsthal’s Central American collections of liverworts have been examined by bryologists.

The most important pioneer in Central American botany was the Dane Anders Sandoe Oersted (1816–1872), who explored Costa Rica and Nicaragua between 1846 and 1848. Many of his liverwort collections were examined by the German Johann Bernhard Wilhelm Lindenberg (1781–1851). One month after Lindenberg’s death, his friend Georg Ernst Ludwig Hampe (1795–1880) published the results of their research, including 21 species for Costa Rica (9 new species), 4 for Nicaragua (1 new species), and 4 from Jamaica (2 new species; Hampe 1851a, 1851b). Most species he described are now considered synonyms, except for the common *Frullania convoluta* Lindenberg et Hampe. Oersted’s collections were compiled in the first listing of Central American liverworts (Müller 1851). It included the taxa reported by Hampe and *Anthoceros flexivalvis* Gottsche et Nees (= *Phaeoceros flexivalvis* (Gottsche et Nees) Hässel) from Montes del Aguacate, Costa Rica, which remains the only specimen of the species found in Central America so far.

The Costa Rica resident and German physician Karl Hoffmann (1823–1859), in addition to fauna, collected bryophytes and vascular plants. His collection from Volcán Barva (1855) is one of the oldest dated collections and served as the type for the description in 1915 of *Schisma vulcanicum* Warnst. (= *Herbertus acantheliius* Spruce). The specimen survives at the herbarium in Botanic Garden and Botanical Museum Berlin-Dahlem (Dauhin 2005).

Berthold Carl Seemann (1825–1871), a naturalist on the expedition of the HMS *Herald*, collected bryophytes in Panama between 1845 and 1851 (Stotler et al. 1998) and died in Nicaragua. Some of his undated collections are held in the

herbarium of the New York Botanical Garden, for example, *Lejeunea pulla* Mitt., *Plagiochila crispula* Nees, and *Plagiochila ludoviciana* Sull. In 1854 he published the second list of liverworts available for Central America, with 15 species, based on his collections identified by William Mitten (1819–1906; Mitten 1854b).

In 1875 Helmuth Polakowsky (1847–1917) published “Bryophytas et cormophytas costaricensis anno 1875 lectas.” In his volume, liverworts were identified by Carl Moritz Gottsche (1808–1892). It included 13 species, with the description of *Radula costaricensis* Gottsche (only known from the type) and a mention of *Lejeunea piriflora* Gottsche ex Pol. (nom. nud., =*Cheilolejeunea piriflora* Schiffn., an obscure name that was not included in the recent revision of Neotropical *Cheilolejeunea* by Bastos 2017 and Bastos and Gradstein 2020b).

Hans von Türrckheim (1853–1920) emigrated to Guatemala in or around 1878 to be a coffee farmer and became German consul in Cobán. Therefore, most of his collections were made in the department of Alta Verapaz. He collected liverworts in Guatemala until 1908, and some of his specimens were identified by Franz Stephani (1842–1927). Based on Türrckheim’s specimens, Stephani described *Diplasiolejeunea brunnea* Steph., *Frullania guatemalensis* Steph., *Frullania tuerckheimii* Steph. (= *Frullania montagnei* Gottsche), *Metzgeria tuerckheimii* Steph. (= *Metzgeria leptoneura* Spruce), *Plagiochila guatemalensis* Steph., *Plagiochila confusa* Steph. (= *Plagiochila raddiana* Lindenb.), *Plagiochila tuerckheimii* Steph. (= *Plagiochila subplana* Lindenb.), *Plagiochila verapazana* Steph. (= *Plagiochila superba* (Nees ex Sprengel) Mont. et Nees var. *superba*), *Plagiochila viridis* Steph. (= *Plagiochila deflexirama* Taylor), and *Radula guatemalensis* Steph. (= *Radula portoricensis* Steph.).

Based on collections by Friedrich Carl Lehmann (1850–1903), Stephani (1894a) reported two species from Guatemala and three from Costa Rica collected between 1881 and 1882, together with a greater series of specimens from Colombia.

From 1889 until 1904 the Swiss botanist Adolphe Tonduz (1862–1921), with colleagues Henri Pittier (1857–1950) and Paul Biolley (1886–1908), collected plants in different regions of Costa Rica that were used to publish the first, unfinished Costa Rican flora, the *Primitiae Florae Costaricensis*. Based on their collections, Stephani (1893c) reported 56 liverwort species for Costa Rica and described 6 new species: *Aneura tripinnata* Steph. (= *Riccardia glaziovii* (Spruce) Meenks), *Anthoceros cristosporus* Steph. (= *Nothoceros vincentianus* (Lehm. et Lindenb.) J.C. Villarreal), *Chiloscyphus pittieri* Steph. (= *Leptoscyphus amphiboliis* (Nees) Grolle), *Frullania pittieri* Steph., *Schisma costaricense* (Steph.) Steph. (= *Herbertus pensilis* (Taylor) Trevis.), and *Plagiochila rhombifolia* Steph. (= *P. diversifolia* Lindenb. et Gottsche).

Some Cocos Island liverworts were available from early expeditions that also visited Galapagos. Robinson (1902) mentioned the occurrence of *Plagiochila anderssonii* Ångstr. (= *Plagiochila raddiana* Lindenb.) but did not cite any specimens.

BRYOLOGICAL RESEARCH OVER THE PAST 100 YEARS

By the turn of the twentieth century, especially after the expeditions of Paul C. Standley (1884–1963) in the mid-1920s, the affluence of North American plant collectors and botanists to Central America increased. A whole series of floristic and ecological studies contributed to our present knowledge of the region; some of the most relevant works are mentioned below. Costa Rica and Panama emerge as the best-explored countries in Central America even though bryological research has been rather inconsistent.

Costa Rica

On the basis of bryophyte collections received in 1925 from Paul C. Standley (then a curator at the Smithsonian Institution, Washington, D.C., USA), Theodor Herzog (1880–1961) produced the first floristic treatment of Central American Marchantiophyta, “Hepaticae Standleyanae Costaricensis et Hondurensis,” published in two parts (Herzog 1938, 1951). The first part included more than 100 species from Costa Rica and Honduras. He described the new genus *Mnioloma* Herzog, 30 species, 16 varieties, and 5 forms new to science (Herzog 1930, 1938). Thirteen years later, after World War II, he published the second part, adding another 178 taxa, with the description of 25 new species, 11 varieties, and 4 forms (Herzog 1951). Herzog’s contribution to the knowledge of the liverwort flora of Central America is very significant, although many of his species were reduced to synonymy by later authors (e.g., Fulford 1963a, 1966, 1968, 1976; Grolle 1972c; Gradstein 1994; Reiner-Drehwald and Goda 2000; Heinrichs 2002; Dauphin 2003, 2005). Herzog introduced several (mostly invalid) forms that need taxonomic reevaluation.

Arthur W. Haupt (1894–1987) collected liverworts in Turrialba and the Central Plateau of Costa Rica in the mid-1940s. His collections focused mostly on thalloid plants, including 19 species, among which were eight new records of complex and simple thalloid liverworts and two hornworts (Haupt 1942).

Based on collections by Stephen Walter James (1894–1984) and his family in the mid-1960s and early 1970s in Monteverde, Puntarenas, later sold by Clyde F. Reed (1918–1999) to the Smithsonian Institution in Washington, D.C., Reed and Robinson (1971) published an account of the bryophytes of the region. Their publication included 77 species of liverworts, including the rare *Nowellia reedii* H. Rob. (Robinson 1970). Morales and Griffin (1983) reported 54 species of liverworts from higher elevations at Poás Volcano, including *Gymnomitrium moralesae* Váňa, known only from that locality and Mexico.

Based on literature, holdings of local herbaria (Costa Rican National Herbarium [CR] and Universidad de Costa Rica [USJ]) and visits to the Missouri Botanical Garden (MO) and the University of Florida Herbarium in Gainesville (FLAS), the first comprehensive list of Costa Rican Marchantiophyta was prepared

by Morales (1991) and included 426 taxa from mainland Costa Rica and Cocos Island. Following fieldwork by S. Robbert Gradstein (b. 1943) during his first visit to Costa Rica in 1993, a series of contributions was published that increased the number of liverwort species known locally. These contributions include works by Gradstein et al. (1994), who reported 90 species new to Costa Rica, including 35 new to Central America; Dauphin et al. (1998), who listed 37 species new to Costa Rica; and Holz et al. (2001), who reported 35 species new to Costa Rica, including 15 new to Central America.

Furthermore, important ecological research has been done in Costa Rica in recent years that, in addition to adding new species records, has yielded detailed descriptions of bryophyte synusia in different ecosystems, such as tropical lowland rainforest, tropical premontane and montane rainforest, and tropical dry forest (see “Phytogeography of Central America”). The papers resulting from these studies include Lücking (1995), Sillett et al. (1995), Dauphin (1999), Gradstein et al. (2001a), Holz et al. (2001, 2002), Merwin et al. (2001), Dauphin and Grayum (2005), Holz and Gradstein (2005a, 2005b), Sonleitner et al. (2009), and Markham and Fernández (2021).

Collections from Cocos Island are cited sparsely in the taxonomical literature and in a few papers such as Howe (1934) and Clark (1953a). Fosberg and Klawe (1966) and Weber (1993) made the first checklists, but recent bryological studies on the island were started by Andrea Bernecker in 1992 (Bernecker-Lücking 2000) and Gregorio Dauphin in 1994 (Dauphin 1995, 1999). Bernecker studied epiphyll communities, while Dauphin focused on bryophytes growing on all other substrates. These studies summed up 105 species of liverworts and 1 hornwort from Cocos Island but recognized no endemics. A single subspecies, *Lophocolea fragrans* (Moris et De Not.) Gottsche, Lindenb. et Nees subsp. *cocosana* G.Dauphin, Gradst. et M.I.Morales, was only recently described (Dauphin et al. 2018) and is not found elsewhere.

Dauphin (2005) summarized all previous records in “Catalogue of Costa Rican Hepaticae and Anthocerotae.” Besides adding records from the literature, it added new localities and collections from the former InBio herbarium (now at CR). It included 582 species of liverworts and hornworts from continental Costa Rica and Cocos Island. The publication added 26 new records and excluded 49 dubious ones.

Panama

Early collections from Barro Colorado Island by James Zetek (1886–1959) and Otis E. Shattuck were listed by Haynes (1933). Her list included 11 species, all Lejeuneaceae, except *Frullania gibbosa* Nees and *Plagiochila asplenoides* (L.) Dumort. Based on collections mostly from Barro Colorado Island by Arthur Merton Chickering (1887–1974), Bernard Lowy (1916–1992), and Carroll Willam Dodge (1895–1988), Crum and Arzeni (1953) listed 34 liverworts from Panama. Salazar

Allen et al. (1988) reported the occurrence of 20 liverworts species from Barro Colorado Island. Gradstein and Salazar Allen (1992) studied bryophytes along an altitudinal gradient on Cerro Pirre, Darién, adding 40 species to the Panamanian liverwort flora. Stotler et al. (1998), in the first comprehensive Panamanian liverwort checklist besides earlier records, included the results of a bryophyte workshop held in Panama in 1996 (Raeymaekers et al. 1996) to sum up 289 taxa, including 93 new to Panamá. Salazar Allen (2001a) reported *Cyathodium bischlerianum* N.Salazar Allen, a new species for science that still remains known from Panama only. Five species of *Prionolejeunea* (Spruce) Schiffn. (Ilkiu-Borges 2006) and 10 species of *Metzgeria* Raddi (Costa 2008) were subsequently reported as new for the country. Dauphin et al. (2006) added 28 records of Marchantiophyta and 8 hornworts and described *Cololejeunea panamensis* G.Dauphin et Pócs as new to science from Barro Colorado Island. *Cololejeunea tixieri* M.I.Morales et G.Dauphin (= *Myriocoleopsis tixieri* Pócs et Gradst.) and *Cololejeunea tamarii* Schäf.-Verw. were also described as new to science from Western Panama (Morales and Dauphin 1998; Schäfer-Verwimp 2012). Dauphin (2007) added 24 further records and listed liverworts from a pristine páramo area. Alfons Schäfer-Verwimp (b. 1950) and his wife collected in ~30 Panamanian localities in 2010 and 2013 and added 107 species, 2 subspecies, and 1 variety of Marchantiophyta, including 27 new to Central America (Schäfer-Verwimp 2014). Based on an inventory in a premontane rainforest in the province of Coclé, Dauphin et al. (2015) added 13 further species to the liverwort flora of Panama and a species new to science: *Prionolejeunea clementinae* Ilk.-Borg., G.Dauphin et N.Salazar Allen (Ilkiu-Borges et al. 2018). The workshop “Taxonomy and Biology of Tropical Bryophytes” at the Smithsonian Tropical Research Institute’s Bocas del Toro Research Station in 2017 was the first botanical study focused on the bryophyte diversity of Panamanian mangroves. Workshop participants reported 26 species and 2 varieties of liverworts associated with mangroves and 2 new species records for the country: *Ceratolejeunea confusa* R.M.Schust. and *Frullanoides mexicana* van Slageren (Salazar Allen et al. 2022). Recent exploration and research in the mountain areas of Chiriquí by students and faculty of the University of Chiriquí have led to new species records and species new to science, including those published by Arrocha et al. (2020), Fossati et al. (2020) and Guerra-Batista et al. (2020). Further bryophyte floristic studies have focused on the coastal southwest region of Veraguas Province. Salazar Allen and Chung (2006) reported 18 species of liverworts and a hornwort from Bahía Honda and Canales de Tierra Islands. Based on specimens collected between 1995 and 1996, Salazar Allen and Chung (1997a, 1997b) reported 13 genera and 9 species of liverworts from Coiba Island.

Many botanists of diverse nationalities have collected in what is now the Fortuna Forest Reserve, located in the northeast of Chiriquí Province. The construction of Fortuna Dam and the creation of the Reserve contributed to the increase in botanical activity in the region. The Panamanian government financed

environmental and ecological studies in the area in 1976 before the logging for the dam construction started. Noris Salazar Allen (b. 1947) oversaw the collection and identification of bryophytes and lichens. In 1987, with the collaboration of her students Marla Johnston and Dilia Santamaría, Salazar Allen collected around 1,150 samples of bryophytes in five logging areas that were subsequently inundated to increase the dam's reservoir. Using the information obtained in these field expeditions and data gathered by multiple studies in the area since the construction of the dam, Salazar Allen et al. (2021) cited 174 species of liverworts (including 2 subspecies and 4 varieties) and 8 species of hornworts, registered from 16 collection points inside the Reserve. Other localities where important collecting activity has been done include La Cuenca del Canal de Panamá; Parque Nacional General de División Omar Torrijos Herrera, or "El Copé" (Coclé); Parque Nacional Santa Fe (Veraguas); Isla Colón (Bocas del Toro); Parque Nacional Altos de Campana (Panamá Oeste); El Valle de Antón (Coclé); Parque Nacional Cerro Hoya (Veraguas, Los Santos); Cerro Chucantí Private Nature Reserve (Darién); Palo Seco Forest Reserve (Naso Tjër Di comarca); Parque Internacional La Amistad (Chiriquí); Silla Panda en Cotito (Renacimiento District, Chiriquí) at the border with Costa Rica; Serranía de Tabasará (Chiriquí); Cerro Tigrero (Coclé); Cerro Turega (Coclé); Escudo de Veraguas (Bocas del Toro); and Volcán Barú (Chiriquí). However, the work of identifying the specimens collected at these sites is still in progress or pending.

The main repositories of the bryophyte specimens collected in Panama during all these expeditions are the Herbario de la Universidad de Panamá, Panamá City (PMA); the Herbario de la Universidad Autónoma de Chiriquí, David, Panama (UCH); the Missouri Botanical Garden, Saint Louis (MO); the U.S. National Herbarium, Washington, D.C. (USA); the New York Botanical Garden (NY); and the Field Museum of Natural History, Chicago (F), as well as several European herbaria. A working group from UCH, led by Clotilde Arrocha, is focusing on the bryological exploration of Western Panama, where Rodríguez-Quiel et al. (2022) recently made detailed ecological studies of the bryophytes in Volcán Barú, including two new records for Panama, *Harpalejeunea cinchonae* (Nees) Schiffn. and *Solenostoma sphaerocarpum* (Hook.) Steph., and two new records for Central America, *Frullania tetraptera* Nees et Mont. and *Plagiochila cleefii* Inoue.

Guatemala

Two American botanists, Paul C. Standley and Julian Alfred Steyermark (1909–1988), traveled to Guatemala in 1938 to carry out the first proper botanical expedition for the Flora of Guatemala project of the Field Museum of Natural History of Chicago (Stafleu and Cowan 1985; Freire 2006). They collected liverworts from nearly every department that were deposited in, among others, the F and NY herbaria. Some of those specimens were examined by Margaret Hannah Fulford (1904–1999) and

others. To date, most of these liverwort collections have not been revised. A publication comparable to the "Mosses of Guatemala" (Bartram 1949) based on Standley's and Steyermark's collections has not been prepared for the liverworts.

Aaron John Sharp (1904–1997), a bryologist and professor at the University of Tennessee, traveled to Guatemala in 1944–1946 as part of a project entitled "Expedition for Correlation of Flora of the Southern Appalachian and Mexico-Central American Highlands" (Delgadillo 1986; Freire 2006). Sharp collected liverworts in the highlands between 1,250 and 3,500 m, an altitudinal belt considered highly rich and diversified (Bartram 1949).

Interest in the study of liverworts increased with a project led by the Guatemalan bryologist Virginia Freire in the 2000s. The study was developed in the Biotopo del Quetzal, a montane cloud forest reserve located in the department of Baja Verapaz. Freire et al. (2005) reported 187 species of liverworts in 61 genera. Her students Felipe Ramírez and Mervin E. Pérez did their bachelor's theses on liverworts. Ramírez collected liverworts from three departments (Zacapa, El Progreso, and Izabal) within the Sierra de las Minas Biosphere Reserve (Ramírez 2007), while Pérez collected in a montane forest near the communities of Chelemhá I and II in Alta Verapaz (Pérez 2006).

In 2007, personnel of the University of San Carlos (USCG) herbarium made an expedition to the departments of Huehuetenango and Quiché, visiting Laguna Brava, San José Nueva Frontera, Laguna Maxbal, Barillas, Todos Santos, the Cuchumatanes plateau, and communities that constitute the Triángulo Ixil. In this expedition Pérez led the collection of liverworts and other bryophytes. Some of this material is still not identified. In 2007, Pérez directed a floristic inventory of the liverworts of three protected areas: Cerro Cahuí, El Zotz, and Laguna del Tigre, all in the department of Petén. This project was financed by the National Secretary of Science and Technology in 2008 and was accomplished by Julio Morales Can (herbarium curator) and María Victoria Ríos, a former student of Virginia Freire (Morales 2011).

Pérez (2009) listed 219 species in 28 families and 82 genera from Guatemala based on the literature, online databases, and field collections from 2005 to 2007. Remarkably, he concluded that 50% of earlier collections were known from a single locality.

Belize

Based on collections by J. J. White III in Belize (formerly known as British Honduras) along the Punta Gorda coastal line from October 1932 to February 1933, the first modern list of Lejeuneaceae for Belize was produced. It included 27 species (Fulford 1938). A total of 49 genera and 65 species of liverworts from Belize were reported based partly on collections by Bruce Allen (b. 1952) at Doyle's Delight in 1993 (Whittemore and Allen 1996). In 1996 collections from Belize were provided by Eggers and Timm, adding 20 new records of epiphyllous species (O'Shea et al. 1997; Eggers et al. 2001, 2004).

Honduras

No recent studies of liverworts or hornworts in Honduras were published after Herzog (1938, 1951; see “Costa Rica”), but references to Standley’s specimens are found in the literature. Bruce Allen from MO made collecting visits to Honduras in 1992, 1993, and 1996. His liverwort collections were available to G. Dauphin for determination during his visit to Missouri in 2017. The results are included in this publication.

El Salvador

The ecological studies on epiphylls by Winkler (1967) remain a major contribution to the bryology of the Central American Isthmus and worldwide. In his inventory of epiphylls in a cloud forest he found 66 records of liverworts new to El Salvador, including the description of six new species: *Brachiolejeunea acuta* S.Winkl., *Crossotolejeunea rotundata* S.Winkl., *Diplasiolejeunea involuta* S.Winkl., *Diplasiolejeunea montecristensis* S.Winkl., *Leucolejeunea nana* S.Winkl., and *Ptychocoleus reflexus* S.Winkl. All of them except *Diplasiolejeunea involuta* are now synonyms.

Rosadelia Búcaro (Naturalis Biodiversity Center) collected bryophytes in El Salvador between 2006 and 2014. Several of her collections were made available to G. Dauphin for determination in 2016.

Nicaragua

There are no bryological studies published from Nicaragua. Missouri Botanical Garden’s phanerogamist Warren Douglas Stevens (b. 1944) has occasionally collected bryophytes in Nicaragua since the late 1970s. His collections and those of other collectors were available to G. Dauphin for determination in 2017, and the results are presented in this work.

FLORISTICS OF CENTRAL AMERICAN LIVERWORTS AND HORNWORTS

HORNWORT DIVERSITY AND BIOGEOGRAPHICAL PATTERNS

A total of 19 species in 4 families and 7 genera of hornworts are known from Central America. There are no species in this division collected from more than half of Central America, with no records from El Salvador, Honduras, or Nicaragua. From Guatemala three species are known from three genera in two families. Both Panama and Costa Rica have seven genera in four families represented.

Biogeographical patterns of hornworts remain understudied globally because of the lack of collections, reliable identifications, and local expertise. In the past 15 years, global interest in the group has led to the development of expertise across the globe, especially in Latin America (Villarreal and Renzaglia

2006a, 2006b; Villarreal et al. 2007; Villarreal and Renner 2014; Peñaloza-Bojacá et al. 2019). The diversity of hornworts remains low in comparison to that in other regions with a long tradition of bryologists dedicated to studying the group. For example, the nearly 19 species found in Central America pale in comparison with those found on the Indian Subcontinent (34 species; Villarreal et al. 2010c). However, this is a mere reflection of the long interest in hornworts by Indian bryologists since the late 1960s. In Central America, the best-investigated countries are Costa Rica and Panama. It is possible that the number of hornwort species will increase with more investigations.

With the limited data at hand from Central America, a few fascinating patterns emerge. *Notothylas dissecta* Steph. is a disjunct species between Central America and India (Udar and Singh 1979). The two collections are morphologically identical regarding sporophyte characters; the only difference is the presence of a pyrenoid in Central American collections. Indian collections seem to lack this structure.

Additionally, we confirm a number of widespread Neotropical species (including from the southern United States), such as *Anthoceros lamellatus* Steph., *A. tuberculatus* Lehm. et Lindenb., *Dendroceros crispus* (Sw.) Nees, *D. crispatus* (Hook.) Nees, *Leiosporoceros dussii* (Steph.) Hässel, *Nothoceros aenigmaticus* J.C.Villarreal et K.D.McFarland, *N. vincentianus* (Lehm. et Lindenb.) J.C.Villarreal, and *Phaeomegaceros fimbriatus* (Gottsche) R.J.Duff, J.C.Villarreal, Cargill et Renzaglia. In light of recent genomic data, it is plausible that widespread hornwort species represent, in fact, a cluster of closely related cryptic species (Dawes et al. 2020).

The case of *Nothoceros aenigmaticus* is particularly interesting because of its distribution. The species was described from North Carolina (USA), and it was recently found in high elevations from Mexico, Costa Rican subpáramos, and Andean páramos. The species is completely clonal in the United States but produces abundant sporophytes in Latin American localities. A recent study confirmed the stepwise dispersal from the Andes into Mexico and the United States in the Plio-Pleistocene (Alonso-García et al. 2020). Two elements exclusively Neotropical are *Nothoceros canaliculatus* (Pagán) J.C.Villarreal, Hässel et N.Salazar and *Nothoceros schizophyllus* (Gottsche ex Steph.) J.C.Villarreal, both closely related species and undercollected throughout their range. *Phaeoceros dendroceroide*s (Steph.) Hässel is a rarely collected taxon, originally described from Chile. It has long been confused with the Californian *Phymatoceros bulbiculosus* (Brot.) Stotler, W.T.Doyle et Crand.-Stotl., because they share similar spore ornamentation. However, *Phaeoceros dendroceroide*s has a more delicate and monoicous thallus with delicate sporophytes. It contrasts with *Phymatoceros bulbiculosus* in sexual condition, a strap-shaped thallus, and the presence of long-stalked tubers. It is quite possible that Neotropical collections of *Phaeoceros dendroceroide*s represent a new species, but further work is needed.

Finally, there are a few cosmopolitan species such as *Nothylas breutelii* (Gottsche) Gottsche, *Nothylas orbicularis*

(Schwein.) Sull., *Notothylas javanica* (Sande Lac.) Gottsche, and *Phaeoceros carolinianus* (Michx.) Prosk. All these species are found on almost every continent and in man-made habitats (especially *Notothylas* Sull.). *Phaeoceros carolinianus*, in contrast, tends to be in perturbed habitats, and it is very likely that it represents a complex of cryptic species.

A single hornwort is endemic in Central America, *Nothoceros superbus*, from Cartago in Costa Rica.

LIVERWORT DIVERSITY AND BIOGEOGRAPHICAL PATTERNS

The total diversity and number of bryophyte taxa in the tropical American region are probably the highest in the world (Tan and Pócs 2000). According to Tan and Pócs, the north-south-oriented Cordilleran mountain range in Central America and the Andean mountain range provided important migratory pathways for North American and Patagonian bryophytes to enter and enrich the floral diversity of this region.

Gradstein et al. stated that the northern part of Central America (Guatemala and Honduras) is characterized by the occurrence of many holarctic species reaching their southernmost distribution limit and a “great number of Andean taxa reaching their northernmost extent” (2001b: 25). Floristic patterns of some Central American countries showing strong floristic affinities between Costa Rica and the northern Andes have been documented by Kappelle et al. (1995) for vascular plants, by Gradstein et al. (1994) and Gradstein (1998, 1999a) for liverworts, and by Holz (2003) for bryophytes. A more recent study including vascular plants and animal clades suggested that the Amazon domain was the primary source of Mesoamerican biodiversity (Antonelli et al. 2018).

GEOGRAPHICAL DISTRIBUTION PATTERNS

Due to insufficient knowledge of the geographical distribution of all the species listed, any analysis of this kind is only tentative. We recognize among the Central American liverworts the following geographical distribution areas (Table 2).

Temperate Species

NORTHERN TEMPERATE SPECIES (HOLARCTIC). Also called the “Cordilleran Path” (Schuster 1983), this group is constituted by species that during the Late Cenozoic cooling, “managed to migrate southwards into the mountains of tropical America and occur at high elevations in Cerro de La Muerte and other peaks” (Gradstein et al. 1994: 85). With species restricted to the montane belt and páramos, they usually occur above 2,500 m in our region (Schuster 1983; Gradstein and Váña 1987; Gradstein et al. 1994; Holz et al. 2001; Gradstein 2021). Gradstein (2021) listed 22 species in this group, 14 of which also occur in Central America. Species occurring above 4,000 m altitude are absent in our area. Table 2 shows the most typical examples.

SOUTHERN TEMPERATE SPECIES. The species in this group reach their northernmost limit in the mountains of Costa Rica (Gradstein et al. 1994). This group includes species occurring at middle and high elevations in Central America and belonging to southern temperate genera such as *Clasmatocolea* Spruce, *Lepicolea* Dumort., *Pseudocephalozia* R.M.Schust., and *Triandrophyllum* Fulford et Hatcher (Table 2).

PANTEMPERATE SPECIES. Represented by a few mostly thalloid liverworts, pantemperate species include *Cephalozia divaricata* (Sm.) Schiffn., *Lunularia cruciata* (L.) Dumort. ex Lindb., *Marchantia polymorpha* L., *Ricciocarpos natans* (L.) Corda, and *Targionia hypophylla* L.

Tropical Species

WIDE TROPICAL SPECIES. Wide tropical species are the second most diverse group among the Central American liverwort species, after the Neotropical elements. They include also amphi-Atlantic, pantropic, and amphi-Pacific species (Table 2). According to Gradstein (2021), this group is growing as a result of taxonomic and floristic work.

NEOTROPICAL SPECIES. Most of the species listed in this catalog fall into this category. It accounts for 72% of the Colombian and Ecuadorian liverwort flora (Gradstein 2021). Due to the lack of information on the distribution of the individual species within Central America and the Neotropics, any attempt to classify all taxa into these categories can only be tentative. It may be that within the Neotropics, some well-known species may act as indicators of more restricted distribution patterns (Table 2).

NEOTROPICAL ANDEAN SPECIES. Many species of this group reach their northernmost limit in the mountains of Costa Rica, although some species have managed to cross the Nicaraguan depression and extend into Guatemala and Mexico (Gradstein et al. 1994). About 27% of the bryophytes had an Andean-centered distribution in the upper montane *Quercus* L. forests of the Talamanca Cordillera (Holz 2003). They were estimated to account for 17% of the Costa Rican liverwort flora (Gradstein et al. 1994).

NEOTROPICAL CHOCÓ ELEMENTS. Some of these species in this group have been indicated to be subendemic to the Pacific Coastal Region of Colombia, although some extend their distribution northward on the Caribbean slope up to Costa Rica and Belize (Gradstein 2021; Table 2). Others were considered rare and endangered in Costa Rica by Gradstein et al. (1994).

NEOTROPICAL AMAZONIAN ELEMENTS. Some species considered endemic to Amazonia (Gradstein 2021) extend their distribution northward at lowland and middle elevations, usually less than 1,000 m altitude on the Central American Caribbean slope (Table 2).

NEOTROPICAL GUYANA SHIELD ELEMENTS. Guyana Shield elements, specifically *Micropterygium leiophyllum* Spruce (Costa Rica) and *Micropterygium parvistipulum* Spruce (Panama), are abundant in the understory of the Amazon forest.

TABLE 2. Geographical elements of the liverwort flora of Central America.

Element	Indicator species	Elevation
Northern temperate	<i>Bazzania tricenata</i> ; <i>Blepharostoma trichophyllum</i> (L.) Dumort.; <i>Cephalozia bicuspidata</i> (L.) Dumort.; <i>Cephaloziella hampeana</i> ; <i>Diplophyllum obtusatum</i> ; <i>Fuscocephaloziopsis catenulata</i> (Huebener) Vána et L.Söderstr.; <i>Fuscocephaloziopsis lunulifolia</i> ; <i>Lepidozia reptans</i> (L.) Dumort.; <i>Marsupella emarginata</i> (Ehrh.) Dum.; <i>Mesoptychia turbinata</i> (Raddi) L.Söderstr.; <i>Nowellia curvifolia</i> (Dicks.) Mitt.; <i>Pallavicinia lyellii</i> (Hook.) Gray; <i>Schistochilopsis incisa</i> (Schrader) Konstant.; <i>Solenostoma sphaerocarpum</i> (Hook.) Steph.; <i>Syzygiella autumnalis</i> (DC.) K.Feldberg, Vána, Hentschel et Heinrichs	Middle and high elevations (>2,500 m)
Southern temperate	<i>Clasmatocolea vermicularis</i> (Lehm.) Grolle; <i>Syzygiella sonderi</i> (Gottsche) K.Feldberg, Vána, Hentschel et Heinrichs; <i>Lepicolea ochroleuca</i> (Spreng.) Spruce; <i>Marchantia berteriana</i> Lehm. et Lindenb.; <i>Pseudocephaloziopsis quadriloba</i> (Steph.) R.M.Schust.; <i>Triandrophyllum subtrifidum</i> (Hook.f. et Taylor) Fulford et Hatcher var. <i>subtrifidum</i> ; <i>Triandrophyllum subtrifidum</i> var. <i>trifidum</i> (Gottsche) Solari	Middle to high elevations
Wide tropical (panropical, amph-Atlantic, amph-Pacific)	<i>Cyathodium cavernarum</i> Kunze, <i>Cyathodium foetidissimum</i> Schiffr., <i>Dumortiera hirsuta</i> (Sw.) Nees, <i>Lejeunea flava</i> (Sw.) Nees, <i>Lepidozia cupressina</i> (Sw.) Lindenb., <i>Plagiochila bifaria</i> (Sw.) Lindenb., <i>Pseudomarsupidium decipiens</i> (Hook.) Grolle	Usually middle to high elevations
Andean Neotropical	<i>Ceratolejeunea grandiloba</i> J.B.Jack et Steph.; <i>Drepanolejeunea aurita</i> Bischl.; <i>Phaeomegaceros fimbriatus</i> (Gottsche) R.J.Duff, J.C.Villarreal, Cargill et Renzaglia	High elevations
Guyana Shield Neotropical	<i>Micropterygium leiophyllum</i> Spruce, <i>Micropterygium parvistipulum</i> Spruce	Low to middle elevations
Chocó Neotropical	<i>Luteolejeunea herzogii</i> (Buchloh) Piippo, <i>Fulfordianthus pterobryoides</i> (Spruce) Gradst., <i>Symbiezidium dentatum</i> Herzog., <i>Archilejeunea ludoviciana</i> (De Not.) P.Geissler et Gradst., <i>Lepidolejeunea grossepapulosa</i> (Steph.) Piippo., <i>Ceratolejeunea pungens</i> Steph.	Low to middle elevations
Amazonian Neotropical	<i>Calypogeia densifolia</i> (Steph.) Steph., <i>Calypogeia tenax</i> (Spruce) Steph., <i>Cololejeunea surinamensis</i> Tixier, <i>Cyclolejeunea foliorum</i> (Nees) Grolle, <i>Diplasiolejeunea buckii</i> Grolle, <i>Leptolejeunea obfuscata</i> (Spruce) Steph., <i>Cololejeunea winkleri</i> (M.I.Morales et A.Lücking) Pócs, <i>Micropterygium leiophyllum</i> Spruce, <i>Micropterygium parvistipulum</i> Spruce	Low to middle elevations (<1,000 m)
Central America (restricted)	<i>Ceratolejeunea panamensis</i> Fossati, C.J.Bastos et A.R.Benítez; <i>Cheilelejeunea norisiae</i> G.Dauphin et Gradst.; <i>Cololejeunea berneckerae</i> Pócs; <i>Cololejeunea moralesiae</i> (Bern.-Lück.) Bernecker et Pócs; <i>Cololejeunea standleyi</i> Herzog; <i>Cololejeunea tamarii</i> Schäf.-Verw.; <i>Cyathodium bishlerianum</i> N.Salazar; <i>Diplasiolejeunea montecristensis</i> S.Winkl.; <i>Drepanolejeunea biocellata</i> A.Evans var. <i>biocellata</i> ; <i>Frullanoidea mexicana</i> van Slageren; <i>Fulfordianthus evansii</i> (Fulford) Gradst.; <i>Lejeunea reflexistipula</i> var. <i>costaricensis</i> (Steph.) M.E.Reiner; <i>Lejeunea grolleana</i> (Bernecker) R.L.Zhu et W.Ye; <i>Lejeunea tamarii</i> M.E.Reiner, N.Salazar Allen et C.Chung; <i>Lophocolea fragrans</i> (Moris et De Not.) Gottsche, Lindenb. et Nees subsp. <i>cocosana</i> G.Dauphin, Gradst. et M.I.Morales; <i>Mnioloma rhynchophyllum</i> Herzog; <i>Plagiochila eurydictyon</i> Herzog; <i>Prionolejeunea clementinae</i> Ilk.-Borg., G.Dauphin et N.Salazar Allen	Mostly middle elevations and lowlands

NEOTROPICAL CARIBBEAN ELEMENTS. This group is very elusive because of the poor status of knowledge of the Caribbean liverwort flora. Central America shares 588 species with this region, making it the second group of affinity after South American species. This component was estimated to be 7% for the Costa Rican liverwort flora (Gradstein et al. 1994).

CENTRAL AMERICAN ELEMENTS. There are no endemic liverwort genera in Central America (Gradstein et al. 2001a). About 5% of the Costa Rican liverwort flora was considered restricted to Central America, and endemism has been estimated at 2.5% in Costa Rica (Gradstein et al. 1994). Central America has been listed among the most important hotspots for angiosperms but “[does] not exhibit spectacular levels of endemism in bryophytes” (Patiño and Vanderpoorten 2018).

The “proven endemics” include species that were accepted in recent revisions (Pócs 1988). An increasing number of Neotropical floristic inventories and floras and the unification of the taxonomical nomenclatures done by Söderström et al. (2016a) made us recognize species previously considered to be “endemics” as more widespread taxa. An example is the rare *Nowellia reedii* H. Rob., which was previously considered to be endemic to Costa Rica (Schuster 1983a) but was then reported from Venezuela (Fulford 1972; Schuster 2002; Morales et al. 2007), Brazil (Amazonas; Costa et al. 2020), and Peru (Graham et al. 2016). *Drepanolejeunea aurita* Bischl. is another example; it was recently reported as endemic to the Colombian páramos (Gradstein 2021) but is now reported as new to our region.

Thirteen species have their distribution restricted to reduced areas in Central America and may fit the criterion of endemic taxa, usually known from more than one collection and locality (Table 2). Twenty additional species whose distributions are so far known to be limited to Central America have recently been revised but are known only from the type material. These include, among others, the páramo element *Aneura crumii* L. Söderstr., A. Hagborg et von Konrat. A third group with 17 species is only known from type material; most of the species belong in genera such as *Frullania* Raddi, *Lejeunea* Lib., and *Plagiochila* (Dumort.) Dumort. Their material has not been recently examined or included in recent taxonomic studies. Some were lectotypified by Söderström and Hentschel (2023).

Even if we consider all those taxa to be possible endemics or restricted to Central America, their overall importance remains low, from 1.5% to 6% of the total accepted species. This percentage is very low compared to the 10% endemism reported from Colombia and Ecuador (Gradstein 2021). This number is concordant with the statement that Central America does not exhibit spectacular levels of endemism in bryophytes (van Zanten 1976, 1978; van Zanten and Pócs 1981; Patiño and Vanderpoorten 2018).

FUTURE RESEARCH

There are still extensive regions of Central America not yet explored by bryologists, such as the Mosquitia in the departments

of Atlántico Norte (Nicaragua) and Gracias a Dios (Honduras). These are rich wetland areas with diverse ecosystems along the Caribbean coast that have recently been intensively deforested (Aide et al. 2012). Detailed exploration of new wet and dry ecosystems in Central America will increase the number of species known for each country and the isthmus.

A more precise figure of the diversity of liverworts and hornworts of Central America cannot be given until the most species-rich and unresolved genera are treated. Examples of these genera are *Plagiochila* (Dumort.) Dumort., *Lejeunea* Lib., *Radula* (Dumort.) Dumort., and *Riccardia* Gray. *Plagiochila* (Dumort.) Dumort. is the largest genus of Marchantiophyta, and there is no comprehensive treatment for the Neotropics. In Colombia, for instance, Uribe and Gradstein (1998) reported 175 species of *Plagiochila* (Dumort.) Dumort. Almost two decades later, about two-thirds of the records were shown to be synonyms or misidentifications (Gradstein 2016). We can expect similar results in Central America, once the taxonomy of the mentioned genera is cleared.

A few research sites and biological stations in Central America, such as La Selva Biological Station in Costa Rica and Barro Colorado Island in Panama, provide the necessary conditions to conduct studies such as monitoring community structure and dynamics and the potential effects of disturbance and climate change using permanent plots and laboratory experiments (Dauphin et al. 2024). Establishment of field plots for long-term ecological observation of species reproduction and dispersal would improve understanding of the biogeographic patterns of the species. Barcoding bryophyte flora and analyzing population genetics would help us to understand the genetic diversity of what we now consider widespread taxa.

STATISTICS

This catalog reports 865 taxa (plus 42 doubtful taxa and 38 taxa rejected from the area; Table 3) in 135 genera. Knowledge is uneven across countries. For example, 713 taxa are known from Costa Rica, and yet only 86 are known from Nicaragua. The reason is partly more varied and species-rich vegetation types in some countries but also partly the uneven exploration of the different countries. For example, no taxa are known from three provinces of El Salvador, four provinces of Honduras, four provinces of Nicaragua, and three provinces of Panama, while at least some taxa are known from all provinces of Guatemala, Belize, and Costa Rica (Table 3, Figure 14).

About one-third of the 126 liverwort genera reported from Central America belong to Lejeuneaceae (45 genera), and 40 genera are represented by a single species in the region. The most diverse genus is *Plagiochila* (Dumort.) Dumort. (88 species), followed by *Lejeunea* Lib. (63 species), *Frullania* Raddi (53 species), *Cololejeunea* (Spruce) Steph. (47 species), *Metzgeria* Raddi (34 species), *Radula* (Dumort.) Dumort. (34 species), and *Cheilolejeunea* (Spruce) Steph. (32 species).

TABLE 3. Number of accepted, questioned, and rejected taxa in each country and first-order administrative division and number of species reported as new in this publication. A dash (—) indicates no taxon.

Country, division, and Central America total	Accepted taxa	New taxa	Doubtful taxa	Excluded taxa
Guatemala	376	9	38	7
Alta Verapaz	199	1	18	2
Baja Verapaz	159	1	4	2
Chimaltenango	13	6	1	—
Chiquimula	8	—	2	—
El Petén	29	3	2	—
El Progreso	51	—	4	—
Escuintla	3	—	—	—
Guatemala	3	—	—	—
Huehuetenango	79	4	—	1
Izabal	55	1	8	1
Jalapa	4	—	—	—
Quetzaltenango	51	10	1	1
Quiché	55	—	1	1
Retalhuleu	4	—	—	—
Sacatepéquez	19	1	—	—
San Marcos	30	—	—	—
Santa Rosa	3	—	—	—
Sololá	7	—	1	—
Suchitepéquez	11	1	1	—
Totonicapán	6	—	—	—
Zacapa	64	1	9	—
Belize	123	32	6	2
Belize	7	7	—	—
Cayo	56	15	2	1
Corozal	2	—	—	—
Orange Walk	3	—	1	—
Stann Creek	16	1	1	—
Toledo	65	35	1	1
El Salvador	102	22	1	—
Ahuachapán	11	3	—	—
Cabañas	1	1	—	—
Chalatenango	7	—	—	—
Cuscatlán	—	—	—	—
La Libertad	2	2	—	—
La Paz	—	—	—	—
La Unión	1	1	—	—
Morazán	1	1	—	—
San Miguel	—	—	—	—
San Salvador	7	2	—	1
Santa Ana	83	19	1	—
San Vicente	4	—	—	—
Sonsonate	2	2	—	—
Usulután	—	—	—	—
Honduras	191	51	15	6
Atlántida	100	19	2	3
Choluteca	—	—	—	—
Colón	—	—	—	—
Comayagua	48	18	—	—
Copán	7	3	—	—
Cortés	27	15	—	—

(continued)

TABLE 3. (Continued)

Country, division, and Central America total	Accepted taxa	New taxa	Doubtful taxa	Excluded taxa
El Paraíso	5	—	1	—
Francisco Morazán	21	4	—	—
Gracias a Dios	2	—	—	—
Intibucá	2	1	—	—
Islas de la Bahía	—	—	—	—
La Paz	2	1	—	—
Lempira	25	21	—	—
Ocatepeque	7	7	—	—
Olancho	12	9	—	—
Santa Bárbara	3	2	—	—
Valle	—	—	—	—
Yoro	5	4	—	—
Nicaragua	81	45	4	1
Atlántico Norte	16	14	—	—
Atlántico Sur	14	7	—	—
Boaco	4	4	—	—
Carazo	—	—	—	—
Chinandega	5	—	—	1
Chontales	12	7	—	—
Estelí	12	9	—	—
Granada	15	6	—	—
Jinotega	9	6	—	—
León	—	—	—	—
Madriz	—	—	—	—
Managua	4	2	—	—
Masaya	—	—	—	—
Matagalpa	15	13	—	—
Nueva Segovia	2	2	1	—
Rivas	2	—	—	—
Río San Juan	3	1	—	—
Costa Rica	647	10	38	24
Alajuela	200	8	9	6
Cartago	305	13	4	5
Guanacaste	124	6	5	1
Heredia	170	1	4	3
Limón	155	3	3	—
Puntarenas	286	12	4	5
San José	347	7	6	7
Panama	504	6	20	8
Bocas del Toro	59	21	1	10
Chiriquí	332	4	9	3
Coclé	180	—	1	1
Colón	28	11	—	—
Darién	115	1	2	2
Emberá-Wounaan comarca	1	—	—	—
Guna Yala comarca	—	—	—	—
Herrera	—	—	—	—
Los Santos	8	—	—	—
Naso Tjër Di comarca	53	4	1	—
Ngäbe-Buglé comarca	13	2	—	—
Panama	106	7	9	—
Panama West	135	1	2	3
Veraguas	97	—	—	1
Cocos Island	126	25	4	6
Total for Central America	845	16	38	48

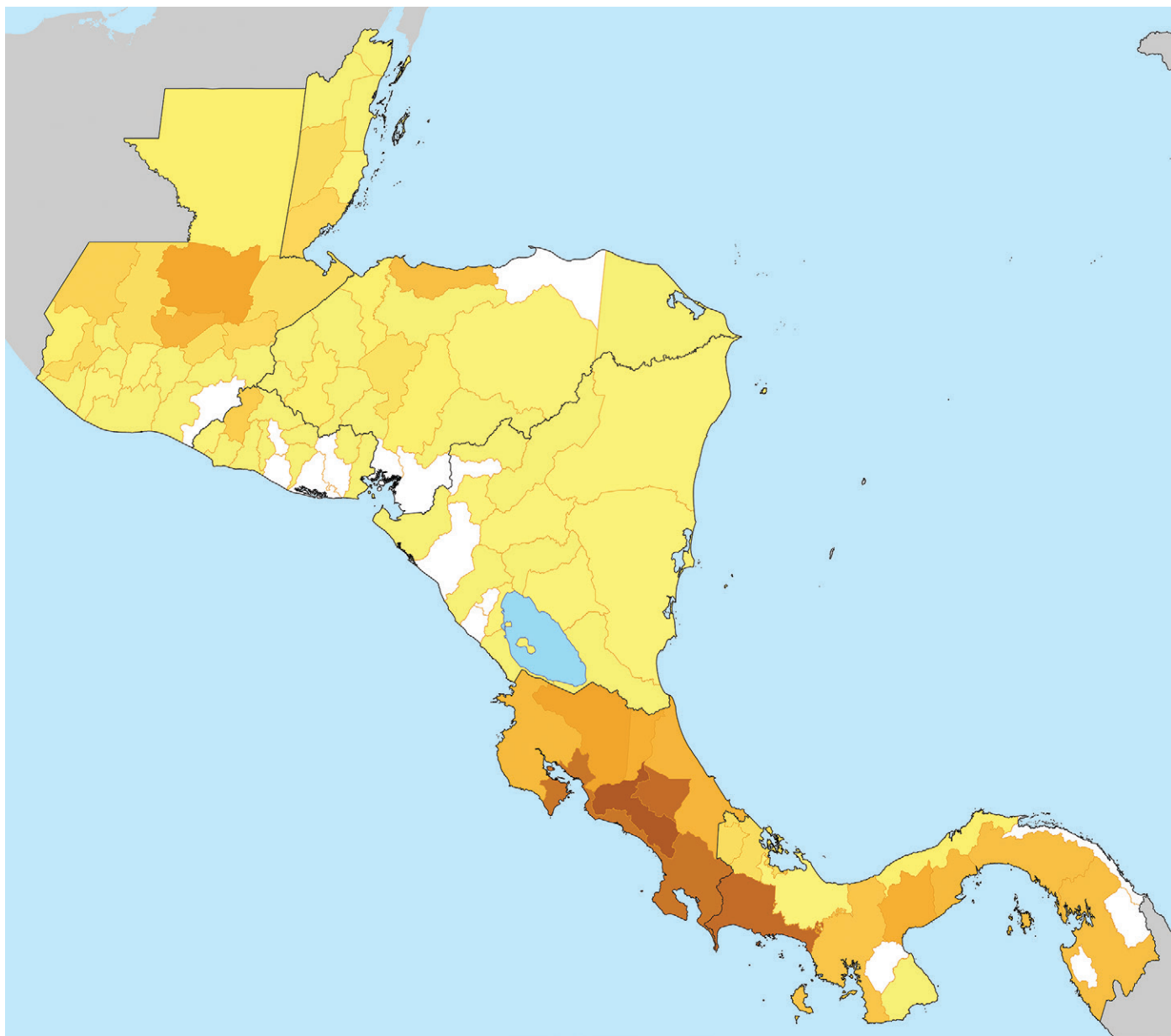


FIGURE 14. Known species richness in provinces of Central American countries. The darker the color, the greater the number of taxa known from that area (see Table 4). No liverwort or hornwort taxa are known from provinces in white.

Gradstein et al. (2001b) considered Central America the second-richest area of tropical America with respect to the total number of genera, surpassed only by the northern Andes. They estimated 140 liverwort genera for this region. We report a lower number of genera here. This discrepancy can be explained by the fact that in the past 22 years several genera have fallen into synonymy and local species have been transferred into other genera. Within the first category (synonymized genera) are *Amphilejeunea* R.M.Schust. (= *Lejeunea* Lib.); *Aphanolejeunea* A.Evans

(= *Cololejeunea* (Spruce) Steph.); *Aureolejeunea* R.M.Schust.; *Cyrtolejeunea* A.Evans, *Cystolejeunea* A.Evans, and *Omphalanthus* Lindenb. et Nees (= *Cheilolejeunea* (Spruce) Steph.); *Echinocolea* R.M.Schust. (= *Lejeunea* Lib.); *Iwatsukia* N.Kitag. (= *Odontoschisma* (Dumort.) Dumort.); *Physantholejeunea* R.M.Schust. (= *Otigoniolejeunea* (Spruce) Schiffn.); and *Szweykowskia* Gradst. et M.E.Reiner (= *Plagiochila* (Dumort.) Dumort.). Several species formerly placed in the genus *Jungermannia* L. have been transferred into other genera such as

Mesoptychia (Lindb.) A.Evans and *Solenostoma* Mitt. Other species in genera formerly considered characteristic for Central America (i.e., known from a single Neotropical region but occurring in other parts of the world; Gradstein et al. 2001b) have been transferred to other genera. They are *Cryptothallus hirsutus* H.A.Crum = *Aneura crumii* L.Söderstr., A.Hagborg et von Konrat (Söderström et al. 2012b), and *Stenorrhypis rhizomatica* Herzog = *Kymatocalyx rhizomaticus* (Herzog) Gradst. et Váša (Gradstein and Váša 1999). All genera accepted here also occur outside Central America.

Comparing numbers among countries in Table 3 reveals the “paucity of information” on the liverwort and hornwort diversity of Central America mentioned by Stotler et al. (1998). The country with the largest territory, Nicaragua (130,375 km²), is the least explored. Considering its large land area (108,889 km²) and various elevation ranges (from 0 to 4,220 m), Guatemala should have a greater number of species than those now reported. The same can be said of Honduras, which has unexplored ecosystems of Yucatecan-petenense vegetation and no records from dry areas. Although in the past decade Panama has been more intensively explored than Costa Rica, the latter shows a greater liverwort diversity due to its greater extensions of páramo and upper montane ecosystems distributed along three heterogeneous mountain ranges.

In comparison with Colombia (1,038,700 km²) and Ecuador (276,841 km²), with 872 and 792 species, respectively (ELPT unpublished database 2024.07.01), the species richness in Central America (865 species on 522,800 km²) is about the same. However, at the generic level, the liverwort flora in Colombia and Ecuador is richer, with 148 genera reported (126 in Central America). The largest country in Latin America, Brazil (8,358,140 km²), has an estimated 700–750 liverwort species in 139 genera (Gradstein and Costa 2003), which probably is too low (the unpublished ELPT database has about 975 accepted taxa 2023.08.06). These results reinforce the notion that richness is largely driven by habitat diversity and not by surface area (Gradstein 2021).

In contrast to the mosses (Geffert et al. 2013), von Konrat et al. (2008) found a significant latitudinal gradient of species richness for global liverwort diversity.

MATERIALS AND METHODS

This catalog lists all taxa reported from Central America as defined above (Figures 1, 3–10).

NAMES

Nomenclature and taxonomy follow the “World Checklist of Hornworts and Liverworts” (Söderström et al. 2016a) with some updates from recent literature. All taxonomic and nomenclature changes known to us until 31 December 2022 are included.

SYNONYMS AND TYPES

For each accepted taxon we give all names used for the taxon in the literature citing Central American specimens together with their basionym. All names are followed by the author(s) of the names and a full bibliographic citation of the name. Heterotypic synonyms relevant to Central America (=) are displayed below every accepted species name; basionyms and homotypic synonyms are marked with the symbol $\equiv$. Types of each name are cited in full when the types (or other original material in the case of invalid names) are from Central America. For those, we have tried to identify the type specimen (primarily holotypes and lectotypes) and cite it fully with locality, collector, herbarium, and the URL for its virtual herbarium record whenever we have been able to find the information. All herbarium acronyms follow Index Herbariorum (<https://sweetgum.nybg.org/science/ih/>).

SOURCES OF REPORTS

Sources of the records include more than 1,500 publications found through searching the ELPT database of hornwort and liverwort nomenclature, taxonomy, and distribution. We cite localities, collectors, and herbaria where specimens are stored from the papers reporting them. In addition, we include many unpublished herbarium specimens that we have seen and identified, especially those new for a country or province.

Monographs and revisions of genera and families are sources of many records in this catalog and are all listed in the references. In addition, many ecological and sociological studies reported species, some that are new for a province or even for a country. Country records from early specimens are dispersed in the taxonomical literature. Some of them constitute the only information source for scarcely known species. The most relevant sources for Central America are alphabetically listed in Table 4 by taxon, including revisions and monographs spanning more than 50 years of bryological research. This is complemented by additional records published until 31 December 2022.

GEOGRAPHICAL UNITS

For each taxon, cited reports are separated by country (in bold uppercase letters), with each country in a different paragraph. Within countries the list is separated by first-order administrative divisions (in underlined uppercase letters). There are 22 first-order administrative divisions for Guatemala (Figure 3), 6 for Belize (Figure 4), 17 for Honduras (Figure 5), 14 for El Salvador (Figure 6), 17 for Nicaragua (Figure 7), 7 for mainland Costa Rica (Figure 8), and 14 for Panama (Figure 9) but no further division for Cocos Island (abbreviated in the reports as Cocos I.; see also Table 4).

Distribution outside Central America is briefly summarized by reporting the level 2 units of Brummitt (2001; Figure 15) for which the ELPT database currently has registered reports. Questionable occurrences are marked with a question mark (?).

TABLE 4. Major revisions of subfamilies, genera, and subgenera including Central American liverworts.

Taxon	Reference
<i>Adelanthus</i>	Grolle 1972c
<i>Acrolejeunea</i>	Gradstein 1975
<i>Anthoceros</i> and <i>Folioceros</i>	Hässel de Menéndez 1990
<i>Bazzania</i>	Fulford 1946, 1959, 1963
<i>Blepharolejeunea</i>	van Slageren and Kruijt 1985
<i>Brachiolejeunea</i> and <i>Frullanoides</i>	van Slageren 1985b
<i>Bryopteris</i>	Stotler and Crandall-Stotler 1974
<i>Calypogeia</i>	Bischler 1962a, 1962b, 1962c, 1962d
<i>Ceratolejeunea</i>	Dauphin 2003
<i>Cheilolejeunea</i>	Bastos 2017, Bastos and Gradstein 2020b
<i>Clasmatocolea</i>	Engel 1980
<i>Cololejeunea</i>	Tixier 1980, 1985, 1991; Pócs and Bernecker 2009, Pócs et al. 2014
<i>Colura</i>	Jovet-Ast 1953, 1954; key to species in Gradstein 2021
<i>Cyclolejeunea</i>	Bernecker-Lücking 1998b, Prado and Ilkiu-Borges 2021
<i>Dendroceros</i>	Peñaloza-Bojacá et al. 2019
<i>Dicranolejeunea</i> and <i>Acanthocoleus</i>	Kruijt 1988
<i>Diplasiolejeunea</i>	Reyes 1982, Schäfer-Verwimp 2004
<i>Drepanolejeunea</i>	Bischler 1967
<i>Echinocholea</i>	Ilkiu-Borges 2005
<i>Frullania</i> subg. <i>Chonanthelia</i>	Yuzawa 1991
<i>Frullania</i> subg. <i>Frullania</i>	Stotler 1969
<i>Frullania</i> subg. <i>Meteoriopsis</i>	Uribe and Gradstein 2003, Uribe 2008
<i>Jamesoniella</i>	Grolle 1971a
<i>Lejeunea</i>	Reiner-Drehwald 1999, 2000a, 2005a, 2005b, 2006, 2009, 2010a, 2010b, Reiner-Drehwald and Ilkiu-Borges 2007, Reiner-Drehwald et al. 2008, Reiner-Drehwald et al. 2013, Reiner-Drehwald et al. 2018, Bastos and Gradstein 2020a
<i>Lejeunea</i> subg. <i>Crossotolejeunea</i>	Reiner-Drehwald and Goda 2000
<i>Lepidolejeunea</i> and <i>Luteolejeunea</i>	Piippo 1986
<i>Leptolejeunea</i>	Bischler 1969, Shu et al. 2022
<i>Leptoscyphus</i>	Grolle 1962a
Marchantiopsida	Bischler-Causse et al. 2005
Metzgeriaceae	Kuwahara 1986, Costa 2008
<i>Neesioscyphus</i>	Grolle 1964a, 1966a
<i>Nowellia</i>	Grolle 1968c, Robinson 1970
<i>Odontolejeunea</i>	Teeuwen 1989, Gradstein 1994
<i>Odontoschisma</i>	Gradstein and Ilkiu-Borges 2015
<i>Phaeoceros</i>	Hässel de Menéndez 1989
<i>Phaeomegaceros</i>	Ibarra-Morales et al. 2020; Peñaloza-Bojacá et al. 2022
<i>Plagiochila</i>	Heinrichs 2002, Gradstein 2015a, 2015b, 2016, 2017
<i>Porella</i>	Swails 1970, So 2005
<i>Prionolejeunea</i>	Ilkiu-Borges 2006, 2016
Ptychantheae, Brachiolejeuneae	Gradstein 1994
<i>Pycnolejeunea</i>	He 1999; Bastos et al. 2020
<i>Radula</i>	Yamada 1981b, 1982, 1987, 1988a, 1991, Oliveira de Silva et al. 2021
<i>Rectolejeunea</i>	Reiner-Drehwald and Grolle 2012
<i>Riccardia</i>	Meenks 1987, Gradstein and Reeb 2018
<i>Riccia</i>	Jovet-Ast 1981, 1991, 1993
<i>Syzygiella</i>	Inoue 1966, Grolle 1971, Váña et al. 2014b
<i>Tylimanthus</i>	Burghardt and Gradstein 2008

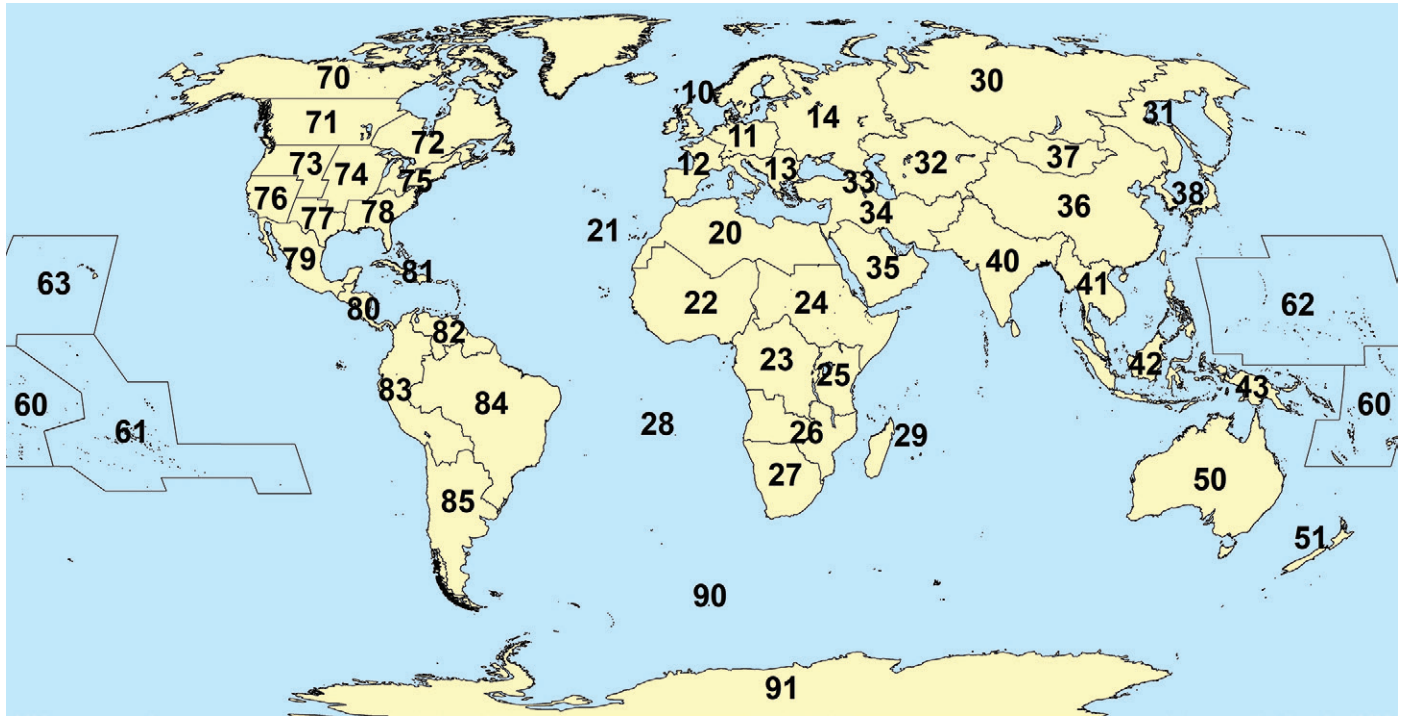


FIGURE 15. Subcontinental areas for which distribution outside Central America has been reported for Central American liverworts and hornworts. Numbers indicate level 2 units from Brummitt (2001). (10) Northern Europe. (11) Middle Europe. (12) Southwestern Europe. (13) Southeastern Europe. (14) Eastern Europe. (20) North Africa. (21) Macaronesia. (22) West Tropical Africa. (23) West Central Tropical Africa. (24) Northeast Tropical Africa. (25) East Tropical Africa. (26) South Tropical Africa. (27) Southern Africa. (28) Mid Atlantic Islands. (29) Western Indian Ocean. (30) Siberia. (31) Russian Far East. (32) Middle Asia. (33) Caucasus. (34) Western Asia. (35) Arabian Peninsula. (36) China. (37) Mongolia. (38) Eastern Asia. (40) Indian Subcontinent. (41) Indo-China. (42) Malesia. (43) Papuasias. (50) Australia. (51) New Zealand. (60) Southwestern Pacific. (61) Southeastern Pacific. (62) Northwestern Pacific. (63) Northeastern Pacific. (70) Subarctic North America. (71) Western Canada. (72) Eastern Canada. (73) Northwestern USA. (74) North-Central USA. (75) Northeastern USA. (76) Southwestern USA. (77) South-Central USA. (78) Southeastern USA. (79) Mexico. (80) Central America. (81) The Caribbean. (82) Northern South America. (83) Western South America. (84) Brazil. (85) Southern South America. (90) Subantarctic Islands. (91) Antarctic Continent.

STRUCTURE OF THE LIST

Reports of hornworts and liverworts from Central America are here separated into four groups. The first group consists of taxa that we currently accept as occurring in Central America. The second group includes taxa that occur in Central America but are either invalidly published or not accepted but cannot be placed with confidence under any accepted taxon. The third group includes taxa that we question as correctly reported from Central America. Most of them are mentioned without any reference to a specimen or mentioned with some indication of only being preliminarily identified. The last group includes taxa for which we reject occurrence in Central America either because the report was based on proven misidentifications or the concepts of the taxa when reported were different from the current concepts to which we subscribe, or the known worldwide distribution of a particular taxon makes a report from Central America highly

unlikely, if not impossible. Apparent mistakes are also included in this group.

DENOTATIONS

The checklist presented here makes a critical distinction between reports from the literature where authors have cited specimens (firsthand reports) and reports only citing earlier reports (secondhand reports).

References citing primary reports (specimens or material seen by the cited author[s]) are given in bold. Secondary references not citing any material are given in plain type. In cases where we are not aware of any primary source or the earliest report is a secondary source without any clear connection to a primary source published later, we comment on the situation.

In the list below, a double asterisk (**) denotes taxa here reported for the first time from Central America (16 taxa). A single

Alphabetical List of Taxa

ACCEPTED TAXA

ANTHOCEROTOPHYTA

***Anthoceros* L., Sp. Pl. 1: 1139, 1753 (Linnaeus 1753).**

Anthoceros lamellatus Steph., *Sp. Hepat. (Stephani)* 5: 1000, 1916 (Stephani 1916a).
Type: Brazil.

?COSTA RICA. S. loc. (Ellis et al. 2015b; Ibarra-Morales et al. 2015). Note: We are not aware of any firsthand report from Costa Rica.

PANAMA. S. loc. (Ellis et al. 2015b; Ibarra-Morales et al. 2015; Gradstein 2021).
CHIRIQUÍ: S. loc., *Villarreal* 1307 (M, Bainard and Villarreal 2013); Gualaca distrito, Fortuna Forest Reserve, Quebrada Arena, 920–1,100 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna, Frente a Quebrada Bonita, Poste B-623, *Villarreal* 646 (PMA, Dauphin et al. 2006).

Also reported from Southeastern USA, Mexico, the Caribbean(?), Northern South America, Western South America, Brazil, Southern South America.

Anthoceros tuberculatus Lehm. et Lindenb., *Nov. Stirp. Pug.* 4: 25, 1832 (Lehmann 1832). Type: St. Vincent.

=*Anthoceros vegetans* M.Howe, *Proc. Calif. Acad. Sci.*, ser. 4, 21(17): 205, 1934 (Howe 1934), syn. fide Hässel (1990). Holotype: Cocos Island, in ripis humidis in loco “Wafer Bay, Cocos Island,” dicto specimen unicum (n. 234), 28 Jun 1932, *John Thomas Howell* (CAS-214873 <https://www.gbif.org/occurrence/1426338165>).

?COSTA RICA. S. loc. (Cole 1984 as *Anthoceros vegetans*). Note: We are not aware of any firsthand report from mainland Costa Rica.

PANAMA. S. loc., *Villarreal & Rodríguez* 857 (CONN, Villarreal et al. 2015, 2017; Cargill et al. 2022). CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, Continental Divide, Trail Palo Seco, 900–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (Salazar Allen et al. 2021). NGÄBE-BUGLÉ COMARCA: Jirondai distrito, División entre Chiriquí y Bocas del Toro, Letrero de Palo Seco, *Villarreal* 644 (PMA, Dauphin et al. 2006); Jirondai distrito, División entre Chiriquí y Bocas del Toro, Letrero de Palo Seco, *Villarreal* 648a (PMA, Dauphin et al. 2006). PANAMA WEST: Capira distrito, Parque Nacional Altos de Campana, 8°40'N, 79°55'W, 800–900 m, *Salazar Allen* 20970 (PMA, Dauphin et al. 2006).

COCOS I. S. loc. (Clark 1953a as *Anthoceros vegetans*; Fosberg and Klawe 1966 as *Anthoceros vegetans*; Dauphin 1995); Cascada W de Bahía Wafer, 5°32'57"N, 87°03'56"W, 20 m, 6 Feb 1990, *Dauphin* 1122, det. G.-Dauphin Jan 2021 (USJ-47177, CR-4468153!, W!, **this publication**); Cascada W de Bahía Wafer, 5°32'57"N, 87°03'56"W, 0–20 m, 15 Feb 1994, *Dauphin* 1122 (USJ, *Dauphin* 1995, 1999, 2005); Wafer Bay, *Howell* CAS 215007 (*Dauphin* 2005); Wafer Bay, 28 Jun 1932, *Howell* (Hässel 1990 as *Anthoceros vegetans*; *Dauphin* 2005); Wafer Bay, 28 Jun 1932, *Howell* 234, det. M.A.Howe (CAS-214873 <https://www.gbif.org/occurrence/1426338165>, **TYPE** of *Anthoceros vegetans*, **Howe 1934** as *Anthoceros vegetans*; **Proskauer 1951a** as *Anthoceros vegetans*; **Bonner 1962a** as *Anthoceros vegetans*; **Weber 1993** as *Anthoceros vegetans*).

Also reported from the Caribbean, Western South America, Brazil.

***Dendroceros* Nees, *Syn. Hepat.* 4: 579, 1846
(Gottsche et al. 1846).**

Dendroceros crispatus (Hook.) Nees, *Syn. Hepat.* 4: 579, 1846 (Gottsche et al. 1846) var. *crispatus*.

≡ *Monoclea crispata* Hook., *Bot. Misc.* 1: 117, 1830 (Hooker 1830). Type: St. Vincent.

?BELIZE. S. loc. (Amélio et al. 2021). Note: We are not aware of any firsthand report from Belize.

COSTA RICA. S. loc. (Garcia et al. 2012; Amélio et al. 2021). **PUNTARENAS:** Coto Brus cantón, Limoncito, *Dauphin* 2043 (CR, *Dauphin* 2005); Monteverde, 14 Jun 1966, *James*, M. 3, det. Proskauer (R, *Reed and Robinson 1971* as '*cristatus*'; *Dauphin* 2005 as '*cristatus*'). **SAN JOSÉ:** Dota cantón, San Marcos, 9°40'N, 84°00'W, 1,000–1,700 m, *Gómez-Pignataro 19354* (MO, *Dauphin* 2005); S. loc., 1947, *Svihla* 47-725 (NY-1319054, *Peñaloza-Bojacá et al. 2019*).

PANAMA. S. loc. (Peñaloza-Bojacá et al. 2019; Amélio et al. 2021). **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, Continental Divide, Trail Palo Seco, 900–1,200 m (*Salazar Allen et al. 2021*); Gualaca distrito, Fortuna Forest Reserve, Quebrada Arena, 920–1,100 m (*Salazar Allen et al. 2021*); Gualaca distrito, Fortuna, Frente a Quebrada Bonita km 59, Poste B-623, *Villarreal & Araújo* 720 (PMA, *Dauphin et al. 2006*); S. loc. (Garcia et al. 2012); S. loc., *Villarreal* 7981 (PMA, *Garcia et al. 2012*). **NGÁBE-BUGLÉ COMARCA:** Jirondai distrito, División entre Chiriquí y Bocas del Toro, Letrero de Palo Seco, *Villarreal et al. 719a* (PMA, *Dauphin et al. 2006*).

Also reported from West-Central Tropical Africa, Indo-China(?), Australia, Southwestern Pacific, Southeastern Pacific, Northeastern Pacific, Mexico, the Caribbean, Western South America, Brazil.

Dendroceros crispus (Sw.) Nees, *Syn. Hepat.* 4: 581, 1846 (Gottsche et al. 1846).

≡ *Anthoceros crispus* Sw., *Prodr. (Swartz)*: 146, 1788 (Swartz 1788). Type: Jamaica.

COSTA RICA. S. loc. (Cole 1984; Schäfer-Verwimp and Pócs 2009; Peñaloza-Bojacá et al. 2019; Amélio et al. 2021). **CARTAGO:** El Guarco cantón, 3 de Junio, *Schäfer-Verwimp* 447, det. Schäfer-Verwimp (CR, *Dauphin* 2005); Paraíso cantón, Orosi, Tapantí National Park, *Schäfer-Verwimp & Holz* SV/H-0357 (*Dauphin* 2005). **HEREDIA:** San Isidro cantón, Yerba Buena, 2,000 m (*Dauphin* 2005); San Isidro cantón, Yerba Buena, NE of San Isidro, 2,000 m, *Standley & Valerio* 49166a (*Herzog* 1951). **PUNTARENAS:** Monteverde, <1,500 m (*Dauphin* 2005); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, *Gradstein et al.* (U, *Sillett et al. 1995*); S. loc. (*Merwin et al. 2001*).

PANAMA. S. loc. (Peñaloza-Bojacá et al. 2019; Amélio et al. 2021); S. loc., *Villarreal* 1296 (M, *Villarreal et al. 2015*; *Peñaloza-Bojacá et al. 2022*). **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (*Salazar Allen et al. 2021*); S. loc., *Villarreal* 742 (PMA, *Villarreal et al. 2010a, 2010b*; *Li et al. 2011*; *Garcia et al. 2012*); S. loc., *Villarreal et al. 1296* (M, *Bainard and Villarreal 2013*; *Cargill et al. 2022*). **PANAMA WEST:** Capira distrito, Altos de Campana National Park, *Salazar Allen et al. 9435* (PMA, *Stotler et al. 1998*).

Also reported from Malesia, Papuasias, Southwestern Pacific(?), Northeastern Pacific, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

***Leiosporoceros* Hässel, *J. Bryol.* 14(2):
255, 1986 (Hässel 1986).**

Leiosporoceros dussii (Steph.) Hässel, *J. Bryol.* 14(2): 255, 1986 (Hässel 1986).

≡ *Anthoceros dussii* Steph., *Hedwigia* 32(3): 142, 1893 (Stephani 1893d). Type: Martinique.

COSTA RICA. S. loc. (*Salazar Allen et al. 2017*; *Gradstein 2021*). **CARTAGO:** Turrialba cantón, Volcán Turrialba, 2006, *Villarreal et al. CR-2006-JC882* (*Bouchard et al. 2020*); Turrialba National Park, Volcano top, 3,000 m, *Villarreal et al. 885A* (CONN!, **this publication**).

PANAMA. S. loc. (*Salazar Allen 2018*; *Gradstein 2021*); S. loc., *Villarreal & Araújo* 8511285 (PMA, *Villarreal et al. 2015*). **CHIRIQUÍ:** S. loc., *Villarreal et al. 1312* (M, *Bainard and Villarreal 2013*). **COCLÉ:** S. loc. (*Rahmatpour et al. 2021*); S. loc., *Villarreal et al. 1285* (M, *Bainard and Villarreal 2013*); S. loc., 2017, *Villarreal* PA-17-1771, PA-17-1772 (PMA, *Bouchard et al. 2020*); Antón distrito, El Valle de Antón, Camino hacia Río Indio, *Villarreal & Araújo* 651 (PMA, *Duff et al. 2004, 2007*; *Dauphin et al. 2006*; *Villarreal et al. 2010a, 2010b*; *Li et al. 2011*); Antón distrito, El Valle de Antón, carretera hacia la Mesa, 828 m, *Salazar Allen et al. 20932* (PMA, *Salazar Allen et al. 2017*); Antón distrito, El Valle de Antón, det. J.-Gudiño (PMA, *Garrido et al. 2019*); Antón distrito, El Valle de Antón, Monumento Natural Cerro Gaital, en laderas del Río El Guayabo, 580 m, *Salazar Allen et al. 20940, 20942, etc.* (PMA, *Salazar Allen et al.*

2017); Antón distrito, El Valle de Antón, Río El Guayabo, 2006, *Villarreal & Rodríguez PA-2006-854A* (PMA, Bouchard et al. 2020); Antón distrito, El Valle de Antón, Río El Guayabo, 2017, *Villarreal PA-17-1659, PA-17-1660, etc.* (PMA, Bouchard et al. 2020); Antón distrito, El Valle de Antón, Río Indio, 2017, *Villarreal PA-17-1643, PA-17-1644, etc.* (PMA, Bouchard et al. 2020); Antón distrito, El Valle de Antón, Río Guayabo, dentro del Monumento Natural Cerro Gaital, 8°37'34.6"N, 80°08'13.7"W, 624 m, *Guadalupe 240, 241* (PMA, Guadalupe et al. 2021); Antón distrito, Río Indio, dentro del Monumento Natural Cerro Gaital, 8°38'25.5"N, 80°06'49.2"W, *Guadalupe 247, 248* (PMA, Guadalupe et al. 2021). **NGÄBE-BUGLÉ COMARCA:** Jirondai distrito, Palo Seco, 2017, *Villarreal PA-17-1765* (PMA, Bouchard et al. 2020).

Also reported from Mexico, the Caribbean, Western South America.

Nothoceros (R.M.Schust.) J. Haseg., J. Hattori Bot. Lab. 76: 32, 1994 (Hasegawa 1994).

Nothoceros aenigmaticus J.C.Villarreal et K.D.McFarland, *Bryologist* 113(1): 109, 2010 (Villarreal et al. 2010a). Type: USA.

COSTA RICA. S. loc., 3,000 m, *Villarreal et al. 884* (CR, Villarreal and Renner 2014); S. loc., 3,500 m, *Villarreal et al. 902* (CR, Villarreal and Renner 2014). **CARTAGO:** Turrialba cantón, Turrialba Volcán, top, 3,000 m, *Villarreal et al. 885(b?)* (CR, CONN, Villarreal et al. 2012b as *Nothoceros cf. aenigmaticus*; Villarreal and Renner 2014; Alonso-García et al. 2020). **SAN JOSÉ:** Pérez Zeledón cantón, Cerro de la Muerte, Páramo Buena Vista, 3,000 m, *Villarreal et al. 892* (CR, CONN, Villarreal et al. 2012b as *Nothoceros cf. aenigmaticus*; Villarreal and Renner 2014; Alonso-García et al. 2020).

Also reported from Southeastern USA, Mexico, Northern South America, Western South America.

Nothoceros canaliculatus (Pagán) J.C.Villarreal, Hässel et N.Salazar Allen, *Bryologist* 110(2): 283, 2007 (Villarreal et al. 2007).

≡ *Dendroceros canaliculatus* Pagán, *Bryologist* 45(4): 111, 1942 (Pagán 1942a). Type: Puerto Rico.

≡ *Megaceros canaliculatus* (Pagán) A.J.Shaw et Renzaglia ex J.C.Villarreal et N.Salazar Allen, *Trop. Bryol.* 27: 82, 2006 (Dauphin et al. 2006).

Note: All reports of *Nothoceros canaliculatus* except one from Costa Rica belong to *Nothoceros schizophyllum* (J.C.Villarreal).

COSTA RICA. S. loc., *Lépiz* (Alonso-García et al. 2020). **CARTAGO:** Paraíso cantón, Tapantí National Park, ~1,500 m, *Lépiz* (CONN, M, Villarreal et al. 2012b, 2015; Villarreal and Renner 2014).

Also reported from the Caribbean.

Nothoceros schizophyllum (Gottsche ex Steph.) J.C.Villarreal, *Molec. Phylogen. Evol.* 78: 34, 2014 (Villarreal and Renner 2014).

≡ *Megaceros schizophyllum* Gottsche ex Steph., *Sp. Hepat. (Stephani)* 5: 949, 1916 (Stephani 1916a). Type: Cuba.

COSTA RICA. SAN JOSÉ: Pérez Zeledón, Rivas, Camino al Río Rivas, 700 m, 17 Jun 2006, *Villarreal et al. 895* (CONN, CR, Villarreal et al. 2012b as *Nothoceros canaliculatus*; Villarreal and Renner 2014; Alonso-García et al. 2020 as *Nothoceros canaliculatus*).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (Salazar Allen et al. 2021). **PANAMA WEST:** Panamá distrito, Camino a Cerro Pelado, 8°38'53"N, 80°04'42"W, *Villarreal & Varela 584* (ABSH, CANB, PMA, Duff et al. 2004 as *Dendroceros aff. canaliculatus*; Dauphin et al. 2006 as *Megaceros canaliculatus*; Villarreal et al. 2010a, 2010b, 2012b, all as *Nothoceros canaliculatus*, 2015; Villarreal and Renner 2014; Alonso-García et al. 2020).

Also reported from the Caribbean.

Nothoceros superbus J.C.Villarreal, Hässel et N.Salazar Allen, *Bryologist* 110(2): 280, 2007 (Villarreal et al. 2007). Holotype: Costa Rica: Cartago, P. N. Tapanti, 1,615 m, *Salazar Allen, Carranza, & Villarreal 20676* (USJ, isotypes CR-4023727, PMA).

COSTA RICA. S. loc. (von Konrat et al. 2010). **CARTAGO:** Paraíso cantón, Tapanti National Park, 1,615 m, *Salazar Allen et al. 20662, 20676, etc.* (USJ, CR, PMA, TYPE, Villarreal et al. 2007, 2012b, 2015; Villarreal and Renner 2014; Alonso-García et al. 2020).

Not found outside Central America.

Nothoceros vincentianus (Lehm. et Lindenb.) J.C.Villarreal, *Bryologist* 113(1): 111, 2010 (Villarreal et al. 2007).

≡ *Anthoceros vincentianus* Lehm. et Lindenb., *Nov. Stirp. Pug.* 6: 16, 1834 (Lehmann 1834). Type: St. Vincent.

≡ *Megaceros vincentianus* (Lehm. et Lindenb.) Campb., *Ann. Bot. (Oxford)* 21(4): 474, 1907 (Campbell 1907).

≡ *Anthoceros cristosporus* Steph., *Primit. fl. costar.*: 111, 1893 (Stephani 1893c), syn. fide Villarreal and Renner (2014). Lectotype (Bonner 1962a: 179) or possibly holotype: Costa Rica, San José, Forêts de la Palma, 1,550 m, 1888, *Pittier 6* (G-00060912 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=115851&lang=en>).

≡ *Megaceros cristosporus* (Steph.) Steph., *Sp. Hepat. (Stephani)* 5: 948, 1916 (Stephani 1916a).

≡ *Megaceros guatemalensis* Steph., *Sp. Hepat. (Stephani)* 5: 948, 1916 (Stephani 1916a), syn. fide Villarreal and Renner (2014). Lectotype (Söderström et al. 2023a: 152): Guatemala, Cobán, Alta Verapaz, 1,650 m, Türrckheim, Jun. 1908, *hb. Levier 6078* (G-00061198 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=121330&lang=en>), isolectotypes NY-00231432, NY-00231433).

GUATEMALA. S. loc. (Khanna 1944 as *Megaceros guatemalensis*). **ALTA VERAPAZ:** Cobán (Stephani 1916a as *Megaceros guatemalensis*); Cobán, 1,650 m, Jun 1908, *Türrckheim* (G-00061198 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=121330&lang=en>), NY, TYPE of *Megaceros guatemalensis*, Geissler and Bischler 1985 as *Megaceros guatemalensis*).

IZABAL: Morales municipio, Sierra Caral, Finca La Firmeza, Río Olay, 15.41056°N, 88.68456°W, 366 m, 2011, *Perez 4345* (M, Villarreal and Renner 2014).

COSTA RICA. S. loc. (*Stephani 1916a* as *Megaceros 'cris-tisporus'*; Khanna 1944 as *Megaceros 'cris-tisporus'*; Gradstein 2021); S. loc., ~700 m, *Villarreal et al. 896* (CR, *Villarreal and Renner 2014*); S. loc., ~2,500 m, *Villarreal et al. 904* (CR, *Villarreal and Renner 2014*); Cordillera de Talamanca (Holz 2003 as *Megaceros vincentianus*; Holz and Gradstein 2005b as *Megaceros vincentianus*). **ALAJUELA:** San Ramón cantón, Nectandra Cloud Forest, Quebrada Verde, 7 May 2007, *Norris 109969* (UC-2053215, *Norris et al. 2017* as *Megaceros vincentianus*). **HEREDIA:** Barva cantón, Barva forest, *Pittier 6042* (*Stephani 1893c* as *Anthoceros cristosporus*); Barva cantón, Barva Volcano, 5,000 ft (1,524 m), *Pittier (Haupt 1942* as *Megaceros cristosporus*); Heredia cantón, Vara Blanca, 5,300 ft (1,615 m), 2 Aug 1940, *Haupt (Haupt 1942* as *Megaceros cristosporus*). **PUNTARENAS:** Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 80–140 m (GOET, *Wanek and Pörtl 2008* as *Megaceros vincentianus*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al. 2001a* as *Megaceros vincentianus*). **SAN JOSÉ:** Aserri cantón, Tablazo Mountains, SW of Cartago, 5,500 ft (1,676 m), 9 Aug 1940, *Haupt (Haupt 1942* as *Megaceros cristosporus*); Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, *Holz et al. 2002* as *Megaceros vincentianus*); Dota cantón, San Gerardo (Dauphin 2005 as *Megaceros vincentianus*); Moravia cantón, La Palma, *Pittier (Haupt 1942* as *Megaceros cristosporus*); Moravia cantón, La Palma, 1,550 m, 18 Dec 1888, *Pittier 6* (G-00060912 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=115851&lang=en>, TYPE of *Anthoceros cristosporus*, *Stephani 1893c* as *Anthoceros cristosporus*; *Bonner 1962a* as *Anthoceros cristosporus*).

PANAMA. S. loc. (*Gradstein 2021*); S. loc., ~800–900 m, *Villarreal & Rodríguez 840* (CONN, *Villarreal and Renner 2014*; *Villarreal et al. 2015*); S. loc., *Villarreal et al. 641* (ABSH, *Villarreal et al. 2015*); **CHIRIQUÍ:** S. loc., *Villarreal et al. 1299, 1310* (M, *Bainard and Villarreal 2013*); Gualaca distrito, Fortuna Forest Reserve, NE of camping site, 900–1,200 m (*Salazar Allen et al. 2021*); Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (*Salazar Allen et al. 2021*); Gualaca distrito, Fortuna Forest Reserve, Quijada del Diablo, 1,200–1,600 m (*Salazar Allen et al. 2021*); Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, *Schäfer-Verwimp & Verwimp 34596* (JE, *Schäfer-Verwimp 2014*); Tierras Altas distrito, Parque Internacional La Amistad, along trail to Cerro Punta, 2,462 m, *Stotler & Crandall-Stotler 3495* (ABSH, *Stotler et al. 1998* as *Megaceros vincentianus*), Barú Volcano National Park (*Rodríguez-Quiel et al. 2022*). **COCLÉ:** Antón distrito, El Valle de Antón, ~800 m, *Villarreal & Rodríguez 802* (CONN, *Villarreal et al. 2012b*; *Villarreal and Renner 2014*; *Alonso-García et al. 2020*); Antón distrito, El Valle de Antón, Cerro Gaital, along

trail from Alto de La Mesa to summit region, 8°37.4–8°N, 80°6.9–7.0°W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp 34242* (JE, *Schäfer-Verwimp 2014*); La Pintada distrito, El Copé, *Villarreal 641* (*Duff et al. 2004* as *Megaceros aff. vincentianus*); La Pintada distrito, El Copé, *Villarreal 669* (PMA, *Villarreal et al. 2010a, 2010b*; *Li et al. 2011*). **VERAGUAS:** S. loc., *Villarreal 1280* (M, *Bainard and Villarreal 2013*); Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, *Schäfer-Verwimp & Verwimp 30854* (JE, *Schäfer-Verwimp 2014*); Santa Fe, *Villarreal & Rodríguez 1280A–1280F, 1281A–1281D, 1282A–1282F* (*Villarreal et al. 2012a*); Santa Fe, ~800–900 m, *Villarreal & Rodríguez 841* (CONN, *Villarreal et al. 2012b*; *Villarreal and Renner 2014*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

***Notothylas* Sull., Amer. J. Sci. Arts, ser. 2, 1(1): 74, 1846 (Gray 1846).**

Notothylas breutelii (Gottsche) Gottsche, *Bot. Zeitung (Berlin) Beil.* 16: 21, 1857 (Gottsche 1858).

≡ *Anthoceros breutelii* Gottsche, *Syn. Hepat.* 4: 583, 1846 (Gottsche et al. 1846). Type: St. Vincent.

COSTA RICA. Pan-American Highway, *Schuster (Schuster 1992c)*.

Also reported from Malesia, Northeastern Pacific, South-eastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Notothylas dissecta Steph., *Sp. Hepat. (Stephani)* 5: 1020, 1917 (*Stephani 1917a*). Lectotype (*Asthana and Srivastava 1991*): Guatemala, Suchitepéquez, Mazatenango, *Bernoulli 433* (G-00113205 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=149479&lang=en>, synlectotype [*Bernoulli 482*] G-00112969 <https://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=141857&lang=en>).

GUATEMALA. S. loc. (*Stephani 1917a*; Hässel 1976; Udar and Singh 1979; Hasegawa 1984; Geissler and Bischler 1989; *Schuster 1992c*; Parihar et al. 1994; Singh and Semwal 2000; *Gradstein et al. 2001b*; Chaudhary et al. 2006). **SUCHITEPÉQUEZ:** Mazatenango, *Bernoulli 433* (G-00113205 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=149479&lang=en>, TYPE, *Asthana and Srivastava 1991*; Singh 2002; Amélio 2018).

COSTA RICA. **HEREDIA:** Santo Domingo cantón, Santa Rosa, Instituto Nacional de Biodiversidad, 8 Oct 2003, *Dauphin & Li-Aragón* (CR, *Dauphin 2005*).

PANAMA. S. loc., *Araúz et al. 798* (M, PMA, *Villarreal et al. 2015, 2017*). **VERAGUAS:** Soná distrito, Isla Canales de Tierra, Playa los Combos, Jan 2002, *Salazar Allen et al. 20222* (PMA, *Salazar Allen and Chung 2003, 2006*; *Dauphin et al. 2006*).

Also reported from Indian Subcontinent, Indo-China.

Notothylas javanica (Sande Lac.) Gottsche, *Bot. Zeitung (Berlin) Beil.* 16: 20, 1858 (Gottsche 1858).

≡*Blasia javanica* Sande Lac., *Syn. hepat. jav.*: 94, 1856 (Sande Lacoste 1856).

Type: Java.

Note: *Notothylas javanica* is a mainly SE Asiatic taxon also reported from Africa, South America, and Mexico. It may have been introduced by humans (cf. Hasegawa and Tan 1996).

PANAMA. S. loc. (Ruklani et al. 2016; Amélio 2018; Escolástico-Ortiz and Juárez-Martínez 2018); S. loc., *Villarreal 1311* (M, Villarreal et al. 2015). **CHIRIQUÍ:** S. loc. (Peng and Zhu 2014). **VERAGUAS:** Santa Fe distrito, Santiago, Bda. Las Delicias, casa Familia Aguilar, *Villarreal 806* (ABSH, PMA, Dauphin et al. 2006 as *Notothylas* cf. *javanica*; Villarreal et al. 2015).

Also reported from West Tropical Africa, West-Central Tropical Africa, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Australia, Mexico, Western South America, Brazil.

Notothylas orbicularis (Schwein.) Sull., in A.Gray, *Amer. J. Sci. Arts*, ser. 2, 1(1): 75, 1846 (Gray 1846).

≡*Targionia orbicularis* Schwein., *Spec. Fl. Amer. Crypt.*: 23, 1821 (Schweinitz 1821). Type: USA.

PANAMA. **CHIRIQUÍ:** S. loc., *Villarreal et al. 1291* (M, Bainard and Villarreal 2013); Tierras Altas distrito, Volcán, Las Lagunas de Volcán, 5 Jul 2011, *Villarreal et al. 1302* (M, Villarreal et al. 2015).

Also reported from Middle Europe, Southeastern Europe, West-Central Tropical Africa, East Tropical Africa, Western Indian Ocean, China, Eastern Asia, Indian Subcontinent, Indo-China, Australia, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, South-Central USA, Southeastern USA, Mexico(?), the Caribbean, Western South America, Brazil.

***Phaeoceros* Prosk., Bull. Torrey Bot. Club 78(4): 346, 1951 (Proskauer 1951a).**

Phaeoceros carolinianus (Michx.) Prosk. Bull. Torrey Bot. Club 78(4): 346, 1951 (Proskauer 1951a).

≡*Anthoceros carolinianus* Michx., *Fl. bor.-amer. (Michaux)* 2: 280, 1803 (Michaux 1803). Type: USA.

≡*Phaeoceros laevis* var. *carolinianus* (Michx.) Augier, *Fl. Bryoph.*: 187, 1966 (Augier 1966), nom. inval. (International Code of Nomenclature for algae, fungi and plants 2018 [hereafter ICN2018], Article (Art.) 41.5 [Turland et al. 2018]; basionym not cited).

≡*Anthoceros donnellii* Austin, Bull. Torrey Bot. Club 6(52): 304, 1879 (Austin 1879), syn. fide Hässel (1989). Type: USA.

?**GUATEMALA.** S. loc. (Dauphin 2005 as *Phaeoceros laevis* var. *carolinianus*). Note: We are not aware of any firsthand report from Guatemala.

***BELIZE.** ***TOLEDO:** Bladen Nature Reserve, 16°30'00"N, 88°54'00"W, ~250 m, 15 May 1996, *Whittemore & Davidse 5705*, det. A.-Whittemore 1996 (MO! <http://tropicos.org/specimen/90209711>, this publication).

***HONDURAS.** ***COPÁN:** Copán municipio, Copán Ruinas, 14°52'N, 89°10'W, 680 m, 29 Apr 1996, *Allen 17714*, det. A.-Whittemore 1996 (MO-4428667! <http://tropicos.org/specimen/90039825>, this publication).

***NICARAGUA.** ***MANAGUA:** Ticuantepe municipio, Las Nubes, 12°00'N, 86°16'W, 800 m, 18 Oct 1980, *Guzmán et al. 1361*, det. A.-Whittemore 1996 (MO-4424141! <http://tropicos.org/specimen/90042991>, this publication).

COSTA RICA. **CARTAGO:** Oreamuno cantón, Irazú Volcán National Park, Cerro Largo, N-(Innen)-Hang der Caldera, 3,250 m, 6 Apr 1971, *Kubbiér 802*, det. G.Dauphin (B-225784, Dauphin 2005 as *Phaeoceros laevis* var. *carolinianus*). **SAN JOSÉ:** Moravia cantón, Chemin de Carillo, versant Atlantique, 300 m, *Pittier 6068* (Stephani 1893c as *Anthoceros donnellii*).

PANAMA. **CHIRIQUÍ:** S. loc., *Villarreal et al. 1292* (M, Bainard and Villarreal 2013). **COCLÉ:** Antón distrito, El Valle de Antón, *Villarreal & Varela 520* (CANB, PMA, Duff et al. 2004; Dauphin et al. 2006; Villarreal et al. 2010a, 2010b; Li et al. 2011 as *Phaeoceros* cf. *carolinianus*).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa, Macaronesia, West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Middle Atlantic Ocean, Western Indian Ocean, Russian Far East, Caucasus, Western Asia, Arabian Peninsula, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasia, Australia, New Zealand, Southwestern Pacific, Southeastern Pacific, Northeastern Pacific, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, South-Central USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Phaeoceros dendroceroides (Steph.) Hässel, *Beih. Nova Hedwigia* 134: 487, 209, 2009 (Hässel and Rubies 2009).

≡*Anthoceros dendroceroides* Steph., *Sp. Hepat. (Stephani)* 5: 984, 1916 (Stephani 1916a). Type: Chile.

PANAMA. S. loc., *Villarreal 1305* (M, Villarreal et al. 2015). **CHIRIQUÍ:** S. loc., *Villarreal et al. 1307b* (M, Bainard and Villarreal 2013).

Also reported from Northern South America(?), Southern South America, Subantarctic Islands(?).

Phaeoceros flexivalvis (Gottsche et Nees) Hässel, *Candollea* 44(2): 728, 1989 (Hässel 1989).

≡*Anthoceros flexivalvis* Gottsche et Nees, *Syn. Hepat.* 4: 586, 1846 (Gottsche et al. 1846). Type: St. Kitts.

COSTA RICA. **ALAJUELA:** San Ramón cantón, Montes de Aguacate, 1,500 ft (457 m), *Oersted* (Müller 1851 as *Anthoceros flexivalvis*).

Also reported from Mexico, the Caribbean.

Phaeoceros microsporus (Steph.) Hässel, *Candollea* 44(2): 721, 1989 (Hässel 1989).

≡*Aspiromitus microsporus* Steph., *Sp. Hepat. (Stephani)* 5: 963, 1916 (Stephani 1916a). Lectotype (Bonner 1962a: 288; see also Hässel 1989: 721): Guatemala, Copan, *Bernoulli ex hb. Gottsche* (G).

GUATEMALA. S. loc. (Stephani 1916a as *Aspiromitus microsporus*; Schuster 1992c; Freire et al. 2012). ALTA VERAPAZ: Cobán, Bernoulli (G, TYPE, Bonner 1962a; Hässel 1989; Freire 2006).

PANAMA. CHIRIQUÍ: Tierras Altas distrito, Volcán, Villarreal & Araúz 725 (M, Villarreal et al. 2015).

Also reported from Southern South America.

***Phaeomegaceros* R.J.Duff, J.C.Villarreal,
Cargill et Renzaglia, Bryologist
110(2): 241, 2007 (Duff et al. 2007).**

Phaeomegaceros fimbriatus (Gottsche) R.J.Duff, J.C.Villarreal, Cargill et Renzaglia, *Bryologist* 110(2): 241, 2007 (Duff et al. 2007).

≡ *Anthoceros fimbriatus* Gottsche, *Ann. Sci. Nat. Bot.*, sér. 5, 1: 187, 1864 (Gottsche 1864). Type: Colombia.

≡ *Phaeoceros fimbriatus* (Gottsche) Gradst., *J. Hattori Bot. Lab.* 45: 123, 1979 (Gradstein and Hekking 1979).

= *Aspiromitus pulcherrimus* Steph. *Sp. Hepat. (Stephani)* 5: 964, 1916 (Stephani 1916a), syn. fide Hässel (1989). Lectotype (Bonner 1962a: 290; see also Hässel 1989: 75 as “holotype”) if not holotype: Costa Rica, Carillo, sur le chemin de Carillo versant atlantique, 300 m, Nov 1890, *Biolley* 3092 (G-00061321 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=130403&lang=en>).

≡ *Anthoceros pulcherrimus* (Steph.) Haupt, *Bryologist* 45(5): 145, 1942 (Haupt 1942).

COSTA RICA. S. loc. (Stephani 1916a as *Aspiromitus pulcherrimus*; Haupt 1942 as *Anthoceros pulcherrimus*; Schuster 1992c as *Anthoceros fimbriatus*; Hasegawa 2001 as *Phaeoceros fimbriatus*; Lavocat Bernard 2018; Ibarra-Morales et al. 2020); S. loc., Villarreal & Barrantes (Villarreal and Renzaglia 2006a, 2006b). ALAJUELA: Between Grecia and Naranjo, 3,700 ft (1,128 m), 11 Aug 1940, Haupt (Haupt 1942 as *Anthoceros pulcherrimus*). CARTAGO: Turrialba cantón, Volcán Turrialba, 3,200 m, Villarreal et al. 880 (CONN, Villarreal et al. 2012b; Villarreal and Renner 2014; Alonso-García et al. 2020); Volcán Irazú, area del crater 3,200 m, 11 Jul 2006, Villarreal et al. 870, 871, 881 (CONN, M, Villarreal et al. 2015; Peñaloza-Bojacá et al. 2022). GUANACASTE: S. loc., Villarreal & Barrantes (Duff et al. 2007). LIMÓN: Pococí cantón, sur le chemin de Carrillo versant atlantique, 300 m, Sep 1890, *Biolley* 3092 (G, TYPE of *Aspiromitus pulcherrimus*, Bonner 1962a as *Aspiromitus pulcherrimus*; Hässel 1989 as *Phaeoceros fimbriatus*; Dauphin 2005 as *Phaeoceros fimbriatus*). SAN JOSÉ: Vásquez de Coronado cantón, Las Nubes, 6,000 ft (1,829 m), 31 Jul 1940, Haupt (Haupt 1942 as *Anthoceros pulcherrimus*).

PANAMA. S. loc. (Lavocat Bernard 2018; Ibarra-Morales et al. 2020); S. loc., Villarreal 624 (PMA, Villarreal and Renzaglia 2006a, 2006b); S. loc., Villarreal 779 (ABSH, Villarreal et al. 2015; Cargill et al. 2022). CHIRIQUÍ: Gualaca distrito, Fortuna, Villarreal & Araúz 634, 717 (PMA, Villarreal and Renzaglia 2006a, 2006b); Gualaca distrito, Fortuna, Villarreal 799 (Duff et al. 2007); Gualaca distrito, Hornito, Fortuna, 1,170 m,

Stotler & Crandall-Stotler 3476 (ABSH, PMA, Stotler et al. 1998 as *Phaeoceros fimbriatus*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Southern South America(?).

MARCHANTIOPHYTA

***Acanthocoleus* R.M.Schust., Bull. Torrey Bot.
Club 97(6): 339, 1970 (Schuster 1970).**

Acanthocoleus aberrans (Lindenb. et Gottsche) Kruijt, *Bryophyt. Biblioth.* 36: 62, 1988 (Kruijt 1988) var. *aberrans*.

≡ *Lejeunea aberrans* Lindenb. et Gottsche, *Syn. Hepat.* 5: 751, 1847 (Gottsche et al. 1847). Type: Mexico.

= *Dicranolejeunea pulchella* Herzog, *Rev. Bryol. Lichénol.* 20: 139, 1951 (Herzog 1951), syn. fide Gradstein (1994). Lectotype (Gradstein 1994: 191 as “holotype”): Costa Rica, San José, vicinity of Santa María de Dota. On exposed rock, 1,500–1,800 m, 26 Dec 1925–3 Jan 1926, Standley & Valerio 43153 (JE-04001075 <https://je.jacq.org/JE04001075>, isolecotype US-00070854).

GUATEMALA. S. loc. (Schäfer-Verwimp 1999; Zhu and Grolle 2001). ALTA VERAPAZ: Senahú municipio, Finca Mocca, 1920, Johnson 170s (US, Gradstein 1994; Freire 2006); Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, Pérez 122 (USCG, Pérez 2009); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). EL PROGRESO: San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007). HUEHUETENANGO: S. loc., Pérez 1206 (USCG, Pérez 2009). ZACAPA: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007).

COSTA RICA. S. loc. (Gradstein 1994; Schäfer-Verwimp 1999; Zhu and Grolle 2001). ALAJUELA: San Ramón cantón, Nectandra Cloud Forest (Norris et al. 2017). SAN JOSÉ: Acosta cantón, Cangrejal, Cerro Caraigres, 2,500 m, Dauphin 3398 (CR, Dauphin 2005); Dota cantón, Santa María (Dauphin 2005); Dota cantón, Santa María, 1,500–1,800 m, Standley & Valerio 43153 (B, JE-04001075 <https://je.jacq.org/JE04001075>, TYPE of *Dicranolejeunea pulchella*, Herzog 1951 as *Dicranolejeunea pulchella*; Bonner 1965 as *Dicranolejeunea pulchella*).

PANAMA. CHIRIQUÍ: Tierras Altas distrito, Parque Internacional La Amistad, Las Nubes, sendero Panamá Verde, 8°53'37.4"N, 82°38'52.5"W, 2,218 m, Sep 2015–Jul 2016, Guerra-Batista et al. (Guerra-Batista et al. 2020); Tierras Altas distrito, Parque Nacional Volcán Barú, Paso Ancho, 8°48'55.13"N, 82°34'33.50"W, 2,047 m, Guerra Batista et al. (UCH, Guerra et al. 2020).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Acanthocoleus aberrans var. *laevis* Gradst., *Fl. Neotrop. Monogr.* 62: 193, 1994 (Gradstein 1994). Type: Brazil.

*HONDURAS. COMAYAGUA: Meambar municipio, Quebrada Agua Helada, above San José de Los Planes, ~15 km

E of Lago Yojoa, Cerro Meambar, 14°04'N, 87°51'W, 9 Mar 1933, *Allen* 13713, det. Dauphin May 2017 (MO-4428499! <http://tropicos.org/specimen/90040018>, **this publication**). *COPÁN: Copán municipio, Copán Ruinas, Quebrada Sessemil, ~4.3 km N of ruins road to Agua Caliente, 14°52'N, 89°10'W, 29 Apr 1996, *Allen* 17675, det. Dauphin May 2017 (MO-4428474! <http://tropicos.org/specimen/90040065>, **this publication**).

*NICARAGUA. *MATAGALPA: Matagalpa municipio, Hamonia, Selva Negra, desde km 139 de la carretera a Jinotega, 1,220 m, 26 Jun 1986, *Granzow de la Cerda* 2153, det. Dauphin May 2017 (MO-3375716! <http://tropicos.org/specimen/101411583>, **this publication**).

COSTA RICA. S. loc. (Stephani 1914 as *Euosmolejeunea beyrichii*). CARTAGO: Jiménez cantón, Peijivalle, 900 m, *Standley* 64732 (*Herzog* 1951 as *Euosmolejeunea beyrichii*).

PANAMA. CHIRIQUÍ: Boquete distrito, Bajo Mono, along Rio Caldera, 8°50.5'N, 82°28.9'W, 1,670–1,745 m, 5 Apr 2006, *Schäfer-Verwimp* & *Verwimp* 30926, 30969 (JE, *Schäfer-Verwimp* 2014); Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (*Salazar Allen et al.* 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,350 m, *Schäfer-Verwimp* & *Verwimp* 34343 (JE, *Schäfer-Verwimp* 2014); Tierras Altas distrito, Volcán, road to Rio Sereno, 8°49.5'N, 82°41.5'W, 1,580 m, 2 Apr 2009, *Schäfer-Verwimp* & *Verwimp* 34684 (JE, *Schäfer-Verwimp* 2014).

Also reported from Macaronesia, West Tropical Africa, West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

***Acrobolbus* Nees, Syn. Hepat. 1: 5, 1844
(Gottsche et al. 1844).**

Acrobolbus cuneifolius (Steph.) Briscoe, *Phytotaxa* 202(1): 59, 2015 (Briscoe et al. 2015).

≡*Tylimanthus cuneifolius* Steph., *Bull. Herb. Boissier*, sér. 2, 5(12): 1138 (=Spec. Hepat. [Stephani] 3: 10), 1905 (Stephani 1905b). Type: Venezuela.

COSTA RICA. CARTAGO: El Guarco cantón, 3 de Junio, *Gradstein* 9687 (GOET, *Gradstein* 2021). SAN JOSÉ: Between El Cañón and Ojo de Agua, 2,800–3,000 m, *Schuster RMS* 71-950 (*Gradstein* 2021).

Also reported from Northern South America, Western South America.

Acrobolbus laxus (Lehm. et Lindenb.) Briscoe, *Phytotaxa* 202(1): 60, 2015 (Briscoe et al. 2015).

≡*Plagiochila laxa* Lehm. et Lindenb., *Sp. Hepat. (Lindenberg)* 2–4: 68, 1840 (Lindenberg 1840). Type: Guadeloupe.

≡*Tylimanthus laxus* (Lehm. and Lindenb.) Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 502, 1885 (Spruce 1885).

≡*Plagiochila approximata* Lindenb., *Sp. Hepat. (Lindenberg)* 2–4: 59, 1840 (Lindenberg 1840), syn. fide Burghardt and Gradstein (2008). Type: Guadeloupe.

≡*Tylimanthus approximatus* (Lindenb.) Besch., *J. Bot. (Morot)* 7: 191, 1893 (Bescherelle 1893a).

≡*Tylimanthus jamaicensis* Steph., *Bull. Herb. Boissier*, sér. 2, 5(12): 137 [=Sp. Hepat. (Stephani) 3: 9], 1905 (Stephani 1905b), syn. fide Fulford (1987). Type: Jamaica.

≡*Tylimanthus setaceociliatus* Steph., *Sp. Hepat. (Stephani)* 6: 251, 1922 (Stephani 1922), syn. fide Burghardt and Gradstein (2008). Type: Ecuador.

≡*Marsupidium latifolium* R.M.Schust., *Phytologia* 39: 249, 1978 (Schuster 1978a), syn. fide Burghardt and Gradstein (2008). Type: Venezuela.

≡*Acrobolbus latifolius* Dimon, Váña, Schäf.-Verw., Heinrichs et M.A.M.Renner, *Austral. Syst. Bot.* 31(3): 218, 2018 (Dimon et al. 2018), nom. inval. (ICN2018 Art. 41.5; basionym not cited).

HONDURAS. LEMPIRA: Gracias municipio, Montaña de Celaque, Rio Arcagual SW of Gracias, 2,480 m, *Allen* 11500 (MO-3982137, *Burghardt* 2007 as *Tylimanthus laxus*; *Burghardt and Gradstein* 2008 as *Tylimanthus laxus*).

NICARAGUA. ESTELÍ: Estelí municipio, Cerro Quiabú (Cerro Las Brisas), 13°06'N, 86°25'W, 1,550–1,600 m, 24 Nov 1979, *Stevens* & *Grijalva* 16299, det. Dauphin May 2017 (MO-6236047! <https://tropicos.org/specimen/100366532>, **this publication**). GRANADA: Granada municipio, Volcán Mombachó, 1,000–1,222 m, *Heinrichs* & *Moreno* 192 (GOET, U, *Burghardt* 2007 as *Tylimanthus laxus*; *Burghardt and Gradstein* 2008 as *Tylimanthus laxus*).

COSTA RICA. S. loc. (*Gradstein* 1999a as *Tylimanthus setaceociliatus*); S. loc., *Kappelle* 4622 (U, *Kappelle* 1996 as *Tylimanthus* cf. *approximatus*); Cordillera de Talamanca (Holz 2003 as *Tylimanthus laxus*; *Holz and Gradstein* 2005b as *Tylimanthus laxus*). ALAJUELA: Alajuela cantón, Viento Fresco, 1,600–1,900 m, *Standley* 47810 (*Herzog* 1938 as *Tylimanthus approximatus*; *Morales* 1991 as *Tylimanthus approximatus*); Poás Volcano, 2,600–2,700 m, *Gradstein* & *Mues* 9628 (GOET, *Burghardt* 2007 as *Tylimanthus laxus*; *Burghardt and Gradstein* 2008 as *Tylimanthus laxus*); San Ramón cantón, Nectandra Cloud Forest, Quebrada Verde, *Lucas* (UC-2053818, *Norris et al.* 2017 as *Tylimanthus laxus*). CARTAGO: Cordillera de Talamanca, Cerro de La Muerte, Páramo Buena Vista, km 85 of Pan-American Highway, 3,100 m, 9 Nov 1999, *Holz* CR 99-613 (CR, GOET, JE, *Holz et al.* 2001 as *Tylimanthus laxus*; *Dauphin* 2005 as *Tylimanthus laxus*); El Guarco cantón, Páramo Buenavista, Reserva Tres de Junio, 3,250 m, 20 Jan 2000, *Holz* CR 00-197 (CR, JE, GOET, MO-5282873, S-B62214, B, F, *Holz et al.* 2001 as *Tylimanthus laxus*; *Dauphin* 2005 as *Tylimanthus laxus*; *Groth and Heinrichs* 2005 as *Tylimanthus laxus*; *Stech et al.* 2006 as *Tylimanthus laxus*; *Hentschel et al.* 2007c as *Tylimanthus laxus*; *Burghardt* 2007 as *Tylimanthus setaceociliatus*; *Burghardt and Gradstein* 2008 as *Tylimanthus laxus*; *Masuzaki et al.* 2010 as *Tylimanthus laxus*; *Feldberg et al.* 2014 as *Tylimanthus laxus*; *Briscoe et al.* 2017 as *Tylimanthus laxus*; *Dimon et al.* 2018); El Guarco cantón, Reserva 3 de Junio, 2,650–2,800

m, *Gradstein & Mues* 9686, 9690 (GOET, *Burghardt* 2007 as *Tylimanthus setaceociliatus*; *Burghardt and Gradstein* 2008 as *Tylimanthus laxus*); Paraíso cantón, Tapantí National Park, Orosi Valley, Sendero “La Oropéndola,” 600 m, 30 Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0341 (CR, hb. Schäfer-Verwimp, *Holz et al.* 2001 as *Tylimanthus laxus*). **HEREDIA:** Barva cantón, Volcán Barva, 2,650–2,900 m, *Gradstein & Mues* 9648 (GOET, *Burghardt* 2007 as *Tylimanthus setaceociliatus*; *Burghardt and Gradstein* 2008 as *Tylimanthus laxus*). **PUNTARENAS:** Monteverde, <1,500 m (*Morales* 1991 as *Tylimanthus jamaicensis*; *Dauphin* 2005 as *Tylimanthus laxus*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, 1,550 m, *Gradstein* 9487, 9595, 9605 (GOET, *Burghardt* 2007 as *Tylimanthus laxus*; *Burghardt and Gradstein* 2008 as *Tylimanthus laxus*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a as *Plagiochila laxa* and *Tylimanthus laxus*); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, *Gradstein et al.* (U, *Sillett et al.* 1995 as *Tylimanthus approximatus*); Monteverde, 1,550 m, *Gradstein & Solano* 9473, 9512 (U, USJ, *Gradstein et al.* 1994 as *Plagiochila laxa*; *Dauphin* 2005 as *Plagiochila laxa*); Monteverde, 1,400 m, Feb 1969, *James, W.* 1969-36 (US, *Reed and Robinson* 1971 as *Tylimanthus jamaicensis*; *Dauphin* 2005 as *Tylimanthus jamaicensis*); S. loc. (*Merwin et al.* 2001 as *Plagiochila laxa*, *Tylimanthus laxus*, and *Tylimanthus* cf. *approximatus*). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, *Holz et al.* 2002 as *Tylimanthus laxus*); Dota cantón, Los Robles, *Schäfer-Verwimp & Holz* (*Dauphin* 2005 as *Tylimanthus laxus*); Dota cantón, San Gerardo, “Los Robles,” 2,420 m, 4 Jan 2000, *Schäfer-Verwimp & Holz* (CR, hb. Schäfer-Verwimp, *Holz et al.* 2001 as *Tylimanthus laxus*); Dota cantón, San Gerardo, Río Savegre, 2,000 m, 25 Dec 1999, *Holz & Schäfer-Verwimp* CR 99-1116 (CR, GOET, *Holz et al.* 2001 as *Tylimanthus laxus*; *Dauphin* 2005 as *Tylimanthus laxus*); Pérez Zeledón cantón, Cordillera de Talamanca, Cerro de la Muerte, Páramo Buena Vista, 13 Sep 1999, *Heinrichs et al.* AHH-317 (CR, GOET, *Holz et al.* 2001 as *Tylimanthus laxus*); Pérez Zeledón cantón, Pan-American Highway Sur, km 117, *Holz et al.* AHH-317 (*Dauphin* 2005 as *Tylimanthus laxus*); Pérez Zeledón cantón, Páramo Buena Vista, 3,400 m, *Dauphin* 2920, det. *Briscoe* (NY, *Davis* 2004 as *Marsupidium latifolium*; *Dauphin* 2005 as *Marsupidium latifolium*; *Forrest et al.* 2006 as *Marsupidium latifolium*; *Hentschel et al.* 2006a as *Marsupidium latifolium*, 2007c as *Marsupidium latifolium*; *Masuzaki et al.* 2010 as *Marsupidium latifolium*; *Vilnet et al.* 2011 as *Marsupidium latifolium*; *Cailliau et al.* 2013 as *Marsupidium latifolium*; *Feldberg et al.* 2014 as *Marsupidium latifolium*; *Shaw et al.* 2015 as *Tylimanthus laxus*; *Dimon et al.* 2018 as *Acrobolbus latifolius*); Vásquez de Coronado cantón, Las Nubes, 1,500–1,900 m, *Standley* 38740 (B-13590, S-B80331, *Herzog* 1938 as *Tylimanthus approximatus*; *Morales* 1991 as *Tylimanthus*

approximatus; *Dauphin* 2005 as *Tylimanthus laxus*; *Burghardt* 2007 as *Tylimanthus laxus*; *Burghardt and Gradstein* 2008 as *Tylimanthus laxus*).

PANAMA. CHIRIQUÍ: Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,900 m, 6 Apr 2006, *Schäfer-Verwimp & Verwimp* 30975 (JE, *Schäfer-Verwimp* 2014 as *Tylimanthus laxus*); Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (*Salazar Allen et al.* 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,420 m, *Schäfer-Verwimp & Verwimp* 34382/A (JE, *Schäfer-Verwimp* 2014 as *Tylimanthus laxus*). **DARIÉN:** Cerro Pirre, 800–1,150 m, *Salazar Allen & Gradstein* 9269 (PMA, *Stotler et al.* 1998 as *Tylimanthus approximatus*); Cerro Pirre, 800–1,150 m, *Salazar Allen & Gradstein* (JE-H3600, *Burghardt* 2007 as *Tylimanthus laxus*; *Burghardt and Gradstein* 2008 as *Tylimanthus laxus*); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992 as *Tylimanthus approximatus*); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992 as *Tylimanthus approximatus*); S. loc. (*Schäfer-Verwimp* 2014 as *Tylimanthus laxus*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

***Acrobolbus wilsonii** Nees, *Syn. Hepat.* 1: 5, 1844 (Gottsche et al. 1844). Type: Ireland.

***COSTA RICA.** S. loc. (*Schuster* 2021). ***SAN JOSÉ:** Dota cantón, Los Quetzales National Park (*Amengual et al.* 2007); Dota cantón, San Gerardo, 1,950 m, 24 Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0057, det. R. Grolle (CR-3747022!, this publication).

Acrobolbus wilsonii has only been published from Costa Rica without any further details. This is the first confirmed report from Central America. Also reported from Northern Europe, Macaronesia, Mexico, the Caribbean(?), Northern South America, Western South America.

***Acrolejeunea* (Spruce) Schiffn., Hepat. (Engl.-Prantl) 128, 1893 (Schiffner 1893a).**

Acrolejeunea emergens (Mitt.) Steph., *Pflanzenw. Ost-Afrikas* C: 65, 1895 (Stephani 1895b) var. *emergens*.

≡ *Phragmicoma emergens* Mitt., *Philos. Trans.* 168: 397, 1879 (Mitten 1879). Type: Rodriguez Island.

GUATEMALA. BAJA VERAPAZ: S. loc., 2007, *Pérez* (USCG, *Barillas de Klee et al.* 2008).

COSTA RICA. GUANACASTE: La Cruz cantón, Santa Rosa National Park, Península Santa Elena, Playa Gringos, quebrada Despeñadero, 0–50 m, 27 Aug 2003, *Dauphin et al.* 3291 (CR, *Dauphin* 2005; *Dauphin and Grayum* 2005). **PUNTARENAS:** Osa cantón, Rincón, Puerto Escondido, 10 m, *Gradstein & Dauphin* 9374 (U, USJ, *Gradstein et al.* 1994; *Dauphin* 2005).

PANAMA. S. loc. (Fulford and Sharp 1990; Oliveira-e-Silva and Yano 2000; Bastos 2004). **BOCAS DEL TORO:** Salt Creek (9°17'39.7"N, 82°06'11.2"W) on Isla Bastimento, Aug 2017 (Salazar Allen et al. 2022); Dolphin Bay (9°13'14.7"N, 82°13'02.9"W), Aug 2017 (Salazar Allen et al. 2022); Bocas del Toro distrito, Dolphin Bay, 9°13'16.9"N, 82°13'03.0"W, 16 m, 15 Aug 2017, *Caswell-Levy 1037* (PMA, this publication). **DARIÉN:** Cerro Pirre (Stotler et al. 1998); Cerro Pirre, Trail El Real-Pirre, along Río Pirre, ~50 m, 4–8 Jun 1991, *Gradstein & Salazar Allen 9197* (PMA, U, Gradstein and Salazar Allen 1992; Stotler et al. 1998). **PANAMA:** Panamá distrito, between Madden Dam and Saddle II near Alahuela, Nov 1934, *Dodge 16872* (MO, Gradstein 1975, 1994; Stotler et al. 1998); Panamá distrito, Cerro Pirre, *Salazar Allen & Gradstein 9197* (PMA, U, Gradstein 1994; Stotler et al. 1998); Panamá distrito, Cerro Pirre, *Salazar Allen & Gradstein 9205* (PMA, Stotler et al. 1998).

Also reported from Macaronesia, West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Western Indian Ocean, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Acrolejeunea heterophylla (A.Evans) Grolle et Gradst., *J. Hattori Bot. Lab.* 38: 332, 1974 (Gradstein 1974).

≡ *Ptychocoleus heterophyllus* A.Evans, *Amer. J. Bot.* 5(3): 144, 1918 (Evans 1918). Type: USA, Florida.

GUATEMALA. S. loc. (Schuster 1980d; Fulford and Sharp 1990). **IZABAL:** Puerto Barrios, *Steyermark 39828* (F, hb. Fulford, Gradstein 1975, 1994; Freire 2006; Pérez 2009).

BELIZE. S. loc. (Schuster 1980d; Fulford and Sharp 1990). ***BELIZE:** Tropical Education Center Mile 28–29 on Western Highway, 17°21'N, 88°32'W, 10 m, 5 Dec 1996, *Allen 17961*, det. Whittemore 1997 (MO-4417018! <https://tropicos.org/specimen/90046814>, this publication); same location, *Allen 17970*, det. Whittemore 1996 (MO-4417017! <https://tropicos.org/specimen/90046815>, this publication); same location, *Allen 17973*, det. Dauphin May 2017 (MO-5228036! <https://tropicos.org/specimen/90102215>, this publication). **TOLEDO:** Punta Gorda, Nov 1932 (hb. Fulford ex MO, Gradstein 1975, 1994); S. loc. (Whittemore and Allen 1996).

HONDURAS. S. loc. (Svihla 1939 as *Ptychocoleus heterophyllus*; Frye and Clark 1947 as *Ptychocoleus heterophyllus*; Schuster 1954 as *Ptychocoleus heterophyllus*; Gradstein 1974; Bonner 1977; Schuster 1980d; Fulford and Sharp 1990); S. loc., 1903, *Wilson 15037*, det. Evans as *Ptychocoleus heterophyllus* (MO-5217888! <https://tropicos.org/specimen/90089269>, this publication); S. loc., Jan 1920, *Wilson 225* (Evans 1922 as *Ptychocoleus heterophyllus*). **ATLÁNTIDA:** La Ceiba municipio, Pico Bonito National Park, at campamento Curla and confluence of Río Bonito and Quebrada Grande, 15°42'N, 86°51'W, 95–165 m, 11 Apr 1996, *Allen 17205*, det. G.-Dauphin May 2017 (MO-4428658! <https://tropicos.org/specimen/90039834>, this publication); Tela municipio, along Highland Creek, near Puerto Sierra, ~0 m, Feb 1903, *Wilson 569* (Evans 1918 as *Ptychocoleus*

heterophyllus; Gradstein 1975). **FRANCISCO MORAZÁN:** Distrito Central municipio, La Montanita, Oct 1946, *Standley 12355* (F, Gradstein 1975, 1994).

NICARAGUA. S. loc. (Schuster 1954 as *Ptychocoleus heterophyllus*; Gradstein 1974; Bonner 1977; Schuster 1980d). **ATLÁNTICO NORTE:** Bilwi municipio, Sandy Bay, Jan 1920, *Hamilton 224, 225* (DUKE, FH, YU, Evans 1922 as *Ptychocoleus heterophyllus*; Gradstein 1975, 1994).

COSTA RICA. S. loc. (Mustelier 2012). **CARTAGO:** Turrialba, *Schultes 11885* (NY, Thiers 1985; Gradstein 1994; Gradstein et al. 1994; Dauphin 2005).

Also reported from Southeastern USA, Mexico, the Caribbean, Brazil.

Acrolejeunea torulosa (Lehm. et Lindenb.) Schiffn., *Hepat. (Engl.-Prantl)*: 128, 1893 (Schiffner 1893a).

≡ *Jungermannia torulosa* Lehm. et Lindenb., *Nov. Stirp. Pug.* 6: 41, 1834 (Lehmann 1834). Type: Guiana.

≡ *Ptychocoleus torulosus* (Lehm. et Lindenb.) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 405, 1877 (Trevisan 1877).

BELIZE. S. loc. (Fulford 1938 as *Ptychocoleus torulosus*). ***TOLEDO:** Punta Gorda, Nov 1932, *White 9* (MO-5286184!), 57 (MO-5286185!), 63 (MO-5286186!), 67 (MO-5286229!), 79 (MO-5286188!), 81 (MO-5286198!), 84 (MO-5286187!), 97 (MO-5286194!), 100 (MO-5286195!), 110 (MO-5375419!), all det. Fulford 1937 (this publication).

HONDURAS. **FRANCISCO MORAZÁN:** Quebrada de Santa Clara, *Standley & Williams 169* (F, Gradstein 1975 as *Acrolejeunea torulosa* var. *torulosa*), ***LA PAZ:** Los Planes, ~5 km W of San Pedro de Tutule, 14°15'N, 88°54'W, 28 Mar 1933, *Allen 14556*, det. A. Whittemore 1996 (MO-4428653! <http://tropicos.org/specimen/90040017>, this publication).

COSTA RICA. **GUANACASTE:** La Cruz cantón, Guanacaste National Park, Sector Santa Rosa, Mirador Santa Elena, 310 m, *Dauphin 2294* (CR, Dauphin et al. 1998; Dauphin 2005).

PANAMA. **BOCAS DEL TORO:** Dolphin Bay (9°13'14.7"N, 82°13'02.9"W), Aug 2017 (Salazar Allen et al. 2022); Bocas del Toro distrito, Dolphin Bay, 9°13'16.9"N, 82°13'03.0"W, 16 m, 15 Aug 2017, *Gudiño 3321*, det. Gudiño Aug 2017 (PMA, this publication).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Adelanthus Mitt., J. Proc. Linn. Soc., Bot. 7(28): 243, 1864 (Mitten 1864).

Adelanthus carabayensis (Mont.) Grolle, *J. Hattori Bot. Lab.* 35: 348, 1972 (Grolle 1972c).

≡ *Plagiochila carabayensis* Mont., *Ann. Sci. Nat. Bot., sér. 4, 5:* 348, 1856 (Montagne 1856a). Type: Peru.

***HONDURAS.** ***COMAYAGUA:** From Agua Amarilla to San José de Los Planes, 14°47'N, 87°51'W, 1,300–1,700 m, 14 Mar 1993, *Allen 13993*, det. Dauphin May 2017 (MO-5227628! <http://tropicos.org/specimen/90096772>, this publication).

COSTA RICA. S. loc. (Schäfer-Verwimp and Pócs 2009; Schäfer-Verwimp et al. 2013; Schäfer-Verwimp and Van Melick 2016). **PUNTARENAS:** Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a); Monteverde, 1,550 m, *Gradstein & Solano* 9569 (U, USJ, *Gradstein et al.* 1994; *Dauphin* 2005); S. loc. (*Merwin et al.* 2001). ***SAN JOSÉ:** Dota cantón, Cerro de Las Vueltas, *Dauphin et al.* 3570 (CR!, this publication).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Adelanthus lindenbergianus (Lehm.) Mitt., *J. Proc. Linn. Soc., Bot.* 7(28): 244, 1864 (Mitten 1864).

≡*Jungermannia lindenbergiana* Lehm., *Linnaea* 4(3): 367, 1829 (Lehmann 1829). Type: South Africa.

≡*Jungermannia unciformis* Hook.f. et Taylor, *London J. Bot.* 3: 457, 1844 (Hooker and Taylor 1844a), syn. fide Mitten (1860b). Type: Tierra del Fuego.

≡*Adelanthus unciformis* (Hook.f. et Taylor) Spruce, *J. Bot.* 14(5): 200, 1876 (Spruce 1876b).

≡*Plagiochila subviminea* Steph., *Biblioth. Bot.* 21(87): 212, 1916 (Stephani 1916b), syn. fide Grolle (1972c). Type: Bolivia.

≡*Plagiochila subviminea* Steph. var. *paramicola* Herzog ex Carl, *Ann. Bryol., Suppl.* 2: 55, 1931 (Carl 1931b), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Grolle (1972c).

≡*Plagiochila subviminea* f. *paramicola* Herzog, *Rev. Bryol. Lichénol.* 11(1/2): 12, 1939 (Herzog 1938). Lectotype (Grolle 1972c: 343 as “holotype”): Costa Rica, San José, Cerro de Las Vueltas, *Standley* 43862 (JE-00404866 <https://je.jacq.org/JE04004866>, isolectotype US-00072815 <http://n2t.net/ark:/65665/3bafcc490-98ce-4e95-9b9a-c42204d02ea5>).

≡*Adelanthus parvus* Herzog, *Rev. Bryol. Lichénol.* 11(1/2): 18, 1939 (Herzog 1938), syn. fide Grolle (1972c). Lectotype (Grolle 1972c: 343 as “holotype”): Costa Rica, San José, Cerro de las Vueltas, 2,700–3,000 m, *Standley* 43723c (JE-04002323 <https://je.jacq.org/JE04002323>).

***HONDURAS.** ***LEMPIRA:** Gracias municipio, Montaña de Celaque, 14°32'N, 88°39'W, 2,550 m, 13 May 1992, *Allen* 12021, det. Whittemore 1993 (MO-3968260! <http://tropicos.org/specimen/101212889>, this publication).

COSTA RICA. Cordillera de Talamanca (*Holz* 2003; *Holz and Gradstein* 2005b); S. loc. (Grolle 1969a; *Gradstein et al.* 1977; *Cole* 1982, 1983 as *Adelanthus parvus*; *Karczmarz* 1983 as *Adelanthus unciformis*; *Fulford and Sharp* 1990; *Gradstein* 1999a; *Paton* 1999; *Dauphin* 2005; *Gradstein and Holz* 2005; *Costa et al.* 2020). **CARTAGO:** Páramo Buenavista, *Holz et al. AHH-132* (*Dauphin* 2005). **SAN JOSÉ:** Dota cantón, Cerro de Las Vueltas, *Standley & Valerio* 43862, det. Herzog as *Adelanthus unciformis* (B-18603, JE-04004866 <https://je.jacq.org/JE04004866>, TYPE of *Plagiochila subviminea* f. *paramicola*, *Carl* 1931b as *Plagiochila subviminea* var. *paramicola*; *Herzog* 1938 as *Plagiochila subviminea* f. *paramicola*; *Bonner* 1962b as *Plagiochila subviminea* f. *paramicola*; *Grolle* 1972c; *Engel* 1978; *Geissler and Bischler* 1989 as *Plagiochila subviminea* f. *paramicola*; *Morales* 1991; *Dauphin* 2005); Dota cantón, Cerro

de Las Vueltas, 2,700–3,000 m, *Standley & Valerio* 43943 (S, US, *Grolle* 1972c); Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, *Standley* 43674, det. Herzog (B-18604, *Carl* 1931b as *Plagiochila subviminea*; *Herzog* 1938 as *Plagiochila subviminea*; *Morales* 1991; *Dauphin* 2005); Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, *Standley* 43723c, det. Grolle (JE-04002323 <https://je.jacq.org/JE04002323>, TYPE of *Adelanthus parvus*, *Herzog* 1938 as *Adelanthus parvus*; *Bonner* 1962a as *Adelanthus parvus*; *Grolle* 1972c; *Engel* 1978; *Dauphin* 2005); Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, *Standley* 43819, det. Herzog as *Adelanthus unciformis* (B-18604, *Carl* 1931b as *Plagiochila subviminea*; *Herzog* 1938 as *Plagiochila subviminea*; *Morales* 1991; *Dauphin* 2005); Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, *Standley* 43943, det. Herzog as *Adelanthus unciformis* (B-18604, *Carl* 1931b as *Plagiochila subviminea*; *Herzog* 1938 as *Plagiochila subviminea*; *Morales* 1991; *Dauphin* 2005); Dota cantón, Cerro Sákira, 9°35'N, 83°46'W, 22 Apr 2000, *Holz* CR 00-698 (GOET, MO-5382629!, *Feldberg et al.* 2010b); Pérez Zeledón cantón, Cordillera de Talamanca, Cerro de la Muerte, Páramo Buena Vista, 30 Sep 1999, *Heinrichs et al. AHH-132* (CR, GOET, *Holz et al.* 2001); Pérez Zeledón cantón, Páramo Cuericí, 9°35'N, 83°38'W, 17 Sep 1983, *Davidse* 24801, det. Whittemore Apr 1990 (MO-3671783!, this publication); S. loc., 2,700–3,000 m, *Standley & Valerio* 43819 (S, US, *Grolle* 1972c); S. loc., 2,700–3,000 m, *Standley* 43423c (*Morales* 1991).

***PANAMA.** S. loc. (*Gradstein* 1999a; *Costa et al.* 2020). Note: We are not aware of any firsthand report from Panama.

Also reported from Northern Europe, West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, Mexico, Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands.

Adelanthus pittieri (Steph.) Grolle, *J. Hattori Bot. Lab.* 35: 337, 1972 (Grolle 1972c).

≡*Tylimanthus pittieri* Steph., *Sp. Hepat. (Stephani)* 6: 250, 1922 (Stephani 1922). Lectotype (Grolle 1972c: 337 as “holotype”): Costa Rica, 1891, *Pittier & Durand* 6058 (G-00113405 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=146667&lang=en>, isolectotype JE-04001083 <https://je.jacq.org/JE04001083>).

≡*Calyptrocolea pittieri* (Steph.) R.M.Schust., *Beih. Nova Hedwigia* 119: 193, 2002 (Schuster 2002).

***HONDURAS.** ***LEMPIRA:** Gracias municipio, Montaña de Celaque, trail to ridge overlooking waterfall of Rio Arquecal, ~12 km S of Gracias, 14°33'N, 88°40'W, 2,550 m, 16 May 1992, *Allen* 12237, det. *Dauphin* Jun 2017 (MO-3968260! <http://tropicos.org/specimen/90096763>, this publication).

COSTA RICA. Cordillera de Talamanca (*Holz and Gradstein* 2005b; *Holz* 2006); S. loc., 1,470–3,000 m (*Bonner* 1977; *Cole* 1982, 1983; *Grolle* 1989b; *Fulford and Sharp* 1990; *Gradstein* 1999a; *Schuster* 2002 as *Calyptrocolea pittieri*; *Dauphin* 2005; *Gradstein and Holz* 2005; *Schäfer-Verwimp* 2014); S. loc., *Kappelle* 5690 (U, *Kappelle* 1996); S. loc., *Pittier & Durand*

(G, Stephani 1922 as *Tylimanthus pittieri*; Geissler and Bischler 1990 as *Tylimanthus pittieri*); S. loc., Feb 1891, Pittier & Durand 6058 (G-00113405 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=146667&lang=en>), TYPE of *Tylimanthus pittieri*, Burghardt 2007 as *Tylimanthus pittieri*; Burghardt and Gradstein 2008 as *Tylimanthus pittieri*). **ALAJUELA:** Poás National Park, 2,650 m, Gradstein 9654 (USJ, Gradstein et al. 1994); Poás Volcano, 2,500 m, 1929, Valerio 80, det. Herzog as *Adelanthus crossii* Spruce (B-18569, Grolle 1972c; Morales 1991); Poás Volcano, 30 Jul 1977, Griffin & Araya 13, 19, 97 (FLAS, Morales and Griffin 1983; Morales 1991). ***CARTAGO:** Turrialba cantón, Turrialba National Park, Dauphin et al. 3357 (CR!, this publication). **PUNTARENAS:** Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, Gradstein et al. (U, Sillett et al. 1995); S. loc. (Merwin et al. 2001). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, Holz (Holz 2003); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a).

PANAMA. CHIRIQUÍ: Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,870–2,260 m, 6 Apr 2006, Schäfer-Verwimp & Verwimp 31027 (JE, Schäfer-Verwimp 2014).

Also reported from Mexico, the Caribbean, Northern South America, Western South America.

***Alobiellopsis* R.M.Schust., Nova Hedwigia
10(1/2): 25, 1965 (Schuster 1965).**

Alobiellopsis dominicensis (Spruce) Fulford, *Mem. New York Bot. Gard.* 11(3): 350, 1968 (Fulford 1968).

≡ *Alobiella dominicensis* Spruce, *J. Linn. Soc., Bot.* 30(210): 355, 1895 (Gepp 1895). Type: Dominica.

COSTA RICA. S. loc. (Gradstein et al. 2001b; Lavocat Bernard et al. 2009; Schäfer-Verwimp 2014; Schäfer-Verwimp and Van Melick 2016). **ALAJUELA:** San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 3 Nov 2010, Norris et al. 17172 (UC, Norris et al. 2017). **PUNTARENAS:** Coto Brus cantón, Fila Cruces, 8°57'00"N, 83°04'20"W, 8 Jun 1995, Dauphin 1766, det. Dauphin Jun 1996 (MO-4417886!, this publication); Osa cantón, Rincón, trail to Cerro Chocuaco, 450 m, Gradstein & Dauphin 9322 (U, USJ, Gradstein et al. 1994; Dauphin 2005); Osa cantón, Rincón, trail to Cerro Chocuaco, 450 m, Gradstein & Dauphin 9328 (U, USJ, Gradstein et al. 1994; Dauphin 2005).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve (Salazar Allen et al. 2021); Gualaca distrito, Hornito, Fortuna, 1,170 m, Stotler & Crandall-Stotler 3494 (ABSH, PMA,

Stotler et al. 1998); S. loc. (Schäfer-Verwimp 2014). **COCLÉ:** Antón distrito, El Valle de Antón, Alto de La Mesa, 8°38'N, 80°07'W, 800–850 m, 30 Mar 2006, Schäfer-Verwimp & Verwimp 30748 (JE, Schäfer-Verwimp 2014). **VERAGUAS:** Santa Fe distrito, along road to Guabal on the Caribbean coast, 8°31.9–33.9'N, 81°08.8–11.3'W, 785 m, 27 Mar 2009, Schäfer-Verwimp & Verwimp 34293 (JE, Schäfer-Verwimp 2014); Santa Fe distrito, along road to Guabal on the Caribbean coast, 8°31.9–33.9'N, 81°08.8–11.3'W, 785 m, 27 Mar 2009, Schäfer-Verwimp & Verwimp 34294 (JE, Schäfer-Verwimp 2014).

Also reported from the Caribbean, Northern South America(?), Western South America.

***Anastrophyllum* (Spruce) Steph., Hedwigia
32(3): 139, 1893 (Stephani 1893d).**

Anastrophyllum auritum (Lehm.) Steph., *Bull. Herb. Boissier*, sér. 2, 1(11): 1137 (=Sp. *Hepat. [Stephani]* 1: 120), 1901 (Stephani 1901a).

≡ *Jungermannia aurita* Lehm., *Linnaea* 4(3): 368, 1829 (Lehmann 1829). Type: South Africa.

≡ *Jungermannia leucostoma* Taylor, *London J. Bot.* 5: 272, 1846 (Taylor 1846b), syn. fide Vána (1984). Type: Peru.

≡ *Anastrophyllum leucostomum* (Taylor) Steph., *Hedwigia* 32(3): 140, 1893 (Stephani 1893d).

GUATEMALA. HUEHUETENANGO: S. loc., Pérez 1243 (USCG, Pérez 2009).

COSTA RICA. Cordillera de Talamanca (Holz and Gradstein 2005b; Holz 2006); S. loc. (Cole 1982, 1983 as *Anastrophyllum leucostomum*; Gradstein 1999a; Dauphin 2005; Gradstein and Holz 2005). **ALAJUELA:** Poás Volcano, Griffin & Araya 508, 511 (USJ, FLAS, Morales 1991; Dauphin 2005); Poás Volcano, 30–31 Jul 1977, Griffin & Araya 48, 49 (Morales and Griffin 1983 as *Anastrophyllum leucostomum*; Morales 1991; Dauphin 2005). ***CARTAGO:** El Guarco cantón, Reserva Forestal Rio Macho, base Cerro Buena Vista, 9°35'30"N, 83°45'30"W, 2 Nov 1995, Dauphin & Ramírez 2070, det. G.-Dauphin Oct 2020 (CR!, this publication). **SAN JOSÉ:** Chirripó National Park, 3,815 m, 22 Mar 1983, Chaverri et al. 1123, det. A. Cleef (B-273647, Dauphin 2005; Álvaro 2011; Álvaro and Uribe 2017); Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, Holz (Holz 2003); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a); Pérez Zeledón cantón, Cordillera de Talamanca, Buena Vista, 3,460 m, 9 Mar 1971, Kubbier 341 (B, Álvaro 2011; Álvaro and Uribe 2017); Pérez Zeledón cantón, Cordillera de Talamanca, Cerro Buenavista (Cerro de La Muerte), 3,325 m, 21 Aug 1973, Cleef & Fournier 10197 (USJ, Gradstein et al. 1977 as *Anastrophyllum leucostomum*; Morales 1991; Kappelle 1996; Dauphin 2005).

PANAMA. CHIRIQUÍ: Barú Volcano National Park (Rodríguez-Quiel et al. 2022); summit of El Barú, 3,225–3,447 m, 18 May 1976, Croat 34936A, det. Dauphin Jun 2017

(MO-5274392! <https://tropicos.org/specimen/90132407>, **this publication**). NASO TJËR DI COMARCA: Cerro Fábrega, *De Gracia* 371 (PMA, Dauphin 2007).

Also reported from West-Central Tropical Africa, North-east Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, Malesia, Papuasias, New Zealand, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands.

Anastrophyllum nigrescens (Mitt.) Steph., *Hedwigia* 32(3): 140, 1893 (Stephani 1893d).

≡ *Jungermannia nigrescens* Mitt., *Hooker's J. Bot. Kew Gard. Misc.* 3: 358, 1851 (Mitten 1851). Type: Ecuador.

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Vaña 1984; Gradstein 1999a, 2021; Dauphin 2005; Gradstein and Holz 2005). **SAN JOSÉ**: Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, Dec 1925, *Standley* 43845 (B-06887, Herzog 1938; Morales 1991; Kappelle 1996; Dauphin 2005; Álvaro 2011); Pérez Zeledón cantón, Cordillera de Talamanca, Cerro de la Muerte, Páramo Buena Vista, 3,250 m, 20 Jan 2000, Holz CR 00-203, det. Vaña (B, MO-5282881!, Álvaro 2011; Álvaro and Uribe 2017).

Also reported from Northern South America, Western South America.

Anastrophyllum piligerum (Nees) Steph., *Hedwigia* 32(3): 140, 1893 (Stephani 1893d).

≡ *Jungermannia piligera* Nees, *Nova Acta Phys.-Med. Acad. Caes. Leop.-Carol. Nat. Cur.* 12(1): 414, 1825 (Reinwardt et al. 1824a). Type: Java.

GUATEMALA. HUEHUETENANGO: S. loc., Pérez 1241 (USCG, Pérez 2009).

Also reported from West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Middle Atlantic Ocean, Western Indian Ocean, China, Indian Subcontinent, Indo-China, Malesia, Papuasias, Australia, Southwestern Pacific, Southeastern Pacific, the Caribbean, Northern South America, Western South America, Brazil, Southern South America(?), Subantarctic Islands.

Anastrophyllum stellatum R.M.Schust., *Phytologia* 39(4): 243, 1978 (Schuster 1978a). Type: Venezuela.

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Gradstein 1999a; Dauphin 2005; Gradstein and Holz 2005; Gradstein 2021). **LIMÓN**: Talamanca cantón, Chirripó National Park, Lago Dikevi, 3,600 m, Dauphin 1249 (U, USJ, Gradstein et al. 1994; Dauphin 2005).

Also reported from Mexico, the Caribbean, Northern South America, Western South America.

Anastrophyllum tubulosum (Nees) Grolle, *J. Hattori Bot. Lab.* 28: 101, 1965 (Grolle 1965c).

≡ *Jungermannia tubulosa* Nees, *Enum. Pl. Crypt. Javae*: 32, 1830 (Nees 1830). Type: Brazil.

= *Jungermannia conformis* Lindenb. et Gottsche, *Syn. Hepat.*: 665, 1847 (Gottsche et al. 1847), syn. fide Vaña (1984). Type: Mexico.

≡ *Anastrophyllum conforme* (Lindenb. et Gottsche) Steph., *Hedwigia* 32(3): 140 (Stephani 1893d).

?**GUATEMALA**. S. loc. (Fulford and Sharp 1990 as *Anastrophyllum conforme*). Note: We are not aware of any firsthand report from Guatemala.

COSTA RICA. S. loc. (Cole 1982, 1983 as *Anastrophyllum conforme*; Vaña 1984; Álvaro 2011; Álvaro and Uribe 2017; Lavocat Bernard 2018). **ALAJUELA**: Poás Volcano, 31 Jul 1977, Griffin & Araya 87 (USJ, FLAS, Morales and Griffin 1983 as *Anastrophyllum conforme*; Morales 1991; Dauphin 2005). **CARTAGO**: Turrialba cantón, Volcán Turrialba, S slope near the Finca, 2,000–2,400 m, *Standley* 35201 (Herzog 1938 as *Anastrophyllum conforme*; Morales 1991; Dauphin 2005). **SAN JOSÉ**: Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, San Gerard, campo vacacional Chacón, camino hacia la Catarata, 1,950–2,000 m, 25 Dec 1999, I. Holz & A. Schäfer-Verwimp, det. J. Vaña (CR-3747115, **this publication**).

PANAMA. S. loc. (Pagán 1942b as *Anastrophyllum conforme*; Vaña 1984; Stotler et al. 1998; Lavocat Bernard et al. 2009 as *Anastrophyllum conforme*; Álvaro 2011; Álvaro and Uribe 2017; Lavocat Bernard 2018).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Aneura Dumort., *Commentat. Bot.* (Dumortier): 115, 1822 (Dumortier 1822).

Aneura crumii L.Söderstr., A.Hagborg et von Konrat, *Phytotaxa* 65: 43, 2012 (Söderström et al. 2012b).

≡ *Cryptothallus hirsutus* H.A.Crum, *Bryologist* 99(4): 438, 1996 (Crum and Bruce 1996). Holotype: Costa Rica, Cerro de la Muerte, growing underground among shrubby bamboos at 3,100 m elevation, 1977, *Bruce s.n.* (MICH-514755 <http://quod.lib.umich.edu/h/herb00ic/x-514755/1>).

COSTA RICA. Cordillera de Talamanca (Holz 2003 as *Cryptothallus hirsutus*; Holz and Gradstein 2005b as *Cryptothallus hirsutus*); S. loc. (Gradstein 1999a as *Cryptothallus hirsutus*; Gradstein and Holz 2005 as *Cryptothallus hirsutus*). **SAN JOSÉ**: Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 2,600–3,000 m (Gradstein et al. 2001b as *Cryptothallus hirsutus*; Dauphin 2005 as *Cryptothallus hirsutus*); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,100 m, 1971, *Bruce* (MICH-514755 <http://quod.lib.umich.edu/h/herb00ic/x-514755/1>), **TYPE** of *Cryptothallus hirsutus*, Crum and Bruce 1996 as *Cryptothallus hirsutus*; Crosby and Engel 2006 as *Cryptothallus hirsutus*; Söderström et al. 2012b).

Not found outside Central America.

Aneura latissima Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 544, 1885 (Spruce 1885). Type: Brazil.

GUATEMALA. **BAJA VERAPAZ**: Purhulhá municipio, Biotope Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

PANAMA. **PANAMA WEST:** La Chorrera distrito, Barro Colorado, Shannon, 2003, *Dauphin* 3076 (CR, PMA, Dauphin et al. 2022).

Also reported from Southwestern Europe(?), Macaronesia(?), West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Aneura pinguis (L.) Dumort., *Syll. Jungerm. Europ.*: 86, 1831 (Dumortier 1831).

≡ *Jungermannia pinguis* L., *Sp. Pl.* 1: 1136, 1753 (Linnaeus 1753). Lectotype: Britain.

≡ *Riccardia pinguis* (L.) Gray, *Nat. Arr. Brit. Pl.* 1: 683, 1821 (Gray 1821).

GUATEMALA. S. loc. (Ruklani and Rubasinghe 2022).

ALTA VERAPAZ: Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, 2,000 m, Pérez 327 (USCG, Pérez 2006, 2009). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 423, 446 (USCG, Freire 2006; Freire et al. 2013). **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007).

***BELIZE.** ***TOLEDO:** Columbia River Forest Reserve, Union Camp, 16°23'17"N, 89°05'30"W, 600–700 m, 17 Feb 1997, Allen 18535 (MO-5215167! <http://tropicos.org/specimen/190088076>), 18895 (MO-5215178! <http://tropicos.org/specimen/190088088>), det. Whittemore 2000 (this publication).

***NICARAGUA.** ***JINOTEGA:** Sebastián de Yalí municipio, N slope of Volcán Yalí, 13°15'N, 86°10'W, 1,200–1,400 m, Stevens & Grijalva 15267, det. Dauphin May 2017 (MO-4450977! <http://tropicos.org/specimen/101411584>, this publication).

COSTA RICA. S. loc. (Ruklani and Rubasinghe 2022). **CARTAGO:** Turrialba cantón, Reventazón River, east bank near Las Ánimas, ~3 mi E of the town of Turrialba, 1,800 ft (548 m), 22 Aug 1940, Haupt (Haupt 1942 as *Riccardia pinguis*); Turrialba cantón, Reventazón, Las Ánimas (Morales 1991; Dauphin 2005). **GUANACASTE:** Bagaces cantón, Guanacaste National Park, Sector Volcán Cacao, Dauphin 2445 (CR, Dauphin 2005). **PUNTARENAS:** Coto Brus cantón, Las Cruces, Jardín Botánico Wilson, Dauphin 1816 (CR, MO, Dauphin 2005).

PANAMA. S. loc. (Ruklani and Rubasinghe 2022). **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, NE of camping site, 900–1,200 m (Salazar Allen et al. 2021). **PANAMA:** Panamá distrito, Cerro Jefe behind San Pablo Creek of Río Pequení, Chagres National Park, 200 m, Salazar Allen & Chung 5224 (PMA, Stotler et al. 1998); Panamá distrito, Cerro Jefe, Spörle 0.9 (PMA, Spörle 1990; Stotler et al. 1998).

COCOS I. Cascada Yglesias, 10 m, 15 Feb 1994, Dauphin 1136 (USJ, Dauphin 1995, 2005); Catarata Río Genio, 5°32'57"N, 87°03'56"W, 140 m, 23 Jan 1990, Dauphin 1000, det. G.-Dauphin Mar 2021 (USJ-47449!, CR-4468320!, W!, Dauphin 1995, 2005; this publication); Río Chatham, 5°32'57"N, 87°03'56"W, 40 m, 28 Jan 1990, Dauphin 1096, det. G.-Dauphin

Mar 2021 (USJ-47646!, CR-4468321!, W!, Dauphin 1995, 1999, 2005; this publication).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa, Macaronesia, West Tropical Africa(?), West-Central Tropical Africa, East Tropical Africa, South Tropical Africa(?), Southern Africa, Western Indian Ocean, Siberia, Russian Far East, Middle Asia, Caucasus, Western Asia, China, Mongolia, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuaia, New Zealand, Southwestern Pacific, Southeastern Pacific, Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, South-Central USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America(?).

Anoplolejeunea (Spruce) Schiffn., Hepat. (Engl.-Prantl): 131, 1893 (Schiffner 1893a).

Anoplolejeunea conferta (C.F.W.Meissn. ex Spreng.) A.Evans, *Bull. Torrey Bot. Club* 35(4): 175, 1908 (Evans 1908c).

≡ *Jungermannia conferta* C.F.W.Meissn. ex Spreng., *Syst. Veg. (ed. 16) [Sprengel]* 4(2): 325, 1827 (Sprengel 1827a). Type: Peru.

GUATEMALA. **ALTA VERAPAZ:** Cobán, Las Victorias National Park, 1,700 m, 2002 (Andersohn 2004); S. loc., Pérez 220 (USCG, Pérez 2009); S. loc., 2007, Pérez (USCG, Barillas de Klee et al. 2008); Senahú municipio, Finca Sepacuité, 1902, Cook & Griggs 190 (Evans 1935); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W, Freire et al. 470 (USCG, Freire et al. 2005, 2013); S. loc., 2007, Pérez (USCG, Barillas de Klee et al. 2008). **HUEHUETENANGO:** Todos Santos Cuchumatán, Chihuitz, 15°30'40"N, 91°38'56"W, 2,790 m, 2006, Pérez et al. 1182 (USCG, Pérez 2009). **IZABAL:** Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007). **QUICHÉ:** S. loc., Pérez 2343 (USCG, Pérez 2009).

COSTA RICA. Cordillera de Talamanca (Holz and Gradstein 2005b; Holz 2006); Cordillera de Talamanca, Kappelle 3436 (U, Kappelle 1996); S. loc. (Gradstein 1999a; Dauphin 2005; Gradstein and Holz 2005); S. loc., Schäfer-Verwimp & Holz SV/H-0154 (M, Heinrichs et al. 2014b; Schäfer-Verwimp et al. 2014; Bechteler et al. 2016a, 2016c; Zhu et al. 2017, 2018a, 2018b, 2019; Ye and Zhu 2018; Zhu and Shu 2018; Ye and Wei 2021; Shu et al. 2022). **ALAJUELA:** Poás, 1,950 m, Eggers (hb. Eggers, Eggers 2001). **PUNTARENAS:** Coto Brus cantón, Parque Internacional La Amistad, Santa María de Pittier, 4 Feb 1995, Dauphin 1428 (CR, MO, Dauphin 2005); Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990,

Gradstein et al. (U, Sillett et al. 1995); Monteverde, 1,600 m, *Eggers* (hb. Eggers, Eggers 2001); S. loc. (Merwin et al. 2001). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, Holz (Holz 2003); Dota cantón, San Gerardo, 9°35'40"N, 83°44'30"W, 3,000 m, Aug 1992, *Van Dunné* (Van Dunné and Kappelle 1998); La Quebrada, *Schäfer-Verwimp & Holz SV/H-0253* (CR, Schäfer-Verwimp 2001); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a); Moravia cantón, La Palma, 1,600 m (Eggers 2001); Moravia cantón, La Palma, 1,500 m, *Valerio 35* (Herzog 1951; Morales 1991; Dauphin 2005).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, NE of camping site, 900–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, NW of camping site, 1,000–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Hornito, Fortuna, 1,000–1,200 m, *Salazar Allen et al. 616a* (PMA, Stotler et al. 1998); Tierras Altas distrito, Parque Internacional La Amistad, Sendero El Retoño, 2,460 m, *Gradstein 9764* (GOET, Stotler et al. 1998); Tierras Altas distrito, Parque Nacional Volcán Barú, Paso Ancho, 8°48'55.13"N, 82°34'33.50"W, 2,047 m, *Guerra Batista et al.* (UCH, Guerra et al. 2020); Barú Volcano National Park (Rodríguez-Quiel et al. 2022). **DARIÉN:** Cerro Pirre (Stotler et al. 1998); Cerro Pirre, along trail to Rancho Mojado, 400–500 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992). **NASO TJEER DI COMARCA:** Cerro Fábrega, 11 Mar 2003, *De Gracia 228* (PMA, Dauphin 2007).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

***Archilejeunea* (Spruce) Steph., *Hedwigia* 27(3/4): 113, 1888 (Stephani 1888d).**

Archilejeunea fuscescens (Hampe ex Lehm.) Fulford, *Bryologist* 45(6): 174, 1942 (Fulford 1942b).

≡ *Lejeunea fuscescens* Hampe ex Lehm., *Nov. Stirp. Pug.* 7: 16, 1838 (Lehmann 1838). Type: *Patria ignota*.

≡ *Jungermannia juliformis* Nees, *Fl. Bras. (Martius)* 1(1): 351, 1833 (Nees 1833b), nom. illeg. syn. fide Gradstein and Buskes (1985). Type: Brazil.

≡ *Archilejeunea juliformis* (Nees) Gradst., *Bryophyt. Biblioth.* 4: 127, 1975 (Gradstein 1975).

≡ *Ptychocoleus juliformis* (Nees) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4: 405, 1877 (Trevisan 1877).

≡ *Acrolejeunea juliformis* (Nees) Steph., *Hedwigia* 29(3): 133, 1890 (Stephani 1890a), nom. inval. (ICN2018 Art. 35.1; genus not valid).

≡ *Lejeunea rufa* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 94, 1884 (Spruce 1884), syn. fide Gradstein (1975). Type: Brazil.

≡ *Archilejeunea rufa* (Spruce) Steph., *Sp. Hepat[Stephani]* 4: 719, 1911 (Stephani 1911b).

HONDURAS. ATLÁNTIDA: Tela municipio, Lancetilla Valley, 20–600 m, *Standley 54384* (JE, Herzog 1951 as *Ptychocoleus juliformis*); Tela municipio, Lancetilla Valley, 20–600 m, *Standley 55207* (C, F, Herzog 1951 as *Archilejeunea rufa*); Tela municipio,

Lancetilla Valley, 20–600 m, *Standley 55235* (Herzog 1951 as *Archilejeunea rufa*); Tela municipio, Lancetilla Valley, 20–600 m, *Standley 55579* (Herzog 1951 as *Archilejeunea rufa*).

COSTA RICA. S. loc. (Gradstein 1987; Ilkiu-Borges 2000; Germano 2003; Gradstein and Costa 2003; Bastos 2004; Germano and Pôrto 2005; Alvarenga et al. 2008; Morales et al. 2008; Gradstein and Uribe 2016; Costa 2017; Costa et al. 2017 as *Archilejeunea juliformis*, 2020 as *Archilejeunea juliformis*). **HEREDIA:** Sarapiquí cantón, La Selva Biological Station, 10°26'N, 84°03'W, May 1997, *Lücking 97-53*, det. Bernecker (EGR, GOET, E, W, MO-5135655, Wilson et al. 2007; Heinrichs et al. 2012c, 2014a, 2014b; Dong et al. 2013; Schäfer-Verwimp et al. 2014; Shi and Zhu 2015; Shi et al. 2015; Wang et al. 2014, 2016; Bechteler et al. 2016a, 2016c; Zhu et al. 2017, 2018a, 2018b, 2019; Zhu and Shu 2018; Shu et al. 2022). **PUNTARENAS:** Osa cantón, Rincón, Boscosa, 150 m, *Gradstein & Dauphin 9345* (U, USJ, Shi and Zhu 2015); Osa cantón, Rincón, Boscosa, 150 m, *Gradstein & Dauphin 9348* (HSNU, U, USJ, Shi and Zhu 2015); S. loc., *Gradstein 9345* (GOET, HSNU, Shi et al. 2015).

PANAMA. S. loc. (Stephani 1912a as *Ptychocoleus juliformis*; Bonner 1962a as *Acrolejeunea juliformis*; Stotler et al. 1998). **BOCAS DEL TORO:** Bocas del Toro distrito, Bastimentos, Salt Creek, Sendero a Long Beach, 9.29456°N, 82.10303°W, 70 m, 16 Aug 2017, *Gudiño 3365*, det. Gudiño Aug 2017 (PMA, this publication); Bocas del Toro distrito, Dolphin Bay (9°13'14.7"N, 82°13'02.9"W), Aug 2017, *Dauphin et al. 4606* (PMA, Salazar Allen et al. 2022 as *Archilejeunea juliformis*).

COCOS I. Chatham bay, *Weber 580* (GOET, U, Gradstein and Buskes 1985 as *Archilejeunea juliformis*); S. loc. (Dauphin 1995, 1999; Gradstein 2021 as *Archilejeunea juliformis*); S. loc., *Weber 589* (COLO, U, Morales 1991; Gradstein 1994; Dauphin 2005).

Also reported from the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Archilejeunea ludoviciana (De Not.) P.Geissler et Gradst., *J. Hattori Bot. Lab.* 75: 202, 1994 (Geissler and Gradstein 1994) subsp. *ludoviciana*.

≡ *Phragmicoma ludoviciana* De Not., *Nov. Stirp. Pug.* 10: 11, 1857 (Lehmann 1857). Type: Tropical America.

≡ *Archilejeunea porelloides* (Spruce) Schiffn. subsp. *chocoensis* Gradst., *Fl. Neotrop. Monogr.* 62: 59, 1994 (Gradstein 1994), nom. inval. (ICN2018 Art. 36.1; not accepted by author), syn. fide Gradstein et al. (2006a). Original material: Colombia.

COSTA RICA. PUNTARENAS: Golfito cantón, Refugio de Vida Silvestre, 5 km N del Aeropuerto, 8°41'12"N, 83°11'52"W, 2 Feb 1992, *Aguilar 914*, det. Dauphin (CR, Dauphin 2005 as *Archilejeunea porelloides* subsp. *chocoensis*); Osa cantón, Península de Osa, Cerro Helado, 250–300 m, *Gradstein & Dauphin 9358* (U, USJ, Gradstein et al. 1994; Dauphin 2005); Osa cantón, Península de Osa, Cerro Helado, 250–300 m, *Gradstein & Dauphin 9360* (U, USJ, Gradstein et al. 1994; Dauphin 2005); Osa cantón, Rincón, Boscosa, 150 m, *Gradstein & Dauphin 9345* (U, USJ, Gradstein et al. 1994; Dauphin 2005); Osa cantón, Rincón, Boscosa, 150 m, *Gradstein & Dauphin 9348* (HSNU, U, USJ, Gradstein et al. 1994; Dauphin 2005).

PANAMA. S. loc. (Shi and Zhu 2015). DARIÉN: Ridge trail above Cana to Pirre Massif, 800–900 m, 5 May 1990, Allen 8970, det. Dauphin May 2017 (MO-3678093, Stotler et al. 1998). VERAGUAS: Santa Fe distrito, slopes of Cerro Tute, Gentry 6272A (MO-3675254, NY, PMA, U, Gradstein 1994 as *Archilejeunea porelloides* subsp. *chocoensis*; Stotler et al. 1998).

Also reported from Northern South America, Western South America.

***Asterella* P.Beauv., Dict. Sci. Nat. (F. Cuvier)
3: 257, 1805 (Palisot de Beauvois 1805a).**

Asterella dominicensis S.W.Arnell, *Bryologist* 61(2): 140, 1958 (Arnell 1958b). Type: Dominican Republic.

GUATEMALA. S. loc. (Schäfer-Verwimp and Pócs 2009). SACATEPÉQUEZ: Antigua Guatemala municipio, 55 km N of Antigua, 2,370 m, 14 Sep 1977, Volk 6/0711b (JE, S, Bischler-Causse et al. 2005; Grolle 1989c; Pérez 2009).

*EL SALVADOR. *LA LIBERTAD: Cafetal en Colonia Cumbres de Cuscatlán, 13°42'N, 89°15'W, 950 m, 11 Mar 1998, Rendoers et al. MR-00457, det. J. Brinda & G. Dauphin Jun 2017 (MO-5261683! <http://tropicos.org/specimen/90145839>, this publication).

*NICARAGUA. *JINOTEGA: San Rafael del Norte municipio, 2 km NW of San Rafael del Norte road to San Sebastian de Yalí, 13°13'N, 86°07'W, 1,200 m, 25 Oct 1979, Stevens & Grijalva 15071, det. J. Brinda & G. Dauphin Jun 2017 (MO-4452337! <http://tropicos.org/specimen/90025188>, this publication).

COSTA RICA. S. loc. (Morales 1991; Dauphin 2005; Schäfer-Verwimp and Pócs 2009). HEREDIA: La Uvita, 1,720 m, 16 Jul 1971, Morales 259 (JE, hb. Griffin III, Grolle 1989c). PUNTARENAS: Upper Rio Burú, 19 Aug 1983, Gómez-Pignataro et al. 21701 (MO, Bischler-Causse et al. 2005).

Also reported from Mexico, the Caribbean, Northern South America.

Asterella echinella (Gottsche) Underw., *Bot. Gaz.* 20(2): 62, 1895 (Underwood 1895).

≡*Fimbraria echinella* Gottsche, *Mexik. Leverm.*: 271, 1863 (Gottsche 1863).

Type: Mexico.

GUATEMALA. ALTA VERAPAZ: Rio Cobán, 5 km NE of Cobán, Richards et al. 2869 (F, H, NY-01778246 <https://sweetgum.nybg.org/science/vh/specimen-details/?irn=2030120>, U, Bischler-Causse et al. 2005; Pérez 2009).

BELIZE. CAYO: Monkey Tail River 5 mi (8 km) E of Las Cuevas Field Station, Collins & Ensoll 5 (E, Bischler-Causse et al. 2005).

HONDURAS. S. loc. (Stotler and Crandall-Stotler 2017). COMAYAGUA: Ojos de Agua municipio, Ojos de Agua 30 km N of Comayagua, Nelson et al. 6831 (MO, Bischler-Causse et al. 2005). *YORO: Victoria municipio, Rio Sulaco, 339 m, 21–23 Jan 1981, Nelson et al. 7020, det. Whittemore 1989 (MO-3656763! <https://tropicos.org/specimen/768574>, this publication).

Also reported from Southeastern USA, Mexico.

Asterella elegans (Spreng.) Trevis., *Rendiconti Reale Ist. Lombardo Sci.*, ser. 2, 7: 785, 1874 (Trevisan 1874).

≡*Fimbraria elegans* Spreng., *Syst. Veg. (ed. 16) [Sprengel]* 4(1): 235, 1827 (Sprengel 1827b). Type: Hispaniola.

≡*Hypenatron elegans* (Spreng.) Trevis., *Mem. Reale Ist. Lombardo Sci.*, Ser. 3, Cl. Sci. Mat. 4(13): 441, 1847 (Trevisan 1877).

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotope Universitario para la Conservación del Quetzal, Freire et al. 73, 494 (USCG, Freire et al. 2013); Purhulhá municipio, Biotope Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

†COSTA RICA. S. loc. (Bonner 1966 as *Hypenatron elegans*; Bapna and Kachroo 2000b); S. loc., *Wendland* (Stephani 1899a as *Fimbraria elegans*). Note: This report is sensu Spruce and thus *Asterella lateralis* (cf. Evans 1920).

Also reported from the Caribbean, Western South America(?).

Asterella lateralis M. Howe, *Bull. Torrey Bot. Club* 25(4): 189, 1898 (Howe 1898). Type: Mexico.

GUATEMALA. S. loc. (Ellis et al. 2018b). QUETZALTENANGO: Zunil municipio, Volcán Zunil, Steyermark 34610 (F, JE, Bischler-Causse et al. 2005; Pérez 2009). SACATEPÉQUEZ: Cuesta de las Cañas, above Antigua, Standley 58935 (MICH, F, NY-1778249 <https://sweetgum.nybg.org/science/vh/specimen-details/?irn=2030141>, Bischler-Causse et al. 2005; Pérez 2009). SAN MARCOS: Along Quebrada Canjula, between Sibinal and Canjula, Volcán Tacaná, Steyermark 36027 (F, Bischler-Causse et al. 2005; Pérez 2009).

*BELIZE. S. loc. (Robinson 1967). Note: We are not aware of any firsthand report from Belize.

COSTA RICA. S. loc. (Haynes et al. 1923; Svihla 1942; Cole 1984; Ellis et al. 2018b); S. loc., *Wendland* (Evans 1920). ALAJUELA: Naranjo cantón, San Miguel Oeste, SE slope of Espíritu Santo, Herrera 52B, det. Whittemore (CR, Dauphin 2005). SAN JOSÉ: Aserri cantón, mountains S of village 5.5 (9 km) mi S of San José, 6,000 ft (1,829 m), 23 Jul 1940, Haupt (Haupt 1942); Dota cantón, Santa María, Standley & Valerio 43413 (F, JE, NY, US, Bischler-Causse et al. 2005); Escazú cantón, Escazú, mountains SW of village, 17 Jul 1940, Haupt (Haupt 1942); Montañas de Escazú y Aserri (Morales 1991; Dauphin 2005).

PANAMA. S. loc. (Ellis et al. 2018b). CHIRIQUÍ: Boquete distrito, Alto Quiel, Salazar Allen 3996 (PMA, Bischler-Causse et al. 2005); Boquete, 3 Sep 1940, Svihla 40-429 (Svihla 1942; Stotler et al. 1998); Boquete, 3 Sep 1940, Svihla 40-432, 40-434 (Svihla 1942; Stotler et al. 1998).

Also reported from Mexico, Western South America.

Asterella macropoda (Spruce) A.Evans, *Bull. Torrey Bot. Club* 46(12): 472, 1919 (Evans 1919a).

≡*Fimbraria macropoda* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 564, 1885 (Spruce 1885). Type: Ecuador.

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Gradstein 1999a; Gradstein et al. 2001b, 2016; Dauphin 2005; Gradstein and Holz 2005). CARTAGO: Cerro de La Muerte along Pan-American Highway,

Gradstein 9728 (E, GOET, Long et al. 2000; Bischler-Causse et al. 2005). **SAN JOSÉ:** Dota cantón, Copey, Reserve Forestal Los Santos, Pan-American Highway sur km 93, 3,200 m, *Gradstein* 9730 (U, USJ, *Gradstein* et al. 1994); Pérez Zeledón cantón, Reserva Forestal Los Santos, Cuenca del Río Savegre, *Dauphin & Ramírez* 2646, det. Dauphin (CR, *Dauphin* 2005).

PANAMA. **NASO TIËR DI COMARCA:** Cerro Fábrega, ~2 km SW of Itamut camp, *Gómez-Pignataro et al.* 22638 (U, Bischler-Causse et al. 2005).

Also reported from Northern South America, Western South America, Southern South America.

Asterella pringlei Underw., *Bot. Gaz.* 20(2): 64, 1895 (Underwood 1895). Type: Mexico.

=*Fimbraria stahlii* Steph., *Bull. Herb. Boissier* 7(3): 20 [=Sp. *Hepat.* 1: 127], 1899 (Stephani 1899a), syn. fide Bischler-Causse et al. (2005). Lectotype: Mexico.

GUATEMALA. S. loc. (Bonner 1965 as *Fimbraria stahlii*; Aleffi and Schumacker 1995 as *Fimbraria stahlii*; Long 2005; *Gradstein* et al. 2016; *Gradstein* 2021); S. loc., *Bernouilli* (Stephani 1899d as *Fimbraria stahlii*; Evans 1920 as *Fimbraria stahlii*). **JALAPA:** Jalapa, *Standley* 76640 (JE, F, Bischler-Causse et al. 2005; Pérez 2009). **SANTA ROSA:** Barberena municipio, along road SE of Barberena, *Standley* 77800 (JE, F, Bischler-Causse et al. 2005; Pérez 2009). **SUCHITEPÉQUEZ:** Mazatenango, *Bernouilli* (G-00120172 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=168720&lang=en>), **SYNTYPE** of *Fimbraria stahlii*).

?**COSTA RICA.** S. loc. (Cole 1984). ?**SAN JOSÉ:** Escazú cantón, Escazú, Montañas de Escazú, mountains SW of village, 7–8 Jul 1940 (*Dauphin* 2005 as *Asterella* cf. *pringlei*); Escazú cantón, Escazú, mountains SW of village, 17 Jul 1940, *Haupt* (Haupt 1942, identification doubtful); Montañas de Escazú y Aserrí (Morales 1991 as *Asterella* cf. *pringlei*). Note: We are not aware of any positively identified specimen from Costa Rica.

Also reported from Mexico, Western South America.

Asterella versicolor A. Evans, *Contr. U.S. Natl. Herb.* 20: 307, 1920 (Evans 1920). Type: Mexico.

COSTA RICA. S. loc. (Long 2005). **ALAJUELA:** Naranjo cantón, San Miguel Oeste, Cerro Espíritu Santo, finca Napoleon, *Pérez & Herrera* 52B (MO, Bischler-Causse et al. 2005).

PANAMA. S. loc. (Long 2005). **CHIRIQUÍ:** Boquete distrito, Alto Quiel, *Salazar Allen* 3989 (PMA, Bischler-Causse et al. 2005).

Also reported from Mexico.

***Bazzania* Gray, *Nat. Arr. Brit. Pl.* 1: 704, 1821 (Gray 1821).**

Bazzania acanthostipa Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 381, 1885 (Spruce 1885). Type: Peru.

COSTA RICA. **SAN JOSÉ:** Pérez Zeledón cantón, Chirripó National Park, Paso de los Indios, 9°30'N, 83°30'W, 3,270 m,

Kappelle 4611 (U, GOET, *Kappelle* 1996; *Dauphin* et al. 1998; *Dauphin* 2005).

Also reported from Western South America.

Bazzania acuminata (Lindenb. et Gottsche) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 414, 1877 (Trevisan 1877).

=*Mastigobryum acuminatum* Lindenb. et Gottsche, *Syn. Hepat.* 5: 719, 1847 (Gottsche et al. 1847). Type: Mexico.

COSTA RICA. S. loc., *Kappelle* 1903 (CR, *Kappelle* 1996). Also reported from Mexico, Northern South America.

Bazzania affinis (Lindenb. et Gottsche) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 415, 1877 (Trevisan 1877).

=*Mastigobryum affine* Lindenb. et Gottsche, *Syn. Hepat.* 5: 720, 1847 (Gottsche et al. 1847). Type: Mexico.

=*Mastigobryum taleanum* Gottsche, *Mexik. Leverm.*: 131, 1863 (Gottsche 1863), syn. fide *Gradstein* (2017a). Type: Mexico.

=*Bazzania taleana* (Gottsche) Fulford, *Ann. Cryptog. Phytopathol.* 3: 54, 1946 (Fulford 1946).

GUATEMALA. S. loc. (Fulford and Sharp 1990; Rico and Pócs 2004). **ALTA VERAPAZ:** Pitoreal, *Sharp* 2771b (TENN, *Fulford* 1959a, 1963a; *Freire* 2006; Pérez 2009); S. loc., Pérez 99 (USCG, Pérez 2009 as *Bazzania taleana*); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Bazzania* cf. *taleana*). **HUEHUETENANGO:** S. loc., Pérez 1427 (USCG, Pérez 2009 as *Bazzania taleana*). **QUICHÉ:** S. loc., Pérez 2322 (USCG, Pérez 2009 as *Bazzania taleana*).

***BELIZE.** ***TOLEDO:** Columbia River Forest Reserve, from Camp 2 along Little Quartz Ridge spur to spur's summit, 16°23'17"N, 89°05'30"W, 16 Feb 1997, *Allen* 18806, det. *Dauphin* May 2017 (MO-4417031! <http://tropicos.org/specimen/90046799>, **this publication**); Columbia River Forest Reserve, Little Quartz Ridge, 16°23'58"N, 89°06'41"W, 19 Feb 1997, *Allen* 18942, det. *Dauphin* May 2017 (MO-4417032! <http://tropicos.org/specimen/90046798>, **this publication**); Columbia River Forest Reserve, Union Camp, 16°23'54"N, 89°08'29"W, 600–700 m, 10 Feb 1997, *Allen* 18500, det. *Dauphin* May 2017 (MO-4417030! <http://tropicos.org/specimen/90046800>, **this publication**).

COSTA RICA. **HEREDIA:** Barva cantón, Braulio Carrillo National Park, Sector Volcán Barva, *Morales* 1508 (*Dauphin* 2005 as *Bazzania* cf. *taleana*); Barva cantón, Braulio Carrillo National Park, Sector Volcán Barva, *Morales* 1758, det. *Morales* (USJ, *Morales* 1991 as *Bazzania* cf. *taleana*; *Dauphin* 2005 as *Bazzania* cf. *taleana*); Barva cantón, Volcán Barva, *Morales* 1580, det. *Bernecker* (USJ, *Morales* 1991 as *Bazzania* cf. *taleana*). **PUNTARENAS:** Monteverde cantón, Chimogo trail, 15 Mar 1971, *James*, W., det. *Dauphin* May 2017 (MO-6168498!, **this publication**); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein* et al. (FLAS, U, USJ, *Gradstein* et al. 2001a); Monteverde cantón, Santa Elena Biological Preserve, 10°15'N, 84°45'W, 4 Aug 1993,

Timme 11337, det. Dauphin May 2017 (MO-6690005! <https://tropicos.org/specimen/100861247>, **this publication**); Monteverde, 1,550 m, *Gradstein & Solano 9510, 9576* (U, USJ, *Gradstein et al. 1994*; *Dauphin 2005*); S. loc. (*Merwin et al. 2001*).

COCOS I. Above Wafer, 160 m, 15 Feb 1994, *Dauphin 1063 p.p.*, det. A. Bernecker (USJ, *Gradstein et al. 1994*; *Dauphin 1995, 1999, 2005*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Bazzania aurescens Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 374, 1885 (Spruce 1885). Type: Peru.

≡*Mastigobryum quadricrenatum* Gottsche ex Steph., *Hedwigia* 25(5): 206, 1886 (Stephani 1886d). Type: Guadeloupe.

≡*Bazzania quadricrenata* (Gottsche ex Steph.) Pagán, *Bryologist* 42(2): 39, 1939 (Pagán 1939c), syn. fide Gradstein and Costa (2003).

GUATEMALA. ALTA VERAPAZ: Pitoreal, 24 Feb 1945, *Sharp 2776b* (TENN-B-0095812, *Fulford 1959a, 1963a* as *Bazzania quadricrenata*; *Freire 2006* as *Bazzania quadricrenata*; *Pérez 2009* as *Bazzania quadricrenata*); S. loc., *Pérez 371* (USCG, *Pérez 2009*); Tucurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, 2,100–2,360 m, *Pérez (Pérez 2006)*. **BAJA VERAPAZ:** Pitoreal over mountain from Finca Bucaral but in Baja Verapaz, 24 Feb 1945, *Sharp 2781* (TENN-B-0095811 <https://bryophyteportal.org/portal/collections/individual/index.php?occid=4454082&clid=0>, *Fulford 1959a, 1963a* as *Bazzania quadricrenata*; *Freire 2006* as *Bazzania quadricrenata*); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al. 2005*).

BELIZE. CAYO: S. loc., Dec 1993, *Allen 15262* (BRH, MO, *Whittemore and Allen 1996* as *Bazzania quadricrenata*).

***EL SALVADOR. *SANTA ANA:** Metapán municipio, Montecristo, Sendero El Guaje, 11 Nov 2014, *Búcaro H350*, det. Dauphin 2016 (MHES!, **this publication**); Santa Rosa Guachipilín municipio, Calle Los Planes, 11 Dec 2014, *Búcaro H353*, det. Dauphin 2016 (MHES!, **this publication**).

COSTA RICA. ALAJUELA: Zarcero cantón, 7.5 mi (12 km) north of Zarcero, 1,000 m, *Croat 43498*, det. Whittemore (CR, *Dauphin 2005* as *Bazzania quadricrenata*).

PANAMA. CHIRIQUÍ: Barú Volcano National Park (*Rodríguez-Quiel et al. 2022*).

Also reported from China(?), Indo-China(?), the Caribbean, Northern South America, Western South America, Brazil.

Bazzania bidens (Gottsche et Lindenb.) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 415, 1877 (Trevisan 1877) var. *bidens*.

≡*Mastigobryum bidens* Gottsche et Lindenb., *Syn. Hepat.* 2: 228, 1845 (Gottsche et al. 1845b). Type: Guyana.

PANAMA. CHIRIQUÍ: Tierras Altas distrito, Volcán, 9 Aug 1950, *Chickering* (MICH, *Crum and Arzeni 1953*; *Stotler et al. 1998*).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Bazzania brasiliensis (Gottsche et Lindenb.) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 415, 1877 (Trevisan 1877).

≡*Mastigobryum brasiliense* Gottsche et Lindenb., *Syn. Hepat.* 2: 227, 1845 (Gottsche et al. 1845b). Type: Brazil.

COSTA RICA. S. loc. (*Bonner 1963a*); S. loc., *Tonduz (Stephani 1909b* as *Mastigobryum brasiliense*).

Also reported from Northern South America, Brazil.

****Bazzania canelensis** (Steph.) Fulford, *Ann. Cryptog. Phytopathol.* 3: 152, 1946 (Fulford 1946).

≡*Mastigobryum canelense* Steph., *Sp. Hepat. (Stephani)* 3: 518, 1909 (Stephani 1909b). Type: Ecuador.

***HONDURAS.** S. loc. (*Gradstein 2021*). ***FRANCISCO MORAZÁN:** Distrito Central municipio, La Tigre National Park, 11 km NE of Tegucigalpa, 14°07'–19°N, 87°03'–07°W, 2,000 m, 26 May 1992, *Allen 12398C*, det. Dauphin May 2017 (MO-5224562! <https://tropicos.org/specimen/90095307>, **this publication**).

New to Central America. Also reported from Western South America.

****Bazzania chilensis** (Steph.) Spruce, *Mem. Torrey Bot. Club* 1(3): 129, 1890 (Spruce 1890).

≡*Mastigobryum chilense* Steph., *Hedwigia* 24(6): 247, 1885 (Stephani 1885b). Lectotype: Colombia.

***HONDURAS. COPÁN:** Copán municipio, Copán Ruinas, ~18 km N of ruins, road to Agua Caliente at El Zapote, 14°58'N, 89°10'W, 900–1,000 m, 30 Apr 1996, *Allen 17774*, det. Dauphin May 2017 (MO-6230302! <http://tropicos.org/specimen/100366548>, **this publication**).

?COSTA RICA. S. loc., *Kappelle 3898* (U, *Kappelle 1996* as *Bazzania cf. chilensis*). Note: We are not aware of any positively identified specimen from Costa Rica.

New to Central America. Also reported from Western South America, Southern South America.

Bazzania cuneistipula (Gottsche et Lindenb.) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 414, 1877 (Trevisan 1877).

≡*Mastigobryum cuneistipulum* Gottsche et Lindenb., *Syn. Hepat.* 2: 225, 1845 (Gottsche et al. 1845b). Type: Jamaica.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al. 209, 491* (USCG, *Freire et al. 2013*); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al. 2005*); S. loc., *Pérez 1732* (USCG, *Pérez 2009*).

***COSTA RICA.** S. loc. (Schäfer-Verwimp 2014). ***PUNTARENAS:** Monteverde, 1,311 m, Feb 1969, *James, W. 1969-106 p.p.*, det. Dauphin May 2017 (MO-6699945! <https://tropicos.org/specimen/100988165>, **this publication**).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (*Salazar Allen et al.*

2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,660 m, *Schäfer-Verwimp & Verwimp* 34429/A (JE, Schäfer-Verwimp 2014). COCLÉ: Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 700–1,000 m, 31 Mar 2006, *Schäfer-Verwimp & Verwimp* 30784 (JE, Schäfer-Verwimp 2014).

†COCOS I. Reports of *Bazzania cuneistipula* from Cocos I. are reidentified as *Bazzania diversicuspis*.

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Bazzania denticulata (Lindenb. et Gottsche) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 414, 1877 (Trevisan 1877).

≡*Mastigobryum denticulatum* Lindenb. et Gottsche, *Syn. Hepat.* 5: 718, 1847 (Gottsche et al. 1847). Type: Mexico.

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b). CARTAGO: Paraíso cantón, Orosi, Tapantí National Park, *Lücking* 5 (Morales 1991; Dauphin 2005); Turrialba cantón, Villa Mills, CATIE Station Siberia, 2,700 m, 24 Jan 2000, *Holz* CR 00-224 (CR, GOET, Holz et al. 2001); Turrialba cantón, Villa Mills, CATIE Station Siberia, 2,700 m, 6 Mar 2000, *Holz* CR 00-682 (CR, GOET, Holz et al. 2001; Dauphin 2005). PUNTARENAS: Monteverde (Morales 1991); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde, 4,300 ft (1,310 m), Feb 1969, *James, W.* 1969-33b, 1969-34 (R, Reed and Robinson 1971; Dauphin 2005); S. loc. (Merwin et al. 2001). SAN JOSÉ: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, Los Robles, 2,300 m, 29 Jan 2000, *Holz* CR 00-268 (CR, GOET, Holz et al. 2001; Dauphin 2005); Dota cantón, San Gerardo, Paradero Lacustre “Los Ranchos,” Sendero “El Riachuelo,” 2,000 m, 14 Mar 2000, *Holz* CR 00-770 (CR, GOET [https://gwdu64.gwdg.de/pls/herbar/moos\\$moos.QueryViewByKey?P_ID=19480&Z_CHK=64346](https://gwdu64.gwdg.de/pls/herbar/moos$moos.QueryViewByKey?P_ID=19480&Z_CHK=64346), Holz et al. 2001; Dauphin 2005).

Also reported from Mexico, the Caribbean, Western South America, Brazil.

Bazzania diversicuspis Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 373, 1885 (Spruce 1885). Type: Brazil.

*HONDURAS. *COMAYAGUA: San Juanillo, Cordillera de Montecillos, Biological Reserve Forest, 14°30'N, 87°53'W, 1,700–2,000, 3 Jun 1993, *Liesner* 26822, det. Dauphin May 2017 (MO-6235789! <http://tropicos.org/specimen/802083>, this publication).

?COSTA RICA. S. loc. (Schäfer-Verwimp 2014). ?ALAJUELA: Poás Volcano, *Griffin & Araya* 36, det. Bernecker (Morales 1991 as *Bazzania* cf. *diversicuspis*; Dauphin 2005 as *Bazzania* cf. *diversicuspis*). Note: We are not aware of any positively identified specimen from Costa Rica.

PANAMA. CHIRIQUÍ: Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, *Schäfer-Verwimp & Verwimp* 34586/A (JE, Schäfer-Verwimp 2014).

COCOS I. Cerro Pelón, 5°32'57"N, 87°03'56"W, 380 m, 15 Feb 1994, *Dauphin* A-6 (USJ-47526!, Dauphin 1995 as *Bazzania cuneistipula*, 1999 as *Bazzania cuneistipula*, 2005 as *Bazzania cuneistipula*; this publication, reidentification of the earlier reports); S. loc., Soto, det. G. Dauphin Feb 2021 (USJ-47692!, this publication).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Bazzania falcata (Lindenb.) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 415, 1877 (Trevisan 1877).

≡*Mastigobryum falcatum* Lindenb., *Syn. Hepat.* 2: 231, 1845 (Gottsche et al. 1845b). Type: Guadeloupe and St. Vincent.

=*Bazzania robusta* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 378, 1885 (Spruce 1885), syn. fide Gradstein et al. (2003). Type: Brazil.

GUATEMALA. ALTA VERAPAZ: Panzós municipio, Cahabón and/or Senahú, 2012, *Pérez & López-Medina*, det. M. Pérez (Pérez and López-Medina 2012); S. loc., *Ramírez* 114 (Pérez 2009); Tucurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Bazzania* cf. *falcata*). BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 108, 114, 258, 259, 315, 450 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005); S. loc., *Pérez* 258 (USCG, Pérez 2009). QUICHÉ: S. loc., *Pérez* 2231 (USCG, Pérez 2009).

*BELIZE. *TOLEDO: Columbia River Forest Reserve, Little Quartz Ridge, N of Camp 2, 16°23'50"N, 89°05'36"W, 850 m, 18 Feb 1997, *Holst* 5834, det. Dauphin May 2017 (MO-5227765! <http://tropicos.org/specimen/90100236>, this publication).

COSTA RICA. S. loc. (Cole 1982, 1983; Fulford and Sharp 1990). ALAJUELA: San Ramón cantón, Los Ángeles, *Brenes* 17117 (F, Fulford 1959b, 1963a; Morales 1991; Dauphin 2005); Upala cantón, Guanacaste National Park, Sector Santa María, Quebrada Provisión, *Dauphin* 2317 (CR, Dauphin 2005 as *Bazzania robusta*). CARTAGO: Paraíso cantón, Orosi, Tapantí National Park, *Griffin et al.* 196 (USJ, Morales 1991; Dauphin 2005); Turrialba cantón, Peralta, *Alfaro* 40 (Fulford 1963a; Dauphin 2005); Turrialba cantón, Peralta, *Alfaro* 48 (F, Morales 1991); Turrialba cantón, Peralta, *Alfaro* 48a (Fulford 1963a; Dauphin 2005); Turrialba cantón, Peralta, *Alfaro* 48f (F, Morales 1991).

PANAMA. S. loc. (Gradstein 1993 as *Bazzania robusta*). DARIÉN: Cerro Pirre, summit, 6 Jun 1991, *Salazar Allen & Gradstein* 9285 (MO-5624130 Bryophyta Neotropica Exsiccata 278 as *Bazzania robusta*, Gradstein 1993 as *Bazzania robusta*).

COCOS I. Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, *Dauphin* 974, det. G. Dauphin Feb 2021 (USJ-95750!, CR-4468142!, W!, this publication); Cerro Yglesias, 5°32'57"N,

87°03'56"W, 600 m, 15 Feb 1994, *Dauphin* 970 (USJ!, Dauphin 1995 as *Bazzania* cf. *robusta*, 2005 as *Bazzania robusta*); trail to summit of Cerro Yglesias, 5°31'N, 87°04–05'W, 350–500 m, 31 Mar 1988, *Lücking* 92-330, det. G. Dauphin Apr 2021 (USJ-95746!, **this publication**); trail to summit of Cerro Yglesias, 5°31'N, 87°04–05'W, 500–634 m, 31 Mar 1988, *Lücking* 92-331, det. G. Dauphin Apr 2021 (USJ-108887!, **this publication**).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Bazzania gracilis (Hampe et Gottsche) Steph., *Hedwigia* 27(11/12): 279, 1888 (Stephani 1888a).

≡*Mastigobryum gracile* Hampe et Gottsche, *Limnaea* 25(3): 346, 1853 (Hampe and Gottsche 1852). Type: Puerto Rico.

GUATEMALA. S. loc. (Jovet-Ast 1948; Arnell 1956b). **ALTA VERAPAZ:** Cobán, 1,350 m, *Türckheim*, hb. Stephani 5425 (NY-02704384 <https://sweetgum.nybg.org/science/vh/specimen-details/?irn=2997585>, Fulford 1946, 1963a as *Mastigobryum phyllobolum*; Freire 2006 as *Mastigobryum phyllobolum*; Pérez 2009); Cobán, 1,350 m, *Türckheim* (G in hb. Levier 5822, Fulford 1963a as *Mastigobryum phyllobolum*); Cobán, 1,350 m, 1907, *Türckheim*, hb. Levier 5826 (G, FI, Freire 2006); S. loc., 350 m, *Türckheim* (G ex hb. Levier 5822, NY, Fulford 1959a). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 274, 278 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005); S. loc., Freire 278 (USCG, Pérez 2009). **EL PROGRESO:** San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007). **IZABAL:** Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007).

HONDURAS. S. loc. (Schäfer-Verwimp and Pócs 2009). ***ATLÁNTIDA:** El Porvenir municipio, Pico Bonito National Park, trail at and above ridge camps, 15°38'N, 86°52'W, 1,500–1,630 m, 22 Apr 1996, Allen 17495, det. Dauphin May 2017 (MO-6236054! <https://tropicos.org/specimen/100366534>, **this publication**). **COMAYAGUA:** El Plan to Cerro El Maneadero, ~11 km E of Lake Yojoa, 1,740–2,040 m, 12 Mar 1993, Allen 13932, det. Dauphin May 2017 (MO-5224567! <https://tropicos.org/specimen/90095311>, **this publication**); Siguatepeque municipio, El Achote, Yuncker 6615 p.p. (DPU, Fulford 1959a, 1963a). ***CORTÉS:** San Pedro Sula municipio, Cusuco National Park, along Rio Cusuco, ~22 km W of San Pedro Sula, 15°31'N, 88°14'W, 1,500 m, 18 Mar 1993, Allen 14073, det. Dauphin May 2017 (MO-5224565! <https://tropicos.org/specimen/90095313>, **this publication**). ***OCOTEPEQUE:** La Labor municipio, Montana del Candado, 13 km E of Nueva Ocotepeque and Cerro El Cocal, 14°27'N, 89°04'W, 2,000–2,180 m, 24 Mar 1993, Allen 14493, det. Dauphin May 2017 (MO-5224572! <https://tropicos.org/specimen/90095318>, **this publication**).

COSTA RICA. S. loc. (Jovet-Ast 1948; Arnell 1956b; Cole 1982, 1983; Schäfer-Verwimp and Pócs 2009); S. loc., 1900,

Wercklé (YU, NY, Fulford 1946, 1963a; Morales 1991; Dauphin 2005). **ALAJUELA:** San Ramón cantón, Nectandra Cloud Forest Reserve, Quebrada Verde, Jul 2007, Norris 110161b (UC-2054025, Norris et al. 2017), 110306 (UC-2053315, Norris et al. 2017); San Ramón cantón, San Ramón, Reserva Biológica Alberto Brenes, *Dauphin* 2930 (NY, Dauphin 2005). **CARTAGO:** El Guarco cantón, Santa Clara, Torres 219.3 (F, Fulford 1963a; Morales 1991; Dauphin 2005); Paraíso cantón, Orosi, Tapantí, *Lücking* 2 (USJ, Dauphin 2005; Morales 1991). **PUNTARENAS:** Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, Gradstein et al. (U, Sillett et al. 1995); S. loc. (Merwin et al. 2001). **SAN JOSÉ:** Moravia cantón, Zurquí, 2,000–2,500 m, Standley 48091 (US, B-19003, Fulford 1946, 1963a; Morales 1991; Dauphin 2005).

PANAMA. **PANAMA WEST:** Capira distrito, Altos de Campana National Park, Sendero de Interpretación, 850–1,000 m, Salazar Allen et al. 9447 (PMA, Stotler et al. 1998).

COCOS I. Fila al este de Bahía Chatham, 5°32'57"N, 87°03'56"W, 150 m, 10 Mar 1990, *Dauphin* 1190, det. G. Dauphin Apr 2021 (USJ-47260!, CR-4468440!, W!, **this publication**); Fila al NE de Chatham, 200 m, 15 Feb 1994, *Dauphin* 1190, det. M. I. Morales (USJ, Dauphin 1995, 1999, 2005 all as *Bazzania cubensis*).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Bazzania hookeri (Lindenb.) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 414, 1877 (Trevisan 1877) var. *hookeri*.

≡*Mastigobryum hookeri* Lindenb., *Syn. Hepat.* 2: 226, 1845 (Gottsche et al. 1845b). Type: Guadeloupe.

≡*Mastigobryum breutelianum* Lindenb. et Gottsche, *Syn. Hepat.*: 226, 1845 (Gottsche et al. 1845b), syn. fide Gradstein and Costa (2003). Type: St. Kitts.

≡*Bazzania breuteliana* (Lindenb. et Gottsche) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4: 414, 1877 (Trevisan 1877).

≡*Mastigobryum arcuatum* Lindenb. et Gottsche., *Syn. Hepat.* 5: 718, 1847 (Gottsche et al. 1847), syn. fide Gradstein (2017a). Type: Mexico.

≡*Bazzania arcuata* (Lindenb. et Gottsche) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4: 414, 1877 (Trevisan 1877).

≡*Mastigobryum teretiusculum* Lindenb. et Gottsche, *Syn. Hepat.* 720, 1847 (Gottsche et al. 1847), syn. fide Gradstein and Costa (2003). Type: Mexico.

≡*Bazzania teretiuscula* (Lindenb. et Gottsche) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4: 415 (Trevisan 1877).

≡*Mastigobryum portoricense* Hampe et Gottsche, *Limnaea* 25(3): 348, 1853 (Hampe and Gottsche 1852), syn. fide Rico and Pócs (2004).

≡*Bazzania portoricensis* (Hampe et Gottsche) Steph., *Hedwigia* 27(11/12): 279, 1888 (Stephani 1888a). Type: Puerto Rico.

- =*Mastigobryum schlimianum* Gottsche, *Ann. Sci. Nat., Bot.*, ser. 5, 1: 140, 1864 (Gottsche 1864), syn. fide Gradstein (2017a). Type: Colombia.
- ≡*Bazzania schlimiana* (Gottsche) Fulford, *Bull. Torrey Bot. Club* 86(6): 401, 1959 (Fulford 1959b).
- =*Bazzania chimborazensis* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 376, 1885 (Spruce 1885), syn. fide Gradstein (2017a). Type: Ecuador.
- =*Bazzania heteroclada* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 379, 1885 (Spruce 1885), syn. fide Fulford (1963a). Type: Peru.
- =*Mastigobryum latidens* Gottsche ex Steph., *Hedwigia* 25(4): 134, 1886 (Stephani 1886c), syn. fide Gradstein and Costa (2003). Type: Brazil.
- ≡*Bazzania latidens* (Gottsche ex Steph.) Fulford, *Ann. Cryptog. Phytopathol.* 3: 88, 1946 (Fulford 1946).
- =*Mastigobryum asperistipulum* Steph., *Sp. Hepat. (Stephani)* 6: 453, 1924 (Stephani 1924), syn. with *Bazzania schlimiana* fide Fulford (1963a). Lectotype (Fulford 1963a: 156 as “type”): Guatemala, Alta Verapaz, Cobán, *Türckheim s.n.*, hb. Levier 5817 (G-00067589 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=123767&lang=en>, isoelectotypes JE-04001013 <https://je.jacq.org/JE04001013>, NY-253479 <https://sweetgum.nybg.org/science/vh/specimen-details/?irn=610740>, NY-02697201 <https://sweetgum.nybg.org/science/vh/specimen-details/?irn=2985283>).
- ≡*Bazzania asperistipula* (Steph.) Herzog, *Rev. Bryol. Lichénol.* 11(1): 19, 1939 (Herzog 1938).
- =*Bazzania conchophylla* Herzog, *Rev. Bryol. Lichénol.* 11(1): 20, 1939 (Herzog 1938), syn. fide Fulford (1963a). Lectotype (Söderström and Hentschel 2023: 3): Costa Rica, Vicinity of Santa María de Dota, Provincia de San José, altitude 1,500–1,800 m, 14–26 Dec 1925, Standley 41629 (JE-04001113 <https://je.jacq.org/JE04001113>, synlectotypes Standley & Torres 50884, JE-04001114 <https://je.jacq.org/JE04001114>, US-04675710 <http://n2t.net/ark:/65665/3ad7b7e89-9740-4cd0-b3aa-755feef75a65>).
- ≡*Bazzania chimborazensis* f. *cellulis-apicalibus* Herzog, *Rev. Bryol. Lichénol.* 11(1): 24, 1939 (Herzog 1938), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Costa Rica: Cerro de La Carpintera, Prov. Cartago, 1,500–1,850 m, on tree, Standley 35660 (JE, US-04665880 <http://n2t.net/ark:/65665/31a04163f-a345-4cfc-8a62-6b4586bd9720>). Note: The original material in US is named *Mastigobryum chimborazense* without forma with the later annotation “Probably *Bazzania asperistipula*. M. Fulford 1939.”
- =*Bazzania portoricensis* (Hampe et Gottsche) Steph. var. *pynodictyon* Herzog, *Rev. Bryol. Lichénol.* 11(1): 19, 1939 (Herzog 1938), syn. with *Bazzania breuteliana* fide Fulford (1963a). Lectotype (Fulford 1963a: 133, supplemented by Söderström et al. 2023a: 150): Costa Rica, Heredia, El Muñeco, Standley 50887 (US-04665905 <http://n2t.net/ark:/65665/395ca296e-afa0-40b3-89df-ad8acc4127e6>, isoelectotype JE-04005948 <https://je.jacq.org/JE04005948>).
- =*Bazzania longa* sensu Fulford [non (Nees) Trevis.]; see “Taxa Rejected from Central America” below.
- GUATEMALA.** S. loc. (Bonner 1963a as *Bazzania asperistipula*; Fulford 1967 also as *Bazzania schlimiana*, 1987 also as *Bazzania arcuata*; Fulford and Sharp 1990 also as *Bazzania arcuata*, *Bazzania breuteliana*, and *Bazzania schlimiana*). **ALTA VERAPAZ:** Cobán, 1,600 m, *Türckheim* (hb. Levier 5817) (G-00067589 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail>

[.php?id=123767&lang=en](http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=123767&lang=en), TYPE of *Mastigobryum asperistipulum*); Cobán, *Türckheim* 5503, ex hb. Levier 5582 (NY, Fulford 1946 as *Bazzania asperistipula*, 1959b as *Mastigobryum teretiusculum*; Freire 2006 as *Mastigobryum teretiusculum*, 2009 as *Bazzania schlimiana*); Cobán, 1,600 m, *Türckheim* 5582 (FH, Fulford 1946 as *Bazzania asperistipula*; Freire 2006 as *Bazzania schlimiana*); Cobán, 1,600 m, *Türckheim* 5817 (NY, Fulford 1946 as *Bazzania asperistipula*; Freire 2006 as *Bazzania schlimiana*); Cobán, 1,600 m, *Türckheim* (G in hb. Levier 5817, Fulford 1959b as *Bazzania schlimiana*, 1963a as *Bazzania schlimiana*); Panzós municipio, Cahabón and/or Senahú, 2012, Pérez & López-Medina, det. M. Pérez (Pérez and López-Medina 2012); S. loc., Seler 2659 (G, Fulford 1959b as *Bazzania schlimiana*, 1963a as *Bazzania schlimiana*); S. loc., Standley 90324 (F, Fulford 1963a as *Bazzania arcuata*; Freire 2006 as *Bazzania arcuata*; Pérez 2009 as *Bazzania arcuata*); S. loc., Standley 90635 (F, Fulford 1963a as *Bazzania arcuata*; Freire 2006 as *Bazzania arcuata*); S. loc., Standley 91868 (F, Fulford 1963a; Freire 2006); S. loc., Standley 92063i (F, Fulford 1963a; Freire 2006); S. loc., *Türckheim* (G, Stephani 1924 as *Mastigobryum asperistipulum*); Tucurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, 2,300–2,500 m, Pérez 351 (Pérez 2009); Tucurú municipio, Reserva Privada Chelemhá (Pérez 2006); Volcán Pacaya, Standley 80537 (F, Fulford 1963a as *Bazzania breuteliana*; Freire 2006 as *Bazzania cf. breuteliana*; Pérez 2009 as *Bazzania breuteliana*). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 106, 170, 227, etc. (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 also as *Bazzania breuteliana*); Purhulhá municipio, en camino de tierra 4 mi (6.4 km) al NE de Purulhá, 1,500 m, 17 Jul 1977, Croat 41304, det. Whittemore (USCG, MO, Freire 2006 as *Bazzania cf. breuteliana*; Pérez 2009 as *Bazzania breuteliana*); S. loc., Pérez 88 (USCG, Pérez 2009). **EL PROGRESO:** S. loc., Sharp 2736a (TENN, Fulford 1959b as *Bazzania schlimiana*; Freire 2006 as *Bazzania schlimiana*; Pérez 2009 as *Bazzania schlimiana*); S. loc., 1939, Pagán (Morales 1991 as *Bazzania breuteliana*). **HUEHUETENANGO:** S. loc., Steyermark 47192 (F, Fulford 1963a); S. loc., Steyermark 48797 (F, Fulford 1963a; Freire 2006); S. loc., Steyermark 49172 (F, Freire 2006); S. loc., Steyermark 49949 (F, Fulford 1963a as *Bazzania arcuata*; Freire 2006 as *Bazzania arcuata*; Pérez 2009 as *Bazzania arcuata*); S. loc., Steyermark 49955 (F, Fulford 1963a as *Bazzania arcuata*; Freire 2006 as *Bazzania arcuata*); Sierra de Las Minas, Steyermark 30002 (F, Fulford 1963a; Freire 2006); sierra Las Minas, Pérez 1443 (USCG, Pérez 2009). **QUICHÉ:** Nebaj, 8,500 ft (2,591 m), Sharp 2516 (TENN, Fulford 1959b, 1963a; Freire 2006; Pérez 2009); Nebaj, Sharp 2529 (TENN, Fulford 1959a, 1963a, both as *Bazzania breuteliana*; Freire 2006 as *Bazzania cf. breuteliana*; Pérez 2009 as *Bazzania breuteliana*); Nebaj, Steyermark 38831 (F, Fulford 1963a as *Bazzania breuteliana*; Freire 2006 as *Bazzania cf. breuteliana*); Pitoreal, 24 Feb 1945, Sharp 2771a (TENN-B-0095795 <https://bryophyteportal.org/portal/collections/individual/index.php?occid=4454068&>

clid=0, Fulford 1959b, 1963a; Freire 2006). *ZACAPA: Between Loma El Picacho and Cerro de Monos, 2,000–2,600 m, *Steyermark* 42819 (F-C0043916F <http://bryophyteportal.org/portal/collections/individual/index.php?occid=3731165&clid=0>, this publication).

*BELIZE. *TOLEDO: Columbia River Forest Reserve, from Camp 2 along Little Quartz Ridge spur to spur's summit, 16°23'17"N, 89°05'30"W, 16 Feb 1997, *Allen* 18837, det. Dauphin May 2017 (MO-5232356! <http://tropicos.org/specimen/90102265>, this publication); Columbia River Forest Reserve, Little Quartz Ridge, 16°23'58"N, 89°06'41"W, 19 Feb 1997, *Allen* 18922, det. Dauphin May 2017 (MO-5232339! <http://tropicos.org/specimen/90102269>, this publication).

*HONDURAS. *ATLÁNTIDA: El Porvenir municipio, Pico Bonito National Park, trail from confluence to ridge camps, 15°38'–39'N, 86°51'–52'W, 20 Apr 1996, *Allen* 17392, det. Dauphin May 2017 (MO-6236053! <http://tropicos.org/specimen/100366533>, this publication); El Porvenir municipio, Pico Bonito National Park, upper slopes and summit, 15°37'N, 86°53'W, 23 Apr 1996, *Allen* 17532, det. Dauphin May 2017 (MO-6230301! <http://tropicos.org/specimen/100366547>, this publication). *CO-MAYAGUA: El Plan to Cerro El Maneadero, ~11 km E of Lake Yojoa, 12 Mar 1993, *Allen* 13893, det. Dauphin May 2017 (MO-5224566! <http://tropicos.org/specimen/90095310>, this publication). *CORTÉS: San Pedro Sula municipio, Cusuco National Park, from Rio Cusuco to summit of Cerro Jilincó ~22 km W of San Pedro Sula, 16 km S of Cuyamel, 15°31'N, 88°14'W, 20 Mar 1993, *Allen* 14282, det. Dauphin May 2017 (MO-5224570! <http://tropicos.org/specimen/90095317>, this publication); San Pedro Sula municipio, from Rio Cusuco to Cerro Cantiles, 19 Mar 1993, *Allen* 14236, det. Dauphin May 2017 (MO-5224571! <http://tropicos.org/specimen/90095316>, this publication). *LEMPIRA: Gracias municipio, Celaque National Park, along Rio Arcagual, ~10.5 km S of Gracias, 14°35'N, 88°41'W, 15 Nov 1991, *Allen* 11457B, det. Dauphin May 2017 (MO-5224557! <http://tropicos.org/specimen/90095302>, this publication); Gracias municipio, Montaña de Celaque, ridge above Planta Eléctrica Station, 14°33'N, 88°38'W, 1,400–1,870 m, 10 May 1992, *Allen* 11904, det. Gradstein Jun 2017 (MO-5224558! <https://tropicos.org/specimen/90095303>, PC, this publication); Gracias municipio, Montaña de Celaque, Rio Naranjo, ~10 km SW of Gracias, 14°32'N, 88°39'W, 12 May 1992, *Allen* 11997, det. Dauphin May 2017 (MO-5224559! <http://tropicos.org/specimen/90095304>, this publication); Gracias municipio, Montaña de Celaque, Rio Naranjo, ~10 km SW of Gracias, trail to filo overlooking waterfall of Rio Arquéal, 14°33'N, 88°40'W, 16 May 1992, *Allen* 12213, det. Dauphin May 2017 (MO-5224561! <http://tropicos.org/specimen/90095306>, this publication). *OCOTEPEQUE: La Labor municipio, Montana del Candado, 13 km E of Nueva Ocotepeque and Cerro El Cocal, 14°27'N, 89°04'W, 24 Mar 1993, *Allen* 14519, det. Dauphin May 2017 (MO-5224572! <http://tropicos.org/specimen/90095319>, this publication).

*EL SALVADOR. *SANTA ANA: Metapán municipio, Cerro Monte Cristo, ~14 mi NE of Metapán, trail to Punto

Trifinio, 31 Jul 1977, *Croat* 42463, det. Dauphin May 2017 (MO-5228831! <http://tropicos.org/specimen/100990950>, this publication); Metapán municipio, Cerro Monte Cristo, ~14 mi NE of Metapán, trail to Punto Trifinio, 31 Jul 1977, *Croat* 42464, det. Dauphin May 2017 (MO-5228827! <http://tropicos.org/specimen/100990949>, this publication); Metapán municipio, Cerro Monte Cristo, ~14 mi NE of Metapán, trail to Punto Trifinio, 31 Jul 1977, *Croat* 42467, det. Dauphin May 2017 (MO-5228828! <http://tropicos.org/specimen/100990951>, this publication).

*NICARAGUA. *JINOTEGA: Bocay municipio, Reserva Natural Kilambé, 12–19 Jan 2001, *Rueda et al.* 15760, det. Dauphin May 2017 (MO-5267726! <http://tropicos.org/specimen/90189995>, this publication). *RÍO SAN JUAN: San Juan del Norte municipio, Reserva Indio-Maíz, Cerro El Gigante, 10°46'N, 83°53'W, 25 Jul 1996, *Rueda et al.* 4510, det. Dauphin May 2017 (MO-6231459! <http://tropicos.org/specimen/100318335>, this publication).

COSTA RICA. Cordillera de Talamanca (Holz 2003 as *Bazzania arcuata*; Holz and Gradstein 2005b also as *Bazzania arcuata*); Cordillera de Talamanca, Kappelle 608 (CR, Kappelle 1996); S. loc. (Stephani 1909b as *Mastigobryum arcuatum*; Pagán 1939c, 1942b, both as *Bazzania portoricensis*; Jovet-Ast 1957 as *Bazzania breuteliana*, *Bazzania teretiuscula*, and *Bazzania teretiuscula*, 1960 as *Bazzania breuteliana*; Fulford 1959a as *Bazzania chimborazensis*, 1959b as *Bazzania teretiuscula*, 1967 also as *Bazzania schlimiana* and *Bazzania teretiuscula*, 1987 also as *Bazzania arcuata*; Bonner 1963a as *Bazzania asperistipula*; Cole 1982, 1983, both also as *Bazzania arcuata*, *Bazzania breuteliana*, *Bazzania schlimiana*, and *Bazzania teretiuscula*; Fulford and Sharp 1990 also as *Bazzania arcuata*, *Bazzania breuteliana*, *Bazzania schlimiana*, and *Bazzania teretiuscula*; Lemos-Michel and Bueno 1992 as *Bazzania chimborazensis*; Gradstein 1999a as *Bazzania arcuata*; Dauphin 2005 as *Bazzania arcuata*; Gradstein and Holz 2005 as *Bazzania arcuata*; S. loc., Tonduz (Stephani 1909b as *Mastigobryum portoricense*). ALAJUELA: Poás National Park, 10°12'N, 84°14'W, Aug 1973, *Griffin et al.* (Griffin et al. 1974 as *Bazzania breuteliana*); Poás Volcano, Aug 1977, *Griffin et al.* 13 (USJ, FLAS-020493, Morales and Griffin 1983 as *Bazzania arcuata*; Morales 1991 as *Bazzania arcuata*; Dauphin 2005 as *Bazzania arcuata*); Poás Volcano, Aug 1977, *Griffin et al.* 156 (USJ, FLAS-020449, Morales and Griffin 1983 as *Bazzania breuteliana*; Morales 1991 as *Bazzania breuteliana*; Dauphin 2005 as *Bazzania breuteliana*); San Ramón cantón, Los Ángeles, Brenes 16264, 17121, 19018 (F, Fulford 1959b, 1963a; Morales 1991; Dauphin 2005); San Ramón cantón, Nectandra Cloud Forest (UC, Norris et al. 2017 as *Bazzania breuteliana* and *Bazzania schlimiana*); San Ramón cantón, Nectandra Cloud Forest Reserve, Quebrada Verde, Lucas (UC-2053924, Norris et al. 2017); San Ramón cantón, Nectandra Cloud Forest Reserve, Quebrada Verde, Jul 2007, Norris 110039 (UC-2053698, Norris et al. 2017 as *Bazzania breuteliana*); San Ramón cantón, Nectandra Cloud Forest Reserve, Quebrada Verde, Jul 2007, Norris 110534 (UC-2053321, Norris et al. 2017 as *Bazzania*

breuteliana); San Ramón cantón, Nectandra, 3 Nov 2010, Norris 109985 (UC, Norris et al. 2017 as *Bazzania schlimiana*); Sarachi cantón, Valverde Vega, Alfaro 7 (F, Fulford 1959b, 1963a; Morales 1991; Dauphin 2005). CARTAGO: Alto de La Estrella, Standley 39106 (US, W, Herzog 1938 as *Bazzania portoricensis* var. *pycnodictyon*; Fulford 1946 as *Bazzania asperistipula* and *Bazzania breuteliana*, 1959b as *Bazzania schlimiana*, 1963a as *Bazzania breuteliana* and *Bazzania schlimiana*; Bonner 1963a as *Bazzania portoricensis* var. *pycnodictyon*; Morales 1991 as *Bazzania breuteliana* and *Bazzania schlimiana*; Dauphin 2005 as *Bazzania breuteliana* and *Bazzania schlimiana*); Alto de La Estrella, Standley 39117, 39403, 50887, 51338 (US, W, Herzog 1938 as *Bazzania portoricensis* var. *pycnodictyon*; Fulford 1946 as *Bazzania breuteliana*, 1963a as *Bazzania breuteliana*; Bonner 1963a as *Bazzania portoricensis* var. *pycnodictyon*; Morales 1991 as *Bazzania breuteliana*; Dauphin 2005 as *Bazzania breuteliana*); Alvarado cantón, Coliblanco, 1,950 m, Maxon 237 (NY, Fulford 1946 as *Bazzania asperistipula*, 1959b as *Bazzania schlimiana*; Morales 1991 as *Bazzania schlimiana*; Dauphin 2005 as *Bazzania schlimiana*); Alvarado cantón, Coliblanco, 1,950 m, Maxon (NY, Fulford 1963a as *Bazzania schlimiana*); Cartago cantón, El Muñeco, 1,400–1,500 m, Standley 50887 (US, W, TYPE of *Bazzania portoricensis* var. *pycnodictyon*, Herzog 1938 as *Bazzania portoricensis* var. *pycnodictyon*; Bonner 1963a as *Bazzania portoricensis* var. *pycnodictyon*; Fulford 1963a as *Bazzania breuteliana*; Morales 1991 as *Bazzania breuteliana*; Dauphin 2005 as *Bazzania breuteliana*); Cartago cantón, El Muñeco, Río Navarro, 1,400–1,500 m, Standley 50884 (US, JE-04001114 <https://je.jacq.org/JE04001114>, TYPE of *Bazzania conchophylla*, Herzog 1938 as *Bazzania conchophylla*; Fulford 1946, 1963a, both as *Bazzania teretiuscula*; Bonner 1963a as *Bazzania conchophylla*; Morales 1991 as *Bazzania teretiuscula*; Dauphin 2005 as *Bazzania teretiuscula*); Cartago cantón, El Muñeco, Río Navarro, 1,400–1,500 m, Standley 50885 (Herzog 1938 as *Bazzania arcuata*; Fulford 1959a as *Bazzania arcuata*; Morales 1991 as *Bazzania arcuata*; Dauphin 2005 as *Bazzania arcuata*); Cartago cantón, El Muñeco, Río Navarro, 1,400–1,500 m, Standley 51338 (US, W, TYPE of *Bazzania portoricensis* var. *pycnodictyon*, Herzog 1938 as *Bazzania portoricensis* var. *pycnodictyon*; Fulford 1946 as *Bazzania asperistipula*, 1959b as *Bazzania schlimiana*, 1963a as *Bazzania breuteliana* and *Bazzania schlimiana*; Bonner 1963a as *Bazzania portoricensis* var. *pycnodictyon*; Morales 1991 as *Bazzania schlimiana*; Dauphin 2005 as *Bazzania breuteliana* and *Bazzania schlimiana*); El Guarco cantón, Santa Clara, 1,950 m, Maxon & Harvey 8188 (hb. Herzog, Fulford 1959b as *Bazzania schlimiana*, 1963a as *Bazzania schlimiana*; Morales 1991 as *Bazzania schlimiana*; Dauphin 2005 as *Bazzania schlimiana*); El Guarco cantón, Santa Clara, Torres 219, 220-1 (F, Fulford 1963a as *Bazzania breuteliana*; Morales 1991 as *Bazzania breuteliana*; Dauphin 2005 as *Bazzania schlimiana*); El Guarco cantón, Tobosi (Morales 1991 as *Bazzania arcuata*); El Guarco cantón, Tobosi, 2,200 m, 25 Jan 1882, Lehmann 1133 (Stephani 1894a as *Bazzania arcuate*; Dauphin 2005 as *Bazzania arcuata*); Jiménez

cantón, Río Naranjo, Tonduz 15621 (G, Fulford 1959a as *Bazzania breuteliana*); La Estrella, Standley 39426 (W, US, Herzog 1938 as *Bazzania heteroclada*; Fulford 1946 as *Bazzania teretiuscula*, 1963a as *Bazzania teretiuscula*; Morales 1991 as *Bazzania teretiuscula*; Dauphin 2005 as *Bazzania teretiuscula*); La Unión cantón, Cerro de La Carpintera, 1,500–1,850 m, Standley 35630, 35632, 35660 (US, W, Herzog 1938 as *Bazzania asperistipula* and *Bazzania chimborazensis* f. *cellulis-apicalibus*; Fulford 1946 as *Bazzania asperistipula*, 1959b as *Bazzania schlimiana*; Morales 1991 as *Bazzania chimborazensis*; Dauphin 2005 as *Bazzania schlimiana* and *Bazzania chimborazensis*); Oreamuno cantón, Irazú National Park, 16 Nov 1999, Holz CR 99-357, det. Dauphin Nov 2020 (CR!, this publication); Paraíso cantón, Orosi, Standley 39650 (US, W, Fulford 1946 as *Bazzania asperistipula*, 1959b as *Bazzania schlimiana*, 1963a as *Bazzania schlimiana*; Morales 1991 as *Bazzania schlimiana*; Dauphin 2005 as *Bazzania schlimiana*); Paraíso cantón, Orosi, Tapantí National Park, Griffin et al. 178 (USJ, Morales 1991; Dauphin 2005); Paraíso cantón, Tapantí National Park, Griffin & Eakin 223 (FLAS, Morales 1991 as *Bazzania schlimiana*; Dauphin 2005 as *Bazzania schlimiana*). GUANACASTE: Liberia cantón, Guanacaste National Park, Estación Cacao, 10°55'45"N, 85°28'15"W, 28 Oct 1990, Chavez 2782b, det. Dauphin May 2017 (MO-5280474!, this publication); Liberia cantón, Guanacaste National Park, Estación Cacao, 10°55'45"N, 85°28'15"W, 1,100 m, 28 Oct 1990, Chavez 279a, det. Dauphin May 2017 (MO-5280457! <https://tropicos.org/specimen/90136124>, this publication); Liberia cantón, Rincón de La Vieja National Park, Sector Las Pailas, sendero al cráter, Dauphin et al. 1855 (CR, Freire 2006 as *Mastigobryum braunianum*). HEREDIA: Barva cantón, Braulio Carrillo National Park, Sector Volcán Barva (Dauphin 2005 as *Bazzania breuteliana*); Barva cantón, Braulio Carrillo National Park, Sector Volcán Barva, Griffin et al. D210 (USJ, Morales 1991 as *Bazzania breuteliana*); Heredia cantón, Vara Blanca, 1,600–1,700 m, Maxon & Harvey 8266 (hb. Herzog, Fulford 1959b as *Bazzania schlimiana*, 1963a as *Bazzania schlimiana*; Morales 1991 as *Bazzania schlimiana*; Dauphin 2005 as *Bazzania schlimiana*); San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, Standley 52164a (hb. Herzog, Fulford 1959b as *Bazzania schlimiana*, 1963a as *Bazzania schlimiana*; Morales 1991 as *Bazzania schlimiana*). PUNTARENAS: Buenos Aires cantón, Monte Hacum, Tonduz (G, Fulford 1959a, 1963a, both as *Bazzania arcuata*; Morales 1991 as *Bazzania arcuata*; Dauphin 2005 as *Bazzania arcuata*); Coto Brus cantón, Parque Internacional La Amistad, Pittier, Dauphin 1373, 1433 (CR, Dauphin 2005 also as *Bazzania arcuata*); Jiménez cantón, Río Naranjo, 15 Mar 1971, James, det. Timme (MO-616896!, this publication); Monteverde, <1,500 m (Morales 1991 also as *Bazzania breuteliana*; Dauphin 2005 also as *Bazzania breuteliana*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a also as *Bazzania breuteliana*); Monteverde cantón, Santa Elena Biological Preserve, 10°15'N, 84°45'W, 4 Aug 1993, Timme 11339, det. Timme (MO-6690004!

<https://tropicos.org/specimen/100861277>, **this publication**); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, *Gradstein et al.* (U, *Sillett et al.* 1995); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, *Gradstein et al.* (U, *Sillett et al.* 1995 as *Bazzania breuteliana*); Monteverde, 29 Dec 1964, *James, J.* 27 (R, *Reed and Robinson* 1971 as *Bazzania breuteliana*); Monteverde, 4,300 ft (1,310 m), Feb 1969, *James, W.* 1969-28, 1969-32 (US, *Reed and Robinson* 1971; *Dauphin* 2005); S. loc. (*Merwin et al.* 2001). SAN JOSÉ: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, *Holz et al.* 2002); Dota cantón, Alto de Pito, *Tonduz* 3009 (G, *Morales* 1991 as *Bazzania breuteliana*; *Dauphin* 2005 as *Bazzania breuteliana*); Dota cantón, San Gerardo (*Dauphin* 2005); Dota cantón, San Gerardo, *Holz* (2003); Dota cantón, San Marcos, Alto de Pito, 1,400 m, *Tonduz* 11618 (NY, G, *Fulford* 1946, 1963a, both as *Bazzania breuteliana*; *Morales* 1991 as *Bazzania breuteliana*; *Dauphin* 2005 as *Bazzania breuteliana*); Dota cantón, San Marcos, Alto de Pito, 1,400 m, *Tonduz* 3009 (G, *Fulford* 1959a, 1963a, both as *Bazzania breuteliana*); Dota cantón, Santa María, 1,500–1,800 m, *Standley* 41629 (US, TYPE of *Bazzania conchophylla*, *Herzog* 1938 as *Bazzania conchophylla*; *Fulford* 1946, 1963a, both as *Bazzania teretiuscula*; *Bonner* 1963a as *Bazzania conchophylla*; *Morales* 1991 as *Bazzania teretiuscula*; *Kappelle* 1996 as *Bazzania teretiuscula*; *Dauphin* 2005 as *Bazzania teretiuscula*); Moravia cantón, La Hondura, *Griffin & Morales* A53 (USJ, *Morales* 1991 as *Bazzania breuteliana*; *Dauphin* 2005 as *Bazzania breuteliana*); Moravia cantón, Zurquí, 2,000–2,500 m, *Standley* 48258 (*Herzog* 1938 as *Bazzania heteroclada*; *Morales* 1991 as *Bazzania teretiuscula*; *Dauphin* 2005 as *Bazzania teretiuscula*).

PANAMA. S. loc. (*Jovet-Ast* 1957, 1960, both as *Bazzania breuteliana*; *Gradstein* 1993; *Stotler et al.* 1998 as *Bazzania breuteliana*). CHIRIQUÍ: Boquete distrito, Palo Alto, 1,300–1,400 m, *Salazar Allen et al.* 757 (PMA, *Stotler et al.* 1998 as *Bazzania teretiuscula*); Gualaca distrito, Fortuna (*Stotler et al.* 1998); Gualaca distrito, Fortuna, NW of camping site, 1,000–1,200 m, *Salazar Allen et al.* 628 (PMA, *Stotler et al.* 1998 as *Bazzania teretiuscula*; *Salazar Allen et al.* 2021); Gualaca distrito, Hornito, Fortuna, *Spörle* 1.18 (PMA, *Spörle* 1990; *Stotler et al.* 1998); Gualaca distrito, Valle de la Sierpe along Quebrada Bonita heading SE, *Salazar Allen et al.* 5079 (PMA, *Stotler et al.* 1998); Renacimiento distrito, Cerro Pando, on the Costa Rican border 16 km NW of El Hato del Volcán, 2,000–2,482 m, *Mori & Bolten* 7316 (MO, PMA, *Stotler et al.* 1998 as *Bazzania arcuata*); S. loc. (*Schäfer-Verwimp* 2014); Tierras Altas distrito, Volcán, 9 Aug 1950, *Chickering* (MICH, *Crum and Arzeni* 1953 as *Bazzania breuteliana*; *Stotler et al.* 1998 as *Bazzania breuteliana*); Barú Volcano National Park (*Rodríguez-Quiel et al.* 2022). COCLÉ: Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8'N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp*

& *Verwimp* 34197 (JE, *Schäfer-Verwimp* 2014); Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8'N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34249 (JE, *Schäfer-Verwimp* 2014). DARIÉN: Cerro Pirre (*Stotler et al.* 1998); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992 incl. *Bazzania robusta*); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992 incl. *Bazzania robusta*); S. loc. (*Schäfer-Verwimp* 2014); Summit of Pirre Massif, 1,200–1,350 m, *Allen* 8864 (MO, *Stotler et al.* 1998 as *Bazzania arcuata*). PANAMA WEST: Capiरा distrito, Altos de Campana National Park, Sendero de Interpretación, 850–1,000 m, *Salazar Allen et al.* 9447 (PMA, *Stotler et al.* 1998); Capiरा distrito, Cerro Campana, *Stimson* 5407 (MO, *Stotler et al.* 1998 as *Bazzania arcuata*). PANAMA: Panamá distrito, Cerro Jefe (*Stotler et al.* 1998 as *Bazzania breuteliana*); Panamá distrito, Cerro Jefe, ~1,000 m, *Salazar Allen et al.* 9447 (PMA, *Stotler et al.* 1998); Panamá distrito, Cerro Jefe, 12 Jun 1991, *Salazar Allen & Gradstein* 9397, det. *Gradstein* 1992 (MO-3955638! <https://tropicos.org/specimen/90099055>, **this publication**); Panamá distrito, Cerro Jefe, forest behind the INTEL tower, 900–1,000 m, *Spörle* (PMA, *Spörle* 1990 as *Bazzania* cf. *breuteliana*); Panamá distrito, Cerro Pirre, 800–1,150 m, *Salazar Allen & Gradstein* 9302 (PMA, *Stotler et al.* 1998 as *Bazzania breuteliana*); S. loc. (*Schäfer-Verwimp* 2014).

COCOS I. Cerro Yglesias, 5°32'57"N, 87°03'56"W, *Dauphin* 974, det. G. *Dauphin* Oct 2020 (USJ-47259!, CR!, W!, **this publication**); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 22 Jan 1994, *Dauphin* 974 p.p., det. G. *Dauphin* Oct 2020 (CR!, **this publication**); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 15 Feb 1994, *Dauphin* 970 (USJ!, *Dauphin* 1999); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 15 Feb 1994, *Dauphin* 974 (USJ!, *Dauphin* 1999); Sendero a Cerro Yglesias, 5°31'50.13"N, 87°03'57.05"W, 345 m, 26 Jun 2012, *Estrada et al.* 5871, det. G. *Dauphin* Aug 2016 (CR-281368!, **this publication**).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Bazzania jamaicensis (Lehm. et Lindenb.) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 414, 1877 (Trevisan 1877).

≡ *Herpetium jamaicense* Lehm. et Lindenb., *Nov. Stirp. Pug.* 7: 7, 1838 (Lehmann 1838). Type: Jamaica.

≡ *Mastigobryum jamaicense* (Lehm. et Lindenb.) Gottsche, Lindenb. et Nees, *Syn. Hepat.* 2: 223, 1845 (Gottsche et al. 1845b).

≡ *Mastigobryum fendleri* Steph., *Bull. Herb. Boissier*, sér. 2, 8(10): 75 [=Sp. *Hepat.* (*Stephani*) 3: 436], 1908 (Stephani 1908d), syn. fide *Gradstein and Costa* (2003). Type: Venezuela.

≡ *Bazzania fendleri* (Steph.) *Fulford*, *Annal. Cryptog. Phytopathol.* 3: 105, 1946 (*Fulford* 1946).

≡ *Bazzania jamaicensis* (Lehm. et Lindenb.) Trevis. var. *chamaecardia* *Herzog*, *Rev. Bryol. Lichénol.* 11(1/2): 19, 1939 (*Herzog* 1938), syn. fide *Fulford*

(1963a). Lectotype (Fulford 1963a: 144): Costa Rica, Heredia, Cerro de las Lajas, 11 Mar 1926, *Standley & Valerio* 52267 (US-04666041 <http://n2t.net/ark:/65665/346b8e9d7-2f93-48b8-998b-6b629f3e78b5>, isoelectotype JE-04005948 <https://je.jacq.org/JE04005948>).

HONDURAS. FRANCISCO MORAZÁN: San Antonio de Oriente municipio, Cerro de Uyuca, *Rodriguez* 762 (F, Fulford 1963a).

NICARAGUA. Segovia, 4,000 ft (1,219 m), *Oersted* (G, F, Hampe 1851b as *Mastigobryum jamaicense*; Fulford 1946, 1959a, 1963a; Morales 1991).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Arnell 1956b; Jovet-Ast 1959; Cole 1982, 1983; Gradstein 1999a; Dauphin 2005; Gradstein and Holz 2005); S. loc., *Brade* (G, Fulford 1963a; Morales 1991); S. loc., *Lücking* (Bernecker 1990); S. loc., *Oersted* (YU, G, S, Stephani 1909b as *Mastigobryum jamaicense*). **ALAJUELA:** Poás National Park, *Griffin & Araya* 65 (FLAS, USJ, Morales 1991; Dauphin 2005); San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 5 Jul 2007, *Norris* 109950 (Norris et al. 2017 as *Bazzania fendleri*). **HEREDIA:** Barva cantón, Volcán Barva, *Morales* 1501 (USJ, Morales 1991); San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, *Standley* 52117, 52267 (*Herzog* 1938 as *Bazzania jamaicensis* var. *chamaecardia*; *Bonner* 1963a as *Bazzania jamaicensis* var. *chamaecardia*; Morales 1991; Dauphin 2005); San Isidro cantón, Cerro de Las Lajas, *Standley & Valerio* 49949, 50713, 51446, 51643a, 52117 (US, W, Fulford 1946, 1963a; Morales 1991); San Isidro cantón, Cerro de Las Lajas, *Standley & Valerio* 51645 (US, W, TYPE of *Bazzania jamaicensis* var. *chamaecardia*, Fulford 1946, 1963a; Morales 1991); San Isidro cantón, Cerro de Las Lajas, *Standley & Valerio* 52267 (US, W, Fulford 1946, 1963a; Morales 1991); San Isidro cantón, Cerro de Las Lajas, 2,000–2,400 m, *Standley* 51446 (B-18972, Dauphin 2005; *Herzog* 1938); San Isidro cantón, Cerro de Las Lajas, 2,000–2,400 m, *Standley* 50713, 51643a, 51645 (B-18971, *Herzog* 1938 as *Bazzania jamaicensis* var. *chamaecardia*; *Bonner* 1963a as *Bazzania jamaicensis* var. *chamaecardia*; Dauphin 2005).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Bazzania longistipula (Lindenb.) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 415, 1877 (Trevisan 1877).

≡*Mastigobryum longistipulum* Lindenb., *Syn. Hepat.* 2: 228, 1845 (Gottsche et al. 1845b). Type: St. Vincent.

GUATEMALA. Pitoreal, *Sharp* 2772 (TENN, Fulford 1959a, 1963a; Freire 2006); S. loc. (Fulford 1987; Fulford and Sharp 1990). **ALTA VERAPAZ:** S. loc., *Standley* 90648 (F, Fulford 1963a; Freire 2006; Pérez 2009).

***HONDURAS.** ***CORTÉS:** San Pedro Sula municipio, Cusuco National Park, along Rio Cusuco ~22 km W of San Pedro Sula, 16 km S of Cuyamel, 15°31'N, 88°14'W, 18 Mar 1993, *Allen* 14133, det. Dauphin May 2017 (MO-5224574! <http://tropicos.org/specimen/90095314>, this publication); San

Pedro Sula municipio, Cusuco National Park, along Rio Cusuco ~22 km W of San Pedro Sula, 16 km S of Cuyamel, 15°31'N, 88°14'W, 19 Mar 1993, *Allen* 14210, det. Dauphin May 2017 (MO-5224569! <http://tropicos.org/specimen/90095315>, this publication). ***LEMPIRA:** Gracias municipio, Montaña de Celaque, Rio Naranjo, ~10 km SW of Gracias, 14°32'N, 88°39'W, 12 May 1992, *Allen* 11997B, det. Dauphin May 2017 (MO-5224560! <http://tropicos.org/specimen/90095305>, this publication).

COSTA RICA. Cordillera de Talamanca (Holz and Gradstein 2005b; Holz 2006); S. loc., *Kappelle* 4622a (U, Kappelle 1996). **HEREDIA:** Barva cantón, Braulio Carrillo National Park, Sector Volcán Barva, *Griffin et al.* D187 (FLAS, USJ, Morales 1991; Dauphin 2005). **PUNTARENAS:** Golfito, *Chavarría* 502 (CR, NY, Dauphin 2005); Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995); S. loc. (Merwin et al. 2001). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, Holz (Holz 2003); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a).

PANAMA. PANAMA: Panamá distrito, Cerro Jefe, creek on lateral road to INTEL tower, 900 m, *Salazar Allen & Gradstein* 9416 (PMA, Stotler et al. 1998).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Bazzania nitida (F.Weber) Grolle, *Rev. Bryol. Lichénol.* 29(3/4): 210, 1961 (Grolle 1960b).

≡*Jungermannia nitida* F.Weber, *Hist. Musc. Hepat. Prodr.*: 43, 1815 (Weber 1815). Type: S. Africa [based on *Jungermannia convexa* Thunb. 1800, *Prodr. Pl. Cap.* 2: 173, nom. illeg. (ICN2018 Art. 53.1; hom. illeg. non Scop. 1772).

≡*Mastigobryum heterostipum* Steph., *Sp. Hepat. (Stephani)* 3: 532, 1909 (Stephani 1909b), syn. fide Gradstein (2017a). Type: “America tropica et subtropica.”

≡*Bazzania heterostipa* (Steph.) Fulford, *Bull. Torrey Bot. Club* 86(6): 410, 1959 (Fulford 1959b).

GUATEMALA. **ALTA VERAPAZ:** Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, Pérez 151 (USCG, Pérez 2009 as *Bazzania heterostipa*); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Bazzania* cf. *heterostipa*). ?**EL PROGRESO:** San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, *Ramírez* (USCG, BIGU, Ramírez 2007 as *Bazzania* aff. *heterostipa*). Note: We are not aware of any positively identified specimen from El Progreso. **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, Ramírez 2007 as *Bazzania heterostipa* and *Bazzania* aff. *heterostipa*).

PANAMA. DARIÉN: Summit of Pirre Massif, 800–1,350 m, Allen 8898 (MO <http://tropicos.org/specimen/101105657>, Stotler et al. 1998 as *Bazzania heterostipa*).

Also reported from West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, Indo-China(?), Malesia(?), Papuasias(?), Australia, New Zealand, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Bazzania pallidevirens (Steph.) Fulford, *Ann. Cryptog. Phytopathol.* 3: 42, 1946 (Fulford 1946).

≡*Mastigobryum pallidevirens* Steph., *Bull. Herb. Boissier*, sér. 2, 8(11): 849 [=*Sp. Hepat. (Stephani)* 3: 473], 1908 (Stephani 1908h). Type: Brazil.

GUATEMALA. ?ALTA VERAPAZ: Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Bazzania* cf. *pallidevirens*). Note: We are not aware of any positively identified specimen from Alta Verapaz. **EL PROGRESO:** San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007). **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007).

Also reported from Northern South America, Western South America, Brazil.

Bazzania phyllobola Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 372, 1885 (Spruce 1885). Type: Peru.

COSTA RICA. CARTAGO: Paraíso cantón, Tapanti National Park, Lücking 4 (USJ, Morales 1991). **SAN JOSÉ:** Barva cantón, Volcán Barva, Standley 48258 (Morales 1991); Moravia cantón, Zurquí, 2,000–2,500 m, Standley 48091 (US, B-19003, Herzog 1938; Fulford 1946, rejecting it as *Bazzania gracilis*).

PANAMA. CHIRIQUÍ: Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, Schäfer-Verwimp & Verwimp 34586 (JE, Schäfer-Verwimp 2014).

Also reported from Northern South America, Western South America, Brazil.

Bazzania pycnophylla var. *cubensis* (Gottsche ex Steph.) Pócs, *Nova Hedwigia Beih.* 150: 164, 2020 (Pócs 2020).

≡*Mastigobryum cubense* Gottsche ex Steph., *Hedwigia* 24(6): 248, 1885 (Stephani 1885b). Type: Cuba.

≡*Bazzania cubensis* (Gottsche ex Steph.) Pagán, *Bryologist* 42(2): 38, 1939 (Pagán 1939c).

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo del Quetzal, 18 Aug 2004, Pérez 571 (MO-6233916! <http://tropicos.org/specimen/100311958>, this publication); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as *Bazzania cubensis*); S. loc., Freire 623 (USCG, Pérez 2009 as *Bazzania cubensis*).

***HONDURAS. *COMAYAGUA:** From Agua Amarilla to San José de Los Planes, ~11–15 km from Lake Yojoa, 14°47'N, 87°51'W, 1,300–1,700 m, 14 Mar 1993, Allen 14029, det.

Dauphin May 2017 (MO-5224568! <http://tropicos.org/specimen/90095312>, this publication as *Bazzania cubensis*).

†**COCOS I.** Dauphin 1999, 2005 both as *Bazzania cubensis*. Note: The reports belong to *Bazzania gracilis*.

Also reported from the Caribbean, Northern South America, Western South America.

Bazzania pycnophylla (Taylor) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 414, 1877 (Trevisan 1877) var. *pycnophylla*.

≡*Mastigobryum pycnophyllum* Taylor, *London J. Bot.* 5: 371, 1846 (Taylor 1846a). Type: Jamaica.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 304 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 477 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

Also reported from the Caribbean, Western South America.

Bazzania roraimensis (Steph.) Fulford, *Ann. Cryptog. Phytopathol.* 3: 27, 1946 (Fulford 1946).

≡*Mastigobryum roraimense* Steph., *Trans. Linn. Soc. London, Bot.* 6(1): 97, 1901 (Stephani 1901e). Type: Guyana.

COSTA RICA. GUANACASTE: Liberia cantón, Guanacaste National Park, Sector Pitilla, Cerro Orosilito, Dauphin 1884 (CR, Dauphin 2005). **PUNTARENAS:** Monteverde (Morales 1991); Monteverde, 700–1,400 m, James, W. 1969-32 (Dauphin 2005); Monteverde, 4,300 ft (1,310 m), Feb 1969, James, W. 1969-29 (R, MO-6168532, Reed and Robinson 1971).

PANAMA. NASO TJËR DI COMARCA: Cerro Fábrega, 12 Aug 2003, De Gracia 246 (PMA, Dauphin 2007).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Bazzania spruceana Steph., *Hedwigia* 32(4): 213, 1893 (Stephani 1893b). Type: Peru.

PANAMA. PANAMA: Panamá distrito, Cerro Jefe (Stotler et al. 1998); Panamá distrito, Cerro Jefe, 900–1,000 m, Salazar Allen et al. 5201 (PMA, Stotler et al. 1998); Panamá distrito, Cerro Jefe, Spörle 5201 (PMA, Spörle 1990).

Also reported from Northern South America, Western South America, Brazil.

Bazzania stolonifera (Sw.) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 415, 1877 (Trevisan 1877) var. *stolonifera*.

≡*Jungermannia stolonifera* Sw., *Prodr. (Swartz)*: 144, 1788 (Swartz 1788). Type: Jamaica.

≡*Mastigobryum stoloniferum* (Sw.) Lindenb., *Syn. Hepat.* 2: 227, 1845 (Gottsche et al. 1845b).

≡*Mastigobryum liebmanianum* Lindenb. et Gottsche, *Syn. Hepat.* 5: 719, 1847 (Gottsche et al. 1847), syn. fide Gradstein (2017a). Type: Mexico.

≡*Bazzania liebmaniana* (Lindenb. et Gottsche) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4: 414, 1877 (Trevisan 1877).

≡*Mastigobryum turkheimii* Beauverd, *Sp. Hepat. (Stephani)* 6: 481, 1924 (Stephani 1924), syn. fide Fulford (1963a). Lectotype (Fulford 1963a: 124) or possibly holotype: Guatemala, Cobán, Mar 1908, *Türkheim* (G-00113734 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=299552&lang=en>).

≡*Mastigobryum sylvaticum* Steph., *Sp. Hepat. (Stephani)* 3: 691, 1924 (Stephani 1924), nom. illeg. (ICN2018 Art. 34.1(d); publ. in syn. [sub *Mastigobryum turkheimii*]).

≡*Bazzania vincentiana* (Lehm. et Lindenb.) Trevis. f. *rufescens* Herzog, *Rev. Bryol. Lichénol.* 11(1): 19, 1939 (Herzog 1938), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Fulford (1963a). Original material: Costa Rica, Cerro de Las Lajas, Provincia de Heredia, 2,000–2,400 m, 7 Mar 1926, *Standley & Valerio* 51612 (US-04666387 <http://n2t.net/ark:/65665/3abcd26fb-df4b-4207-8371-6fa80480f258>, W fide Fulford 1946).

≡*Bazzania stolonifera* f. *rufescens* Fulford, *Ann. Cryptog. Phytopathol.* 3: 51, 1946 (Fulford 1946), nom. inval. (ICN2018 Art. 38.1(a); no description).

≡*Bazzania vincentiana* (Lehm. et Lindenb.) Trevis. f. *defolians* Herzog, *Rev. Bryol. Lichénol.* 11(1): 19, 1939 (Herzog 1938), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Fulford (1946). Original material: Costa Rica, Yerba Buena, northeast of San Isidro, Provincia de Heredia, altitude about 2,000 m, 22–28 Feb 1926, *Paul C. Standley & Juvenal Valerio* 49869 (US-04666390 <http://n2t.net/ark:/65665/398704b86-079a-4aa5-85bc-b41f18d4a326>).

≡*Bazzania stolonifera* f. *defolians* Fulford, *Ann. Cryptog. Phytopathol.* 3: 51, 1946 (Fulford 1946), nom. inval. (ICN2018 Art. 38.1(a); no description).

≡*Bazzania vincentiana* (Lehm. et Lindenb.) Trevis. f. *minor-ramulosa* Herzog, *Rev. Bryol. Lichénol.* 11(1): 19, 1939 (Herzog 1938), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Fulford (1946). Original material: Costa Rica, Yerba Buena, northeast of San Isidro, Provincia de Heredia, altitude about 2,000 m, 22–28 Feb 1926, *Paul C. Standley & Juvenal Valerio* 49891 (US-04666393 <http://n2t.net/ark:/65665/307ca380d-bf00-44dc-9779-fabf1080f6e8>).

≡*Bazzania stolonifera* f. *minor* Fulford, *Ann. Cryptog. Phytopathol.* 3: 51, 1946 (Fulford 1946), nom. inval. (ICN2018 Art. 38.1(a); no description).

≡*Bazzania stolonifera* f. *ramulosa* Fulford, *Ann. Cryptog. Phytopathol.* 3: 51, 1946 (Fulford 1946), nom. inval. (ICN2018 Art. 38.1(a); no description).

GUATEMALA. S. loc. (Fulford 1946; Jovet-Ast 1957 as *Bazzania liebmaniana*; Fulford 1959a, 1959b as *Bazzania liebmaniana*; Winkler 1967 as *Bazzania liebmaniana*; Miller et al. 1983; Geissler and Bischler 1985 as *Mastigobryum sylvaticum* and *Mastigobryum turkheimii*; Fulford and Sharp 1990 as *Bazzania 'liebmanniana'*; Oliveira-e-Silva and Yano 2000); S. loc., *Türkheim*, hb. Levier 5823 (G, NY, Stephani 1924 as *Mastigobryum turkheimii*). **ALTA VERAPAZ:** Cobán, *Standley* 69119 (US, W, Fulford 1946, 1963a, both as *Bazzania liebmaniana*; Freire 2006 as *Bazzania 'liebmanniana'*; Pérez 2009 as *Bazzania 'liebmanniana'*); Cobán, *Türkheim* 5418 (FH, Fulford

1946, 1963a as *Mastigobryum quelchii*; Freire 2006 as *Mastigobryum quelchii*); Cobán, 1,600 m, *Türkheim* 5582 (FH, Fulford 1946, 1963a as *Mastigobryum viridissimum*; Freire 2006 as *Mastigobryum viridissimum*); Cobán, Mar 1908, *Türkheim* 5816 (G-00113734 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=299552&lang=en>, TYPE of *Mastigobryum turkheimii*, Fulford 1946, 1963a; Freire 2006); Panzós municipio, Cahabón and/or Senahú, 2012, Pérez & López-Medina, det. M. Pérez (Pérez and López-Medina 2012); S. loc., *Standley* 91431 (F, Freire 2006); S. loc., *Steyermark* 91431 (F, Fulford 1963a); Tucurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, 2,300–2,500 m, Pérez 393 (USCG, Pérez 2009); Tucurú municipio, Reserva Privada Chelemhá (Pérez 2006). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo del Quetzal, 11 Sep 2004, Pérez, det. Pérez 2004 (MO-6233915! <https://tropicos.org/specimen/100311957>, this publication); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 150, 244, etc. (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005); S. loc., Pérez 56 (USCG, Pérez 2009). **CHIQUEMULA:** S. loc., *Steyermark* 31011 (F, Fulford 1963a). **EL PROGRESO:** Brushik, 300 m, Pittier (G, Fulford 1963a; Morales 1991). **IZABAL:** Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007). **QUICHÉ:** S. loc., Pérez 2213 (USCG, Pérez 2009). **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007); S. loc., *Steyermark* 29966 (F, Fulford 1963a); S. loc., *Steyermark* 51681 (F, Fulford 1963a; Freire 2006; Pérez 2009).

BELIZE. S. loc. (Fulford 1959a). **CAYO:** S. loc., Dec 1993, Allen 15052, 15108, etc. (BRH, MO, Whittemore and Allen 1996). **TOLEDO:** S. loc., Dec 1993, Allen 15360, 15460 (BRH, MO, Whittemore and Allen 1996). Note: The report of *Bazzania stolonifera* from Belize in Fulford (1963a as “British Honduras”) is erroneous. The specimens were collected in Honduras (cf. Whittemore and Allen 1996).

HONDURAS. S. loc. (Fulford 1959a; Miller et al. 1983; Oliveira-e-Silva and Yano 2000). **COMAYAGUA:** El Plan along ridge to Cerro El Maneadero, ~11 km E of Lake Yojoa, 14°48'N, 88°52'W, 1,800–1,900 m, 11 Mar 1993, Allen 13826, det. Dauphin May 2017 (MO-5224564! <https://tropicos.org/specimen/90095309>, this publication); San Juanillo, Cordillera de Montecillos, trail between San Juanillo and La Danta, 14°30'N, 87°52'W, 1,800–1,900 m, 7 Nov 1991, Allen 11089, det. Dauphin May 2017 (MO-5224556! <https://tropicos.org/specimen/90095301>, this publication); Siguatepeque municipio, El Achote, Yuncker 6613 (DPU, Fulford 1959a, 1963a); Siguatepeque, 1,800 m, Yuncker et al. 6617, 6618 (FH, Fulford 1946, 1963a; Whittemore and Allen 1996). ***OLANCHO:** Catacamas municipio, Sierra de Algata, La Chorrera, 15 km NNW of Catacamas, 14°59'N, 85°56'W, 30 May 1992, Allen 12611, det. Dauphin May 2017 (MO-5224563! <https://tropicos.org/specimen/101213015>, this publication).

EL SALVADOR. SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler A/5/5* (Winkler 1967 as *Bazzania* 'liebmanniana').

NICARAGUA. Segovia, 4,000 ft (1,219 m), *Oersted* (G, F, Hampe 1851b as *Mastigobryum stoloniferum*; Müller 1851 as *Mastigobryum stoloniferum*). ?NUEVA SEGOVIA: Ocotal, *Oersted* (Fulford 1946). Note: Fulford is probably referring to *Oersted*'s specimen from "Segovia," which at that time was a much larger geographic region. It is thus not confirmed to be found in the current province of Nueva Segovia.

COSTA RICA. Brushik(?), 300 m, *Pittier* (G, Fulford 1959a); Cordillera de Talamanca (Holz and Gradstein 2005b; Holz 2006); S. loc. (Cole 1982, 1983; Miller et al. 1983). CARTAGO: Alto de La Estrella, *Standley* 39101, 39426 (F, W, US, Herzog 1938 as *Bazzania* 'vincentina'; Fulford 1946, 1963a; Morales 1991 also as *Bazzania liebmaniana*; Dauphin 2005 also as *Bazzania liebmaniana*); Paraíso cantón, Orosi, *Standley* 39650 (US, W, Herzog 1938 as *Bazzania* 'liebmanniana'; Morales 1991 as *Bazzania liebmaniana*; Dauphin 2005 as *Bazzania liebmaniana*); Paraíso cantón, Tapanti National Park, *Lücking* 3 (USJ, Dauphin 2005 as *Bazzania liebmaniana*); S. loc., *Maxon* 502 (NY, Fulford 1946, 1963a; Morales 1991). GUANACASTE: Tenorio Volcano (Dauphin 2005); Tenorio Volcano, *García & Morales* 1859 (USJ, Morales 1991). HEREDIA: San Isidro cantón, Cerro de Las Lajas, 2,000–2,400 m, *Standley* 51612 (US, W, NY, TYPE of *Bazzania vincentiana* f. *rufescens*, Herzog 1938 as *Bazzania* 'vincentina' f. *rufescens*; Fulford 1946, 1963a; Morales 1991; Dauphin 2005); San Isidro cantón, Yerba Buena, 2,000 m, *Standley* 49842 (US, W, Herzog 1938 as *Bazzania vincentiana* 'vincentina'; Fulford 1946, 1963a; Morales 1991; Dauphin 2005); San Isidro cantón, Yerba Buena, 2,000 m, *Standley* 49869 (US, W, TYPE of *Bazzania vincentiana* f. *defolians*, Herzog 1938 as *Bazzania* 'vincentina' f. *defolians*; Fulford 1946, 1963a; Morales 1991; Dauphin 2005); San Isidro cantón, Yerba Buena, 2,000 m, *Standley* 49882 (US, W, Herzog 1938 as *Bazzania* 'vincentina'; Fulford 1946, 1963a; Morales 1991; Dauphin 2005); San Isidro cantón, Yerba Buena, 2,000 m, *Standley* 49891 (US, W, TYPE of *Bazzania vincentiana* f. *ramulosa*, Herzog 1938 as *Bazzania* 'vincentina' f. *ramulosa*; Fulford 1946, 1963a; Morales 1991; Dauphin 2005); San Isidro cantón, Yerba Buena, 2,000 m, *Standley* 49949 (US, W, Herzog 1938 as *Bazzania* 'vincentina'; Fulford 1946, 1963a; Morales 1991; Dauphin 2005). PUNTARENAS: Coto Brus cantón, Parque Internacional La Amistad, *Pittier*, *Dauphin* 1364 (CR, Dauphin 2005); Monteverde, <1,500 m (Morales 1991; Dauphin 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, *Gradstein et al.* (U, *Sillett et al.* 1995); Monteverde, *James*, W. 23954 (Dauphin 2005); Monteverde, 4,300 ft (1,310 m), Feb 1969, *James*, W. 1969-08, det. Robinson (R, MO-6168531, *Reed and Robinson* 1971); Monteverde, Feb 1969, *James*, W. 1969-25 (MO-6168524!, *this publication*); Monteverde, 4,300 ft

(1,310 m), Feb 1969, *James*, W. 1969-28 (R, *Reed and Robinson* 1971; *Dauphin* 2005); S. loc. (Merwin et al. 2001). SAN JOSÉ: Dota cantón, "Los Robles" (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, Laguna de La Chonta, 2,000–2,100 m, *Standley* 42240 (US, W, Herzog 1938 as *Bazzania* 'vincentina'; Fulford 1946, 1963a; Morales 1991; *Kappelle* 1996; *Dauphin* 2005); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, Holz (Holz 2003); Dota cantón, Santa María, *Standley* 41629 (W, US, Morales 1991 as *Bazzania liebmaniana*; Dauphin 2005 as *Bazzania liebmaniana*); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a).

PANAMA. S. loc. (Miller et al. 1983). CHIRIQUÍ: Boquete distrito, Holcomb Trail, *Cornman* 3139, 3158 (MO, Fulford 1959a, 1963a; *Stotler et al.* 1998); Gualaca distrito, Fortuna Forest Reserve, Continental Divide, Trail Palo Seco, 900–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Hornito, Fortuna, *Spörle* 1.18.2 (PMA, *Stotler et al.* 1998); Renacimiento distrito, Cerro Pando on the Continental Divide, 2,000–2,482 m, *Mori & Bolten* 7313 (MO, PMA, *Stotler et al.* 1998); S. loc., *Cornman* (MO, Fulford 1959a, 1963a). COCLÉ: La Pintada distrito, El Potroso sawmill at Continental Divide, 1,200–1,300 m, *Sytsma* 1789 (MO, PMA, *Stotler et al.* 1998). DARIÉN: Cerro Pirre, *Salazar Allen & Gradstein* 9303 (PMA, *Stotler et al.* 1998); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992); Serranía del Pirre, *Croat* 37853 (MO, *Stotler et al.* 1998). NASO TJËR DI COMARCA: Cerro Fábrega, *De Gracia* 275 (PMA, *Dauphin* 2007). NGÄBE-BUGLÉ COMARCA: Nole Duima distrito, Cerro Colorado Copper Mine, *Croat* 33223 (MO, *Stotler et al.* 1998). PANAMA: Panamá distrito, Cerro Jefe (Stotler et al. 1998), *Knapp* 3514 (MO, *Stotler et al.* 1998); Panamá distrito, Cerro Jefe, *Lewis & Dressler* 7606 (MO, *Stotler et al.* 1998); Panamá distrito, Cerro Jefe, 900–1,000 m, *Salazar Allen et al.* 5236 (PMA, *Stotler et al.* 1998); Panamá distrito, Cerro Jefe, forest behind the INTEL tower, 900–1,000 m, *Spörle* (PMA, *Spörle* 1990). VERAGUAS: Santa Fe distrito, Slopes of Cerro Tute, 1,200–1,400 m, *Gentry* 6272B (MO, PMA, *Stotler et al.* 1998).

COCOS I. Above Wafer, 160 m, 15 Feb 1994, *Dauphin* 1063 p.p., det. A. Bernecker (USJ, *Gradstein et al.* 1994); Cerro Pelón, 5°32'57"N, 87°03'56"W, *Dauphin* 1146 p.p., det. G. Dauphin Nov 2020 (CR!, *this publication*); Cerro Pelón, 5°32'57"N, 87°03'56"W, 400 m, 9 Feb 1994, *Dauphin* 1146 p.p., det. G. Dauphin Nov 2020 (CR!, *this publication*); Fila sobre Valle Wafer, 5°32'57"N, 87°03'56"W, 160 m, 25 Jan 1990, *Dauphin* 1063, det. A. Bernecker 1994 (USJ-108888!, CR-4468439!, W!, *this publication*); Fila sobre Valle Wafer, 5°32'57"N, 87°03'56"W, 160 m, 14 Feb 1994, *Dauphin* 1063 (USJ, *Dauphin* 1995, 1999); Serranías al NE de la Isla, 5°32'57"N, 87°03'56"W, 200 m, 29 Jan 1990, *Dauphin* 1105, det. A. Bernecker 1994 (USJ-47257!, CR-4468438!, W!, *this publication*); Serranías al NE de la Isla,

5°32'57"N, 87°03'56"W, 200 m, 14 Feb 1994, *Dauphin 1105* (USJ, *Dauphin 1995, 1999*); trail to summit of Cerro Yglesias, 5°31'N, 87°04'–05'W, 500–634 m, 31 Mar 1988, *Lücking 92-332*, det. G. Dauphin Apr 2021 (USJ-95747!, *this publication*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Bazzania tricenata (Wahlenb.) Lindb., *Musci Fenn. Exsic., fasc.* 2: [2 (adnot.)], 1872 (Brotherus 1872) var. *tricenata*.

≡ *Jungermannia tricenata* Wahlenb., *Fl. Carpat. Princ.*: 364, 1814 (Wahlenberg 1814). Type: Europe.

GUATEMALA. S. loc. (Grolle 1966d, 1972a; Hattori 1968b; Kachroo 1970; Worley 1972; Long 1979; Gradstein and Váša 1987; Fulford and Sharp 1990; Long and Grolle 1990; Paton 1999; Bapna and Kachroo 2000a; Damsholt 2002; Zhang 2003; Stotler and Crandall-Stotler 2017). **CHIMALTENANGO:** Cerro above Tecpán, 9,300 ft (2,835 m), *Sharp 2582* (TENN, *Fulford 1959a, 1963a*); S. loc., 9,300 ft (2,835 m; *Schuster 1969a*); S. loc., *Sharp* (TENN, Pérez 2009).

COSTA RICA. **GUANACASTE:** Liberia cantón, Guanacaste National Park, Sector Volcán Cacao, 10°55'43"N, 85°28'10"W, *Dauphin 1842.1* (CR, *Dauphin 2005*). **HEREDIA:** Barva cantón, Braulio Carrillo National Park, Sector Volcán Barva, *Morales 1627 p.p.*, det. A. Bernecker (USJ, *Morales 1991; Dauphin 2005*).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, Caucasus, China, Eastern Asia, Indian Subcontinent, Indo-China(?), Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Southwestern USA, Southeastern USA, Mexico.

Bazzania wrightii (Gottsche ex Steph.) Steph., *Hedwigia* 27(11/12): 279, 1888 (Stephani 1888a).

≡ *Mastigobryum wrightii* Gottsche ex Steph., *Hedwigia* 25(6): 237, 1886 (Stephani 1886b). Type: Cuba.

COSTA RICA. S. loc., *Lücking* (Bernecker 1990). **HEREDIA:** Barva cantón, Braulio Carrillo National Park, Volcán Barva east, *Lücking CR-13-001* (Bernecker 1990); Barva cantón, Braulio Carrillo National Park, Volcán Barva west, Lagune, *Lücking CR-12-041, CR-12-054, CR-12-081, CR-12-105* (Bernecker 1990).

Also reported from the Caribbean, Western South America.

Blepharolejeunea S.W. Arnell, Svensk Bot. Tidskr. 56(2): 335, 1962 (Arnell 1962).

Blepharolejeunea incongrua (Lindenb. et Gottsche) van Slageren et Kruijt, *Beih. Nova Hedwigia* 80: 133, 1985 (van Slageren and Kruijt 1985).

≡ *Lejeunea incongrua* Lindenb. et Gottsche, *Syn. Hepat.* 5: 750, 1847 (Gottsche et al. 1847). Type: Mexico.

≡ *Phragmicoma nitidiuscula* Gottsche, *Ann. Sci. Nat., Bot.*, ser. 5, 1: 145, 1864 (Gottsche 1864), syn. fide van Slageren and Kruijt (1985). Type: Colombia.

≡ *Brachiolejeunea nitidiuscula* (Gottsche) Steph. *Sp. Hepat. (Stephani)* 5: 124, 1912 (Stephani 1912a).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (van Zanten and Gradstein 1987; Schäfer-Verwimp and Vital 1989; Fulford and Sharp 1990; Gradstein 1999a; Dauphin 2005; Gradstein and Holz 2005). **CARTAGO:** Cartago cantón, S of Cartago, 2,900 m, Sep 1973, *Griffin et al. 435* (FLAS, U, Gradstein et al. 1977 as *Brachiolejeunea nitidiuscula*; van Slageren 1985a; van Slageren and Kruijt 1985); Cartago cantón, S of Cartago, 2,900 m, Sep 1973, *Griffin et al. 560* (FLAS, U, Gradstein et al. 1977 as *Brachiolejeunea nitidiuscula*; van Slageren and Kruijt 1985); Orosi cantón, Cordillera de Talamanca, La Georgina, *Griffin et al. 435* (FLAS, U, Gradstein 1994; Kappelle 1996; Morales 1991; Dauphin 2005); Paraíso cantón, Cerro Asunción, *Chavelleri et al. 1436* (USJ, U, Morales 1991); Paraíso cantón, Cerro Asunción, mazo Buenavista, 8 Jun 1983, *Chaverri et al. 1436* (USJ, U, van Slageren and Kruijt 1985; Gradstein 1994; Dauphin 2005); Pococí cantón, La Georgina, *Griffin et al. 560* (FLAS, U, Morales 1991; Gradstein 1994; Dauphin 2005); S. loc., *Griffin & Eakin 435* (FLAS, U, van Slageren and Berendsen 1985). **SAN JOSÉ:** Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a); Pérez Zeledón cantón, Cerro Buenavista (Dauphin 2005); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 26 Dec 1999, *Schäfer-Verwimp & Holz SV/H-0153*, det. Schäfer-Verwimp 2000 (MO-5915616!, *this publication*).

Also reported from Mexico, Northern South America, Western South America, Brazil.

Blepharolejeunea saccata (Steph.) van Slageren et Kruijt, *Beih. Nova Hedwigia* 80: 138, 1985 (van Slageren and Kruijt 1985).

≡ *Dicranolejeunea saccata* Steph., *Hedwigia* 35(3): 78, 1896 (Stephani 1896). Type: Cuba.

***NICARAGUA.** ***MATAGALPA:** La Dalia municipio, Macizos de Peñas Blancas, top and N slope of ridge SW of finca el Cielo, S of Rio Gusaneras, 13°15'N, 85°42'W, 1,200–1,330 m, 16 Jan 1979, *Stevens 11628*, det. Gradstein Jun 2017 (MO-6230317! <http://tropicos.org/specimen/100369414>, PC!, *this publication*).

COSTA RICA. S. loc. (Linares and Uribe 2002; Schäfer-Verwimp and Pócs 2009). **PUNTARENAS:** Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995); S. loc. (Merwin et al. 2001). **SAN JOSÉ:** Moravia cantón, Bajo de La Hondura, *Standley 51842* (US, *Dauphin 2005*); Moravia cantón, La Hondura, 1,200–1,500 m, *Standley 51842 p.p.* (JE, *Herzog 1951* as *Dicranolejeunea saccata*; Morales 1991); Pérez Zeledón cantón, Cerro Buenavista, 22 Jul 1983, *Chaverri et al. 1577* (USJ, U, Morales 1991); S. loc., 9 Mar 1926, *Standley 57842* (JE, van Slageren 1985a; van Slageren and Kruijt 1985; Gradstein 1994).

Also reported from the Caribbean, Northern South America, Western South America.

Blepharolejeunea securifolia (Steph.) R.M.Schust., *Phytologia* 45(5): 424, 1980 (Schuster 1980b).

≡*Lejeunea securifolia* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 131, 1884 (Spruce 1884), nom. illeg. (ICN2018 Art 53.1; hom. illeg. non Gottsche 1882). Type: Ecuador.

≡*Brachiolejeunea securifolia* Steph., *Sp. Hepat. (Stephani)* 5: 128, 1912 (Stephani 1912a).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Gradstein 1999a; Dauphin 2005; Gradstein and Holz 2005). **SAN JOSÉ:** Pérez Zeledón cantón, Cerro Buenavista, 22 Jul 1983, *Chaverri et al.* 1577 (USJ, U, van Slageren and Kruijt 1985; Gradstein 1994; Dauphin 2005).

Also reported from Mexico, Northern South America, Western South America, Brazil, Southern South America.

***Blepharostoma* (Dumort.) Dumort., *Recueil Observ. Jungerm.*: 18, 1835 (Dumortier 1835).**

Blepharostoma trichophyllum (L.) Dumort., *Recueil Observ. Jungerm.*: 18, 1835 (Dumortier 1835).

≡*Jungermannia trichophylla* L., *Sp. Pl.* 1: 1135, 1753 (Linnaeus 1753). Type: Europe.

GUATEMALA. HUEHUETENANGO: Todos Santos Cuchumatán, Chihuitz, 15°30'40"N, 91°38'56"W, 2006, Pérez et al. 1236 (USCG, Pérez 2009). QUETZALTENANGO: San Carlos Sija municipio, Getenagre near Sija, 9,500 ft (2,896 m), 1 Jan 1945, Sharp 1133 (TENN, Gradstein and Váňa 1987).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); Cordillera de Talamanca, Kappelle 4617b (U, Kappelle 1996); S. loc. (Grolle 1966d, 1968d, 1969a; Hattori 1968b; Schuster 1968a, 1983a, 1990; Kachroo 1970; Worley 1972; Miller et al. 1983; Gradstein and Váňa 1987; Piippo et al. 1997; Srivastava 1998; Gradstein 1999a; Bapna and Kachroo 2000a; Damsholt 2002, 2013; Dauphin 2005; Gradstein and Holz 2005; Benitez et al. 2013). **ALAJUELA:** San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 5 Jul 2007, Norris 110153, 110895 (UC, Norris et al. 2017). **CARTAGO:** Paraíso cantón, La Georgina, Dauphin 2243 (CR, Dauphin 2005). **SAN JOSÉ:** Between El Cañon and Ojo de Agua, 2,800–3,000 m, Schuster (Schuster 2021); Dota cantón, Cerro de Las Vueltas (Schuster 1966 as *Blepharostoma trichophyllum* subsp. *trichophyllum*; Morales 1991; Dauphin 2005); Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, Standley & Valerio 43943 (S, US, Grolle 1964b).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, Macaronesia, West-Central Tropical Africa, East Tropical Africa, Siberia, Russian Far East, Middle Asia, Caucasus, Western Asia, China, Mongolia, Eastern Asia, Indian Subcontinent, Malaysia, Papuasia, Northeastern Pacific, Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, South-Central USA, Southeastern USA, Mexico, Northern South America, Western South America.

***Brachiolejeunea* (Spruce) Schiffn., *Hepat. Engl.-Prantl*: 128, 1893 (Schiffner 1893a).**

Brachiolejeunea laxifolia (Taylor) Schiffn., *Hepat. (Engl.-Prantl)*: 128, 1893 (Schiffner 1893a).

≡*Phragmicoma laxifolia* Taylor, *London J. Bot.* 6: 341, 1847 (Taylor 1847). Type: Ecuador.

≡*Ptychocoleus reflexus* S.Winkl., *Rev. Bryol. Lichénol.* 35(1/4): 329, 1967 (Winkler 1967), syn. fide Gradstein (1975). Type: El Salvador, Santa Ana, Metapan, SE-Hang des C. Miramundo bei der Hazienda Montecristo, 2,280 m, 23 May 1962, Winkler B/6/d/8 (type not found by Gradstein 1975).

GUATEMALA. ALTA VERAPAZ: Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, 2,000 m, Pérez 330 (USCG, Pérez 2009); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). **HUEHUETENANGO:** Todos Santos Cuchumatán, Chihuitz, 15°30'40"N, 91°38'56"W, 2,790 m, 2006, Pérez et al. 1196 (USCG, Pérez 2009).

EL SALVADOR. SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, 2,280 m, 23 May 1962, Winkler B/6/c/1, B/6/d/8 (ULM, TYPE of *Ptychocoleus reflexus*, Winkler 1967 as *Ptychocoleus reflexus*; Gradstein 1975 as *Ptychocoleus reflexus*; Geissler and Bischler 1989 as *Ptychocoleus reflexus*).

COSTA RICA. Cordillera de Talamanca (Holz and Gradstein 2005b; Holz 2006); S. loc. (Fulford and Sharp 1990; Gradstein 1999a; Gradstein and Holz 2005; Schäfer-Verwimp and Pócs 2009; Schäfer-Verwimp 2014). **CARTAGO:** Aledano, 22 Jun 1983, *Chaverri & López* 1519 (CR, U, van Slageren 1985b); Oreamuno cantón, Irazú National Park, 9°58'N, 83°40'W, 16 Oct 1999, Holz CR 99-352, det. Holz 2001 (MO-5282889!, this publication); S. loc., May 1900, Wercklé 6243 (G20165, van Slageren 1985b; Morales 1991; Dauphin 2005). **PUNTARENAS:** Coto Brus cantón, Las Cruces, Jardín Botánico Wilson, 1,200–3,300 m, Dauphin 1700 (CR, Dauphin 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a); S. loc. (Merwin et al. 2001). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, Holz (Holz 2003); Dota cantón, San Gerardo, Los Robles, 2,400 m, 4 Jan 2000, Schäfer-Verwimp & Holz SV/H-0486/B (Schäfer-Verwimp 2001); La Quebrada, Schäfer-Verwimp & Holz SV/H-0253 (CR, Schäfer-Verwimp 2001); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), *Chaverri & López* 1519 (CR, U, Morales 1991; Gradstein 1994); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), *Chaverri et al.* 1519 (Dauphin 2005); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,400 m, 26 Dec 1999, Schäfer-Verwimp & Holz SV/H-0147/B (GOET, Schäfer-Verwimp 2001).

PANAMA. †BOCAS DEL TORO: S. loc. (Schäfer-Verwimp 2014). Note: This report must refer to the “new” comarca Naso

Tjër Di. **CHIRIQUÍ**: Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,600 m, 4 Apr 2006, *Schäfer-Verwimp & Verwimp* 30905 (JE, Schäfer-Verwimp 2014); Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,550 m, *Schäfer-Verwimp & Verwimp* 34394 (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Parque Nacional Volcán Barú, Paso Ancho, 8°48'55.13"N, 82°34'33.50"W, 2,047 m, Guerra Batista et al. (UCH, Guerra et al. 2020); Barú Volcano National Park (Rodríguez-Quiel et al. 2022). **NASO TJËR DI COMARCA**: Cerro Fábrega, *De Gracia* 303 (PMA, Dauphin 2007).

Also reported from West Tropical Africa(?), West-Central Tropical Africa(?), Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America(?).

Brachiolejeunea leiboldiana (Gottsche et Lindenb.) Schiffn., *Hedwigia* 33(4): 182, 1894 (Schiffner 1894).

≡ *Phragmicoma leiboldiana* Gottsche et Lindenb., *Syn. Hepat.* 2: 296, 1845 (Gottsche et al. 1845b). Type: Mexico.

≡ *Brachiolejeunea mamillata* Steph., *Sp. Hepat. (Stephani)* 5: 121, 1912 (Stephani 1912a), syn. fide van Slageren (1985b). Type: Andes Peruviae, Brasilia, Mexico.

HONDURAS. ATLÁNTIDA: Tela municipio, Lancetilla Valley, Standley (Standley 1931 as *Brachiolejeunea mamillata*).

?**COSTA RICA. ?GUANACASTE**: Bagaces cantón, Rincón de La Vieja National Park, Estación Santa María, 10°53'N, 85°24'W, 700 m, Dauphin et al. 2354 (CR, Dauphin 2005 [identification with doubt]).

PANAMA. CHIRIQUÍ: Tierras Altas distrito, El Volcán, 8°46.9'N, 82°38.8'W, 1,410 m, 1 Apr 2009, *Schäfer-Verwimp & Verwimp* 34653/B (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Volcán, road to Rio Sereno, 8°49.5'N, 82°41.5'W, 1,580 m, 2 Apr 2009, *Schäfer-Verwimp & Verwimp* 34663 (JE, Schäfer-Verwimp 2014).

Also reported from Mexico, the Caribbean, Western South America, Brazil.

Brachiolejeunea phyllorhiza (Nees) Kruijt et Gradst., *Nova Hedwigia* 43(3/4): 299, 1986 (Kruijt and Gradstein 1986).

≡ *Jungermannia phyllorhiza* Nees, *Fl. Bras. (Martius)* 1(1): 348, 1833 (Nees 1833b). Type: Brazil.

≡ *Dicranolejeunea phyllorhiza* (Nees) Schiffn., *Hepat. (Engl.-Prantl)*: 128, 1893 (Schiffner 1893a).

GUATEMALA. S. loc. (Bastos 2004). ***ALTA VERAPAZ**: Cobán, Finca San Pedro, 1,300 m, Sep 1946, *R.I.D. Svihla* 45-636 (NY 1672749 <https://sweetgum.nybg.org/science/vh/specimen-details/?irn=1958835>, this publication). **RETALHULEU**: San Felipe, *Maxon & Hay* 3537 (US, Gradstein 1994; Freire 2006); San Felipe, *Maxon & Hay* 3547 (US, Gradstein 1994; Freire 2006); San Felipe, *Maxon & Hay* 3556 (US, Gradstein 1994; Freire 2006; Pérez 2009). ***SUCHITEPÉQUEZ**: Near Chicacao,

Finca El Naranjo, Sep 1945, *R.I.D. Svihla* 45-681 (NY 1672747 <https://sweetgum.nybg.org/science/vh/specimen-details/?irn=1958833>, this publication); near Chicacao, Finca El Naranjo, Sep 1945, *R.I.D. Svihla* 45-674 (NY 1672748 <https://sweetgum.nybg.org/science/vh/specimen-details/?irn=1958834>, this publication).

COSTA RICA. S. loc. (Fulford and Sharp 1990 as *Dicranolejeunea phyllorhiza*; Bastos 2004). **CARTAGO**: Turrialba cantón, Reventazón, *Svihla* 47-748 (NY, Dauphin 2005). **SAN JOSÉ**: Alajuelita, *Tonduz* 15556b (G, Kruijt and Gradstein 1986; Morales 1991; Gradstein 1994; Dauphin 2005); Dota cantón, Santa María, 1,500–1,800 m, *Standley & Valerio* 42436, 43153, 43411, 43436, *Standley* 43411 (B, JE, US, Herzog 1951 as *Dicranolejeunea 'phyllorhizans'*; Kruijt and Gradstein 1986; Morales 1991; Gradstein 1994; Kappelle 1996; Dauphin 2005); San Vicente, Rio Virilla, *Tonduz* 6238 (G, Gradstein 1994); San Vicente, Rio Virilla, 1895, *Tonduz* (B24575, G22692, Kruijt and Gradstein 1986).

PANAMA. CHIRIQUÍ: Tierras Altas distrito, Volcán, along road to Rio Sereno at western edge of the village, 8°47.6'N, 82°39.4'W, 1,370 m, 1 Apr 2009, *Schäfer-Verwimp & Verwimp* 34617/A (JE, Schäfer-Verwimp 2014).

Also reported from South Tropical Africa, Southern Africa, Western Indian Ocean, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

***Bryopteris* (Nees) Lindenb., *Syn. Hepat.* 2: 284, 1845 (Gottsche et al. 1845b).**

Bryopteris diffusa (Sw.) Nees, *Syn. Hepat.* 2: 286, 1845 (Gottsche et al. 1845b).

≡ *Jungermannia diffusa* Sw., *Prodr. (Swartz)*: 144, 1788 (Swartz 1788). Type: Jamaica, Hispaniola.

≡ *Lejeunea diffusa* (Sw.) Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 115, 1884 (Spruce 1884).

≡ *Bryolejeunea diffusa* (Sw.) Steph., *Hedwigia* 27(11/12): 300, 1888 (Stephani 1888b), nom. inval. (ICN2018 Art. 35.1; genus not valid).

GUATEMALA. ALTA VERAPAZ: Cobán, Las Victorias National Park, 1,700 m, 2002 (Andersohn 2004). **EL PETÉN**: Tikal National Park, Tikal, *Morgan* 17 (MO <https://www.tropicos.org/specimen/90205558>, Pérez 2009).

HONDURAS. S. loc. (Fulford and Sharp 1990). **FRANCISCO MORAZÁN**: Tegucigalpa city, Libertad, *Lundell* 2447 (MICH, Stotler and Crandall-Stotler 1974). **YORO**: Olanchito municipio, Coyoles, *Yunker* 7999 (DPU, Stotler and Crandall-Stotler 1974).

NICARAGUA. S. loc. (Oliveira-e-Silva and Yano 2000). ***CHONTALES**: Cuapa municipio, 7.5 km NNE of Cuapa along road toward el Zancudo, 12°19'13"N, 85°21'12"W, 560 m, 2 Dec 2012, *Magill* 14316, det. Atwood 2013 (MO-6490992! <https://tropicos.org/specimen/102847621>, this publication); Cuapa municipio, 7.5 km NNE of Cuapa along road toward el Zancudo, 12°19'13"N, 85°21'12"W, 560 m, 2 Dec 2012, *Magill* 14358a, det. Atwood 2013 (MO-6493075! <https://tropicos.org/specimen>

/102847620, this publication). **GRANADA:** Granada municipio, Volcán Mombacho, 560 m, *Baker* 8522 (NY, **Gradstein** 1994).

COSTA RICA. Cordillera de Talamanca (Holz 2003); S. loc. (F, Cole 1983; Fulford and Sharp 1990; **Morales** 1991; Oliveira-Silva and Yano 2000; **Dauphin** 2005); S. loc., *Valerio* 335-23 (MO, **Morales** 1991). **CARTAGO:** Cartago cantón, El Muñeco, 1,400–1,500 m, *Standley* 33480 (**Dauphin** 2005); Cartago cantón, El Muñeco, N of Navarro, 1,400 m, *Standley* 33430, 33460, 33928 (US, **Herzog** 1951; **Stotler and Crandall-Stotler** 1974; **Morales** 1991; **Dauphin** 2005); Jiménez cantón, Peijivalle, 900 m, *Standley* 46866, *Standley & Valerio* 45255, 46866 (S, US, **Herzog** 1951; **Stotler and Crandall-Stotler** 1974; **Morales** 1991; **Gradstein** 1994; **Dauphin** 2005); Santiago, *Maxon* 92 (NY, **Stotler and Crandall-Stotler** 1974; **Morales** 1991; **Dauphin** 2005); Turrialba, *Maxon* 197 (NY, **Stotler and Crandall-Stotler** 1974; **Morales** 1991; **Gradstein** 1994; **Dauphin** 2005). **GUANACASTE:** Tilarán cantón, El Arenal, *Standley & Valerio* 45255 (S, US, **Herzog** 1951; **Stotler and Crandall-Stotler** 1974; **Morales** 1991; **Gradstein** 1994; **Dauphin** 2005). **LIMÓN:** Orillas del Río Borozil, *Brenes* 12162 (CR, **Stotler and Crandall-Stotler** 1974); S. loc. (F, **Stotler and Crandall-Stotler** 1974); S. loc., 150 m, *Gutiérrez* 157, 214 (F, **Stotler and Crandall-Stotler** 1974; **Morales** 1991; **Dauphin** 2005); S. loc., *Valerio* 335-2 (**Stotler and Crandall-Stotler** 1974; **Dauphin** 2005); Siquirres cantón, Cairo, Finca Hamburgo, on the Rio Reventazón below Cairo, *Standley & Valerio* 48761 (US, **Herzog** 1951; **Stotler and Crandall-Stotler** 1974; **Gradstein** 1994). **PUNTARENAS:** Buenos Aires cantón, Boruca (**Tonduz** 1895a as *Bryolejeunea diffusa*); Buenos Aires cantón, Boruca, *Pittier* 6069 (**Stephani** 1893c as *Bryolejeunea diffusa*; **Morales** 1991; **Dauphin** 2005). **SAN JOSÉ:** Santiago, *Maxon* 92 (NY, **Gradstein** 1994).

PANAMA. DARIÉN: Pinogana distrito, 1.5 mi (2.4 km) along trail to Boca de Cupé from Cana, *Allen* 8927A (MO, **Stotler et al.** 1998); Pinogana distrito, 1.5 mi (2.4 km) along trail to Boca de Cupé from Cana, 4 May 1990, *Allen* 8938, det. Whittemore 1990 (MO-3678090!, **Stotler et al.** 1998).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Bryopteris filicina (Sw.) Nees, *Syn. Hepat.* 2: 284, 1845 (Gottsche et al. 1845b).

≡ *Jungermannia filicina* Sw., *Prodr. (Swartz)*: 145, 1788 (Swartz 1788). Type: Jamaica.

≡ *Jungermannia trinitensis* Lehm. et Lindenb., *Nov. Stirp. Pug.* 5: 12, 1833 (Lehmann 1833), syn. fide **Gradstein** (1994). Type: Trinidad.

≡ *Bryopteris trinitensis* (Lehm. et Lindenb.) Lehm. et Lindenb., *Syn. Hepat.* 2: 285, 1845 (Gottsche et al. 1845b).

≡ *Bryopteris tenuicaulis* Taylor ex Gottsche, Lindenb. et Nees, *Syn. Hepat.* 2: 285, 1845 (Gottsche et al. 1845b), syn. fide **Gradstein** (1994). Type: Ecuador.

≡ *Bryolejeunea tenuicaulis* (Taylor ex Gottsche, Lindenb. et Nees) Steph., *Primit. Fl. Costar.*: 115, 1893 (Stephani 1893c), nom. inval. (ICN2018 Art. 35.1; genus not valid).

≡ *Bryopteris filicina a hookeriana* Gottsche, Lindenb. et Nees, *Syn. Hepat.* 2: 285, 1845 (Gottsche et al. 1845b). Type: Jamaica, Brazil.

≡ *Bryopteris fruticulosa* Taylor, *London J. Bot.* 5: 384, 1846 (Taylor 1846a), syn. fide **Gradstein** (1994). Type: “St. Domingo.”

≡ *Bryolejeunea fruticulosa* (Taylor) Steph., *Primit. Fl. Costar.*: 115, 1893 (Stephani 1893c), nom. inval. (ICN2018 Art. 35.1; genus not valid).

≡ *Bryopteris liebmaniana* Lindenb. et Gottsche, *Syn. Hepat.* 5: 738, 1847 (Gottsche et al. 1847). Type: Mexico.

≡ *Bryopteris flaccida* Lindenb. et Hampe, *Linnaea* 24(6): 640, 1852 (Hampe 1851a), syn. fide **Gradstein** (1994). Lectotype (**Gradstein** 1994 as “holotype”): Costa Rica, *Oersted* 4 (BM, isoelectotype C, NY, S).

≡ *Bryolejeunea flaccida* (Lindenb. et Hampe) Steph., *Primit. Fl. Costar.*: 115, 1893 (Stephani 1893c), nom. inval. (ICN2018 Art. 35.1; genus not valid).

≡ *Lejeunea longispica* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15(1): 114, 1884 (Spruce 1884), syn. fide **Stotler and Crandall-Stotler** (1974). Type: Peru.

≡ *Bryopteris longispica* (Spruce) Steph., *Biblioth. Bot.* 21(87): 250, 1916 (Stephani 1916b).

≡ *Bryopteris brevis* Steph., *Sp. Hepat. (Stephani)* 5: 3, 1912 (Stephani 1912a), syn. fide **Gradstein** (1994). Type: Bolivia.

≡ *Bryopteris tenuicaulis* var. *flagellifera* Herzog ex Standl., *Field Mus. Nat. Hist., Bot. Ser.* 10: 62, 1931 (Standley 1931), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide **Stotler and Crandall-Stotler** (1974). Original material: Honduras, Lancetilla Valley (no original material of this name found).

≡ *Bryopteris fruticulosa* f. *propagulifera* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 132, 1951 (Herzog 1951), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide **Stotler and Crandall-Stotler** (1974). Original material: Costa Rica: Prov. Limón, La Columbiana Farm, 70 m, 6–7 Mar 1924, *Standley* 36749 (US-04544023 <http://n2t.net/ark:/65665/30439dc68-8f12-453b-9034-6eaf114efa0a>).

≡ *Bryopteris tenuicaulis* f. *flagellifera* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 132, 1951 (Herzog 1951), syn. fide **Stotler and Crandall-Stotler** (1974). Lectotype (**Stotler and Crandall-Stotler** 1974): Honduras, Dept. Atlántida: Lancetilla Valley, near Tela, altitude 20–600 m, 1927–1928, *Standley* 53219 (F-C0000049F <https://collections-botany.fieldmuseum.org/catalogue/1766944>, isoelectotype JE-04005919 <https://je.jacq.org/JE04005919>).

≡ *Bryopteris fruticulosa* subsp. *monoica* **Stotler**, *Bryophyt. Biblioth.* 3: 108, 1974 (**Stotler and Crandall-Stotler** 1974). Type: Peru.

≡ *Bryopteris filicina* var. *fissiflora* Herzog ex **Stotler et Crand.-Stotl.**, *Bryophyt. Biblioth.* 3: 124, 1974 (**Stotler and Crandall-Stotler** 1974), nom. inval. (ICN2018 Art. 36.1(c); publ. in syn. [sub *Bryopteris liebmaniana*]). Original material: San Jose: Zurquí, ~2,000–2,500 m, 13 February 1926, *Standley & Valerio* 48075 (US-04544116 <http://n2t.net/ark:/65665/300c7654c-0268-4644-84c3-442f24d43eed>).

GUATEMALA. S. loc. (Stephani 1912a as *Bryopteris flaccida*; **Bonner** 1963a as *Bryopteris flaccida*; **Fulford** 1987 as *Bryopteris trinitensis*; **Fulford and Sharp** 1990 as *Bryopteris flaccida*, *Bryopteris fruticulosa*, *Bryopteris ‘liebmanniana,’* and *Bryopteris trinitensis*; **Lücking** 1995; **Oliveira-e-Silva and Yano** 2000); S. loc., *Bartlett* 12265b (hb. **Fulford, Crandall** 1969); S. loc., *Steyermark* 29825, 31481, 31891, 32479, 32492, 32828,

37064, 46738 (F, Stotler and Crandall-Stotler 1974 as *Bryopteris flaccida*); S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008). **ALTA VERAPAZ**: Between Cobán and San Pedro, ~1,360 m, Standley 90039 (F, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *monoica*); Cerro Chinajá, between Finca Yalpemech and Chinajá, Steyermark 45548 (F, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*); same location, Steyermark 45585 (F, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Cobán municipio, Cubilquitz, 350 m, Türckheim 4938 (G, NY, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*; Gradstein 1994; Freire 2006; Pérez 2009); Cobán, Türckheim 5406, 5833 (G, NY, Stotler and Crandall-Stotler 1974 as *Bryopteris flaccida*; Gradstein 1994; Freire 2006); Cobán, 1,600 m, Türckheim (NY <https://sweetgum.nybg.org/science/vh/specimen-details/?irn=1959047>, BM, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*); Cobán, 1,650 m, Jun 1908, Türckheim (G-00061198 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=121330&lang=en>, NY, Thiers 1985 as *Bryopteris flaccida*); E of Tactic, road to Tamahú, 1,500–1,600 m, 9 Apr 1939, Standley 71116, 71395 (F-1038940, Stotler and Crandall-Stotler 1974 as *Bryopteris flaccida*; Lemos-Michel and Yano 1998 as *Bryopteris flaccida*); Panzós municipio, Cahabón and/or Senahú, 2012, Pérez & López-Medina, det. M. Pérez (Pérez and López-Medina 2012); S. loc., Standley 90355 (F, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*); S. loc., Standley 90446 (F, Stotler and Crandall-Stotler 1974 as *Bryopteris flaccida*); S. loc., Standley 91790, 92130 (F, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). **CHIMALTENANGO**: Acatenango municipio, Quisache, ~1,800 m, Standley 62014 (F, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*); Barrancó, 1,800 m, Standley 62014 (NY-1672850 <https://sweetgum.nybg.org/science/vh/specimen-details/?irn=1959002>, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*); S. loc., Standley 62014 (MO, Pérez 2009 as *Bryopteris tenuicaulis*). **EL PETÉN**: San José municipio, Cerro Cahú, Can et al. (USCG, Morales 2011); San José municipio, El Zotz, Can et al. (USCG, Morales 2011). **EL PROGRESO**: Finca Bucaral, Sharp 2738 (TENN, Stotler and Crandall-Stotler 1974 as *Bryopteris flaccida*); Finca Plamonte, Steyermark 43491, 43503 (F, Stotler and Crandall-Stotler 1974 as *Bryopteris flaccida*); Mount Virgen, Steyermark 42642 (F, Stotler and Crandall-Stotler 1974 as *Bryopteris flaccida*). **HUEHUETENANGO**: S. loc., Pérez 1430 (USCG, Pérez 2009). **IZABAL**: East coast, Watson 58c, det. (NY, Fulford 1941b; Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*); S. loc., Steyermark 31590, 33512, 34320, 37370, 39152 (hb. Fulford, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*); S. loc., Steyermark 41889 (hb. Fulford, F, Crandall 1969 as *Bryopteris fruticulosa*; Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*); S. loc., Watson 59 (hb. Fulford, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*). **QUETZALTENANGO**: S. loc., Standley 83344 (F, Stotler and Crandall-Stotler 1974 as *Bryopteris*

fruticulosa subsp. *fruticulosa*); S. loc., Standley 85044, 85557 (NY, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*); Zunil municipio, Volcán Zunil, Standley 65311 (NY, MO, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*; Gradstein 1994; Freire 2006; Pérez 2009 also as *Bryopteris tenuicaulis*); Zunil municipio, Volcán Zunil, Standley 65430 (NY, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*; Gradstein 1994; Freire 2006); Zunil municipio, Aguas Amargas, NW slopes of Pico Zunil, Jan 2006, T. S. Quedensley 3851 (NY 1088869 <https://sweetgum.nybg.org/science/vh/specimen-details/?irn=1219017>, this publication). **QUICHÉ**: S. loc., Pérez 2304 (USCG, Pérez 2009). **SACATEPÉQUEZ**: Chicacao municipio, Suchiate, Svihla 45-466 (WTU, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*). **SAN MARCOS**: Barranco, Emergencia, Standley 68547, 68553 (F, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*); S. loc., Standley 33406, 33846, 86242, etc. (F, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*). **SUCHITEPÉQUEZ**: Volcán Santa Clara, Steyermark 46659D, 46664, 46667 (F, Stotler and Crandall-Stotler 1974 as *Bryopteris 'liebmanniana'* and *Bryopteris trinitensis*). **ZACAPA**: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007).

BELIZE. Maya Mountains, Robertson (NY, Gradstein 1994); near border with Guatemala, Schipp 878 (NY, Gradstein 1994); S. loc. (Fulford 1938 as *Bryopteris fruticulosa*; Fulford and Sharp 1990 as *Bryopteris fruticulosa*; Lücking 1995; Whittemore and Allen 1996 [Cayo-Toledo border]; Oliveira-e-Silva and Yano 2000); S. loc., Lundell 693 (MICH, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*). **CAYO**: Cave Branch River, 14 Aug 1976, Whiteford 1246, det. Dauphin May 2017 (MO-3655719!, this publication); Cohume Ridge, Mains 3815 (MICH, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Las Cuevas Field Station, 16°44'N, 88°59'W, 550 m, 6 Dec 1996, Allen 18024, det. Whittemore 1997 (MO-4417019! <https://tropicos.org/specimen/90046813>), this publication, Allen 18069, det. Whittemore 1997 (MO-4417020! <https://tropicos.org/specimen/90046812>), this publication); Macal River, 24 Jan 1974, Dwyer & Liesner 12348D, det. Dauphin May 2017 (MO-2174533!, this publication); S. loc. (Whittemore and Allen 1996); S. loc., Dec 1993, Allen 15041, 15198, 15237 (BRH, MO, Whittemore and Allen 1996 as *Bryopteris fruticulosa* Taylor); Valentin, Mains 3599, 3616, 3750, 3770 (MICH, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*). **STANN CREEK**: Fallabon, Yaxha, Lundell 2038, 2039 (MICH, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Middlesex, Lundell 2814 (MICH, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*); S. loc. (Whittemore and Allen 1996). **TOLEDO**: Columbia River Forest Reserve, Little Quartz Ridge, 16°23'58"N, 89°06'41"W, 980 m, 20 Feb 1997, Allen 18959, det. Dauphin May 2017 (MO-5228030! <https://tropicos.org/specimen/90102180>, this publication); Columbia River Forest Reserve, trail from Camp 2 to Chiclero Camp, 16°23'17"N, 89°04'36"W, 695 m, 15 Feb 1997,

Allen 18769, det. Dauphin May 2017 (MO-5228031! <https://tropicos.org/specimen/90102177>, [this publication](#)); Edwards Road beyond Columbia, beyond Central Camp, 16 Jun 1951, *Gentle* 7369, det. Dauphin May 2017 (MO-5228145! <https://tropicos.org/specimen/90103149>, [this publication](#)); Punta Gorda, *Dodge* 41, 70 (MO, *Stotler and Crandall-Stotler* 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Punta Gorda, *White* 36, 66 (MO, *Stotler and Crandall-Stotler* 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Punta Gorda, Nov 1932 (CINC, hb. Fulford, *Fulford* 1941b as *Bryopteris fruticulosa*); Punta Gorda, Nov 1932, *White* 38, det. Dauphin May 2017 (MO-2226841!, *Stotler and Crandall-Stotler* 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Punta Gorda, Nov 1932, det. Dauphin May 2017 (MO-5223882! <https://tropicos.org/specimen/90093903>, [this publication](#)); S. loc. (Whittemore and Allen 1996); S. loc., Dec 1993, *Allen* 15329 (BRH, MO, *Whittemore and Allen* 1996 as *Bryopteris fruticulosa*).

HONDURAS. S. loc. (Verdoorn 1931 as *Bryopteris tenuicaulis* f. *flagellifera*; Fulford 1987 as *Bryopteris trinitensis*; Fulford and Sharp 1990 as *Bryopteris flaccida*, *Bryopteris fruticulosa*, *Bryopteris 'liebmanniana'*, and *Bryopteris trinitensis*; Lücking 1995; Oliveira-e-Silva and Yano 2000). **ATLÁNTIDA:** At base of N slope of Pico Bonito, 15°42'N, 86°51'W, 140 m, 8 May 1993, *Liesner & Mejia* 26009, det. Whittemore 1996 (MO-4428483! <https://tropicos.org/specimen/90040056>, *Hartmann et al.* 2006); El Porvenir municipio, Pico Bonito National Park, along stream entering Rio Bonito, 15°40'N, 86°51'W, 500 m, 25 Apr 1996, *Allen* 17608, det. Whittemore 1996 (MO-4428477! <https://tropicos.org/specimen/90040062>, [this publication](#)); S. loc., *Liesner & Merida* (*Hartmann et al.* 2006); Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 53219, 53383, 53962, etc. (F, NY, S, US, *Standley* 1931 as *Bryopteris brevis*, *Bryopteris tenuicaulis*, and *Bryopteris tenuicaulis* var. *flagellifera*; *Herzog* 1951 as *Bryopteris brevis* and *Bryopteris tenuicaulis* f. *flagellifera*; *Stotler and Crandall-Stotler* 1974 as *Bryopteris trinitensis* and *Bryopteris fruticulosa* subsp. *fruticulosa*); Tela municipio, Lancetilla Valley, *Yuncker* 5113 (DPU, *Stotler and Crandall-Stotler* 1974 as *Bryopteris trinitensis*). **COMAYAGUA:** El Plan to quebrada Agua Amarilla, ~11 km E of Lago Yajoa, 14°48'N, 88°52'W, 30 Apr 1996, *Allen* 17766, det. Whittemore 1966 (MO-4428471!, [this publication](#)); from El Plan to quebrada Agua Amarilla, ~11 km E of Lago Yajoa, 14°48'N, 88°52'W, 1,740 m, 10 Mar 1993, *Allen* 13788, det. Whittemore 1996 (MO-4428488! <https://tropicos.org/specimen/90040029>, [this publication](#)); Siguatopeque municipio, El Achote, *Yuncker* 6624 (DPU, *Stotler and Crandall-Stotler* 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*). **CORTÉS:** N of Lake Yojoa, 600–900 m, *Morton* 7640 (US, *Stotler and Crandall-Stotler* 1974 as *Bryopteris 'liebmanniana'*); N of Lake Yojoa, *Morton* 7640c (US, *Stotler and Crandall-Stotler* 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*; *Gradstein* 1994); San Francisco de Yojoa municipio, along Rio Cusuco, 15°31'N, 88°14'W, 1,500 m, 18 Mar 1993, *Allen* 14058, det. Whittemore 1996 (MO-4428486! <https://tropicos.org/specimen/90040030>, [this publication](#)); San Pedro

Sula municipio, Cusuco National Park, Rio Cusuco to summit of Cerro Jilincó, 1,600–2,242 m, 20 Mar 1993, *Allen* 14311, det. Whittemore 1996 (MO-4428487! <https://tropicos.org/specimen/90040031>, [this publication](#)); San Pedro Sula municipio, Peña Blanca, San Juancito Mountains, 1,900–2,000 m, *Morton* 7264 (US, *Stotler and Crandall-Stotler* 1974 as *Bryopteris flaccida*). **FRANCISCO MORAZÁN:** Guaimaca, *Weaver* 4 (NY, *Gradstein* 1994); San Antonio de Oriente municipio, Cerro de Uyuca, *Carlson* 2487 (F, *Stotler and Crandall-Stotler* 1974 as *Bryopteris flaccida*); San Antonio de Oriente municipio, Cerro de Uyuca, 1,600–1,800 M, 1949, *Standley* 26115 (F, *Stotler and Crandall-Stotler* 1974 as *Bryopteris flaccida*; *Lemos-Michel and Yano* 1998 as *Bryopteris flaccida*). **LA PAZ:** El Rincón, *Yuncker* 6606 (DPU, *Stotler and Crandall-Stotler* 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*). ***LEMPIRA:** Gracias municipio, Montana de Celaque, SE part of massif, 14°33'N, 88°39'W, 1,800–1,900 m, 24 May 1991, *Davidse & Zúñiga* 34665A, det. Whittemore 1996 (MO-4428469! <https://tropicos.org/specimen/90040055>, [this publication](#)). ***OCOTEPEQUE:** La Labor municipio, Montana del Candado, 13 km E of Nueva Ocotepeque and Cerro El Cocal, 14°27'N, 89°04'W, 2,000–2,180 m, 24 Mar 1993, *Allen* 14509, det. Whittemore 1996 (MO-4428484! <https://tropicos.org/specimen/90040033>, [this publication](#)). ***YORO:** Cordillera Nombre de Dios, N slope ridge between Rio Guan Guan und Quebrada Aguacatal, 15°30'N, 87°28'W, 300 m, 6 Mar 1993, *Allen* 13645, det. Whittemore 1996 (MO-4428485! <https://tropicos.org/specimen/90040032>, [this publication](#)).

EL SALVADOR. S. loc. (Fulford and Sharp 1990 as *Bryopteris fruticulosa*; Lücking 1995; Oliveira-e-Silva and Yano 2000). ***AHUACHAPÁN:** Apaneca municipio, Lago de Ninfas, Cordillera de Grade de Apaneca, NW of Juzuya, 13°52'29"N, 89°47'55"W, 1,600 m, 6 Feb 1998, *Davidse* 37474, det. Dauphin May 2017 (MO-5280790! <https://tropicos.org/specimen/90136887>, [this publication](#)); San Francisco Menéndez municipio, El Impossible Reserve, Campana, 13°51'N, 89°54'W, 1,400 m, 24 Jan 1998, *Monro* 2039, det. Dauphin May 2017 (MO-5280778! <https://tropicos.org/specimen/90136888>, [this publication](#)); San Francisco Menéndez municipio, San Benito, W de la cabecera del cafetal El Pezote, 13°49'N, 89°56'W, 12 Aug 1992, *Sandoval* 575, det. Dauphin May 2017 (MO-4448874! <https://tropicos.org/specimen/102498874>, LAGU, B, [this publication](#)). **SANTA ANA:** Finca San Nicolas, *Calderon* 1768a (US, *Standley and Calderón* 1925 as *Bryopteris fruticulosa*; *Stotler and Crandall-Stotler* 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*; *Gradstein* 1994); Metapán municipio, Parque Nacional Monte Cristo, Cordillera de Metapán, 14°27'N, 89°22'W, 1,900–2,000 m, 27 Jan 1998, *Davidse* 37211, det. Dauphin May 2017 (MO-5280777! <https://tropicos.org/specimen/90136889>, [this publication](#)).

NICARAGUA. S. loc. (Fulford 1987 as *Bryopteris trinitensis*; Lücking 1995; Oliveira-e-Silva and Yano 2000); S. loc., *Schaller* (hb. Fulford, *Stotler and Crandall-Stotler* 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*); S. loc., *Schwann* (hb. Fulford, *Stotler and Crandall-Stotler* 1974 as *Bryopteris*

trinitensis); S. loc., 24 Nov 1979, *Stevens* (H, Ahonen 2006). *ATLÁNTICO NORTE: Road to Nueva America, 27 Apr 1978, *Stevens* 8320B, det. Dauphin May 2017 (MO-2846431!, [this publication](#)); Siuna municipio, Cerro Waylawás (Peñas Blancas), 13°30'20"N, 84°45'25"W, 28 Oct 1982, *Grijalva* 1714, det. Dauphin May 2017 (MO-5274373!, [this publication](#)). ATLÁNTICO SUR: Bluefields municipio, Cerro San Isidro, *Proctor* 27093 (NY, U, *Gradstein* 1994); Decembocadura Río Grande municipio, Karawala, *Schramm* (F, *Stotler and Crandall-Stotler* 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*). CHONTALES: La Libertad, *Standley* 9025 (F, *Stotler and Crandall-Stotler* 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*). *ESTELÍ: Estelí municipio, Cerro Quiabú (Cerro Las Brisas), 13°06'N, 86°25'W, 1,550–1,600 m, 24 Nov 1979, *Stevens & Grijalva* 16289, det. Dauphin May 2017 (MO-6236098! <https://tropicos.org/specimen/100366010>, [this publication](#)); Estelí municipio, Cerro Quiabú (Cerro Las Brisas), 13°06'N, 86°25'W, 1,550–1,600 m, 24 Nov 1979, *Stevens & Grijalva* 16291, det. Dauphin May 2017 (MO-6236175! <https://tropicos.org/specimen/100370978>, [this publication](#)); Estelí municipio, Cerro Quiabú (Cerro Las Brisas), 13°06'N, 86°25'W, 1,550–1,600 m, 24 Nov 1979, *Stevens & Grijalva* 16298, det. Dauphin May 2017 (MO-6236031! <https://tropicos.org/specimen/100366531>, [this publication](#)); Estelí municipio, Laguna de Miraflores, 13°15'N, 86°15'W, 1,260–1,300 m, 13 Sep 1981, *Moreno* 11124D p.p., det. Dauphin May 2017 (MO-6699904! <https://tropicos.org/specimen/100988678>, [this publication](#)). GRANADA: Granada municipio, Volcán Mombacho, *Baker* 2369 (NY, *Stotler and Crandall-Stotler* 1974 as *Bryopteris trinitensis*; *Gradstein* 1994); Granada municipio, Volcán Mombacho, *Baker* 2506 (NY, *Gradstein* 1994). JINOTEGA: Jinotega municipio, Cerro Slalci, *Standley* 10451 (F, *Stotler and Crandall-Stotler* 1974 as *Bryopteris flaccida*); Jinotega municipio, E of Jinotega, Finca Aventina, *Standley* 9942, 9945 (F, *Stotler and Crandall-Stotler* 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Jinotega municipio, E of Jinotega, Finca San Rogue, *Standley* 10876 (F, *Stotler and Crandall-Stotler* 1974 as *Bryopteris trinitensis*). MANAGUA: El Crucero, 800–900 m, *Standley* 8212 (F, *Stotler and Crandall-Stotler* 1974 as *Bryopteris trinitensis*); El Crucero, 800–900 m, *Standley* 8413 (F, *Stotler and Crandall-Stotler* 1974 as *Bryopteris trinitensis*); Managua municipio, Casa Colorado, *Standley* 8400 (F, *Stotler and Crandall-Stotler* 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*, *Stotler and Crandall-Stotler* 1974 as *Bryopteris trinitensis*). *MATAGALPA: La Dalia municipio, Macizos de Peñas Blancas, SE side, 13°14'–15'N, 85°38'–39'W, 1,000–1,400 m, 18–20 Jan 1982, *Stevens et al.* 21167, det. Dauphin May 2017 (MO-6236088! <https://tropicos.org/specimen/100366195>, [this publication](#)); La Dalia municipio, Macizos de Peñas Blancas, SE side, 13°14'–15'N, 85°38'–39'W, 1,000–1,400 m, 18–20 Jan 1982, *Stevens et al.* 21169, det. Dauphin May 2017 (MO-5228168! <https://tropicos.org/specimen/90103062>, [this publication](#)); Matagalpa municipio, along Hwy 3 ~1 km NW of La Fundadora entrance, 13°01'N, 85°56'W, 30 Aug 1983, *Stevens & Miller* 22501, det. Whittemore May 1989 (MO-3669082! <https://tropicos.org>

/specimen/100201558, [this publication](#)); Matagalpa municipio, Cerro Carlota, 12°58'N, 85°52'W, 1,250–1,300 m, 23 Oct 1982, *Moreno* 18183, det. Dauphin May 2017 (MO-5281064! <https://tropicos.org/specimen/90137327>, [this publication](#)); Río Blanco municipio, Falda NE Cerro Musún, Río Bilampi, 4 km SW de Wanawas, 13°00'–01'N, 85°14'W, 300–500 m, 15 May 1980, *Araquistain & Moreno* 2612c, det. Atwood 2016 (MO-6691210! <https://tropicos.org/specimen/102957371>, [this publication](#)). RÍO SAN JUAN: San Juan del Norte municipio, Greytown, Camp Menocal, *Shimek & Smith* (hb. Fulford, *Stotler and Crandall-Stotler* 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*).

COSTA RICA. Cordillera de Talamanca (*Holz and Gradstein* 2005b); Cordillera de Talamanca, *Kappelle* 718 (CR, *Kappelle* 1996); S. loc. (*Stephani* 1890b as *Bryopteris flaccida*, 1912a as *Bryopteris flaccida* and *Bryopteris liebmaniana*; Verdoorn 1931 as *Bryopteris tenuicaulis* f. *flagellifera*; Pagán 1939c; Bonner 1963a as *Bryopteris liebmaniana*; Cole 1982 as *Bryopteris flaccida*, *Bryopteris fruticulosa*, *Bryopteris* 'liebmanniana,' and *Bryopteris trinitensis*, 1983 as *Bryopteris flaccida*, *Bryopteris fruticulosa*, *Bryopteris* 'liebmanniana,' and *Bryopteris trinitensis*; Fulford 1987 as *Bryopteris trinitensis*; Fulford and Sharp 1990 as *Bryopteris flaccida*, *Bryopteris fruticulosa*, *Bryopteris* 'liebmanniana,' and *Bryopteris trinitensis*; Oliveira-e-Silva and Yano 2000); S. loc., hb. *Stephani* 15512 (G, *Morales* 1991 as *Bryopteris flaccida*); S. loc., *Maxon* (Evans 1907b); S. loc., 5,000–8,000 ft (1,524–2,438 m), *Oersted* 1169 (*Müller* 1851 as *Bryopteris flaccida*); S. loc., *Oersted* 4 (BM, C, NY, S, TYPE of *Bryopteris flaccida*, *Stotler and Crandall-Stotler* 1974 as *Bryopteris flaccida*); S. loc., 8,000 ft (2,438 m), *Oersted* (S, NY, *Hampe* 1851a as *Bryopteris flaccida*; *Bonner* 1963a as *Bryopteris flaccida*; *Morales* 1991 as *Bryopteris flaccida*; *Lemos-Michel and Yano* 1998 as *Bryopteris flaccida*); S. loc., *Unknown* (hb. Fulford, *Stotler and Crandall-Stotler* 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*); S. loc., *Valerio* 6 (S, *Stotler and Crandall-Stotler* 1974 as *Bryopteris flaccida*; *Morales* 1991 as *Bryopteris flaccida*); S. loc., *Wercklé* (NY, PC, *Bischler* 1965 as *Bryopteris liebmaniana*; *Stotler and Crandall-Stotler* 1974 as *Bryopteris flaccida*; *Morales* 1991 as *Bryopteris flaccida*). ALAJUELA: S. loc., *Polakowsky* (Polakowsky 1879 as *Bryopteris filicina hookeriana*); S. loc., Jun 1875, *Polakowsky* 127 (Polakowsky 1877 as *Bryopteris filicina hookeriana*; *Schiffner* 1894 as *Bryopteris tenuicaulis*); San Ramón cantón, Montes de Aguacate, *Oersted* (*Hampe* 1851b as *Bryopteris filicina hookeriana*; *Müller* 1851 as *Bryopteris filicina hookeriana*; *Polakowsky* 1879 as *Bryopteris filicina hookeriana*); San Ramón cantón, Nectandra Cloud Forest, Quebrada Verde, *Lucas* 45, *Norris* 110060, 110816 (UC, *Norris et al.* 2017); San Ramón cantón, Reserva Biológica Alberto Brenes, Quebrada Azul, *Picado* 345 (CR, *Dauphin* 2005); San Ramón cantón, Río San Pedro, *Brenes* 15094 (F, *Stotler and Crandall-Stotler* 1974 as *Bryopteris* 'liebmanniana'; *Morales* 1991 as *Bryopteris liebmaniana*); San Ramón cantón, Río San Pedro, *Brenes* 16185 (F, *Stotler and Crandall-Stotler* 1974 as *Bryopteris trinitensis*; *Morales* 1991 as *Bryopteris trinitensis*). CARTAGO: Alto de La Es-trella, *Standley* 39076, 39079, 39111 (US, *Herzog* 1951 as

Bryopteris flaccida; Stotler and Crandall-Stotler 1974 as *Bryopteris flaccida*; Morales 1991 as *Bryopteris flaccida*; Alto de La Estrella, Standley 39284 (F, US, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*; Morales 1991 as *Bryopteris trinitensis*; Gradstein 1994); Cartago cantón, Aguacaliente, Oersted (C, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*; Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Cartago cantón, El Muñeco, Standley & Valerio 51304 (US, Morales 1991 as *Bryopteris flaccida*); Cartago cantón, El Muñeco, Standley et al. 51049 (hb. Fulford, US, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*; Morales 1991 as *Bryopteris trinitensis*); Cartago cantón, El Muñeco, N of Navarro, 1,400 m, Standley 33505 (US, Herzog 1951; Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*; Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Cartago cantón, El Muñeco, Río Navarro, 1,400–1,500 m, Standley & Valerio 51304 (US, Stotler and Crandall-Stotler 1974 as *Bryopteris flaccida*); same location, Standley 51304 (Herzog 1951 as *Bryopteris flaccida*); same location, Standley et al. 33934 (US, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*); same location, Standley 33934 (Herzog 1951 as *Bryopteris tenuicaulis* f. *flagellifera*; Morales 1991 as *Bryopteris trinitensis*); Cartago cantón, El Muñeco, S of Navarro, 1,400 m, Standley 51049 (Herzog 1951 as *Bryopteris tenuicaulis* f. *flagellifera*); Cartago, Griffin & Morales 147 (FLAS, NY, Gradstein 1994); Cartago, 1,050 m, Maxon 86 (NY, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *monica*; Gradstein 1994); El Guarco cantón, Santa Clara, 1,950 m, Maxon & Harvey 8139, 8160 (US, Stotler and Crandall-Stotler 1974 as *Bryopteris flaccida*; Morales 1991 as *Bryopteris flaccida*); Finca Las Cóncavas, 1,200–1,300 m, Standley 41480 (US, Herzog 1951 as *Bryopteris tenuicaulis*; Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*; Morales 1991 as *Bryopteris trinitensis*); Jiménez cantón, Juan Viñas (Tonduz 1895b as *Bryolejeunea fruticulosa*); Jiménez cantón, Juan Viñas, Pittier 6047 (Stephani 1893c as *Bryolejeunea fruticulosa*; Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Jimenez cantón, Pejibaye (Dauphin 2005); Jiménez cantón, Pejibaye, Standley & Valerio 46958 (S, US, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa* and *Bryopteris 'liebmanniana'*; Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa* and *Bryopteris liebmanniana*); Jiménez cantón, Pejibaye, Standley & Valerio 47131 (US, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*; Morales 1991 as *Bryopteris trinitensis*); Jiménez cantón, Río Naranjo, Tonduz 15512 p.p. (MO, NY, Stotler and Crandall-Stotler 1974 as *Bryopteris flaccida* and *Bryopteris trinitensis*; Morales 1991 as *Bryopteris flaccida* and *Bryopteris liebmanniana*); La Union cantón, Carpintera forest, Little 5570, 5577, 5588, 5596 (hb. Little, Stotler and Crandall-Stotler 1974 as *Bryopteris flaccida*; Morales 1991 as *Bryopteris flaccida*); La Union cantón, Carpintera forest, Tres Ríos, Jun 1875, Polakowsky 109 (W, Polakowsky 1877 as *Bryopteris flaccida*; Schiffner 1894 as *Bryopteris flaccida*; Stotler and Crandall-Stotler 1974 as *Bryopteris flaccida*; Morales 1991 as *Bryopteris flaccida*); La Union cantón, Cerro de La Carpintera, 1,000–1,850 m, Standley 34265 (US, Herzog 1951 as *Bryopteris flaccida*; Stotler and Crandall-Stotler 1974 as *Bryopteris flaccida*; Morales 1991 as *Bryopteris flaccida*); La Union cantón, Cerro de La Carpintera, 1,000–1,850 m, Standley 34278 (US, Herzog 1951 as *Bryopteris flaccida*; Stotler and Crandall-Stotler 1974 as *Bryopteris flaccida*; Morales 1991 as *Bryopteris flaccida*); La Unión cantón, Tres Ríos, 1,300–2,000 m, Allen (REED, Stotler and Crandall-Stotler 1974 as *Bryopteris flaccida*; Morales 1991 as *Bryopteris flaccida*); Oreamuno cantón, Río Reventado, Standley & Valerio 49486 (US, Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Oreamuno cantón, Río Reventado, 1,460–1,650 m, Standley & Valerio 49686 (US, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Oreamuno cantón, Río Reventado, N of Cartago, 1,460–1,650 m, Standley 49486 (Herzog 1951); Paraíso cantón, Jardín Lankester, Griffin & Morales C147 (Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Paraíso cantón, Orosi, Standley 39679 (US, Herzog 1951; Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*; Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa*); S. loc., Holz CR 99-253 (Hartmann et al. 2006); S. loc., Polakowsky (Polakowsky 1879 as *Bryopteris flaccida*); Santiago, 1,050 m, Maxon 86 (US, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*; Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Turrialba cantón, Guayabo, Infante 84 (FLAS, USJ, Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Turrialba cantón, Santa Cruz, Valerio 1220 (MO, Stotler and Crandall-Stotler 1974 as *Bryopteris flaccida*; Morales 1991 as *Bryopteris flaccida*); Turrialba cantón, Valle de Tuis, Tonduz 15512 (NY, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*; Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa*). **GUANACASTE:** La Cruz cantón, Guanacaste National Park, Cerros Santa Elena, 10°53'24"N, 85°50'55"W, Dauphin et al. 3308, 3349 (CR, Dauphin 2005; Dauphin and Grayum 2005); Liberia cantón, Guanacaste National Park, Estación Cacao, 10°55'45"N, 85°28'15"W, 1,100 m, 26 Sep 1990, Chávez 83a, det. Dauphin May 2017 (MO-4446135! <https://tropicos.org/specimen/90029813>, this publication); Quebrado Azul, lava slopes of Volcán Terrorio, Dodge & Wood 6648 (NY, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*; Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Tilarán cantón, Arenal, ~500 m (Dauphin 2005); Tilarán cantón, Arenal, Naranjos Agrios, 600–700 m, Standley 46500 (US, Herzog 1951 as *Bryopteris fruticulosa*; Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*; Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Tilarán cantón, El Arenal, Standley & Valerio 45075, 45252 (Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*; Morales 1991 as *Bryopteris trinitensis*); Tilarán cantón, El Arenal, 485–600 m, Standley 45075, 45252 (Herzog 1951 as *Bryopteris tenuicaulis* f. *flagellifera*); Tilarán cantón, El Silencio, Standley & Valerio 44802 (US, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*);

Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa* and *Bryopteris longispica*); Tilarán cantón, El Silencio, 750 m, Standley 44802 (Herzog 1951 as *Bryopteris longispica*); Tilarán cantón, Los Ayotes, 600–700 m, Standley & Valerio 45408 (US, Herzog 1951 as *Bryopteris tenuicaulis* f. *flagellifera*; Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*); Tilarán cantón, Los Ayotes, Standley & Valerio 45480 (US, Morales 1991 as *Bryopteris trinitensis*); Tilarán, 500–650 m, Standley & Valerio 44308 (US, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*; Morales 1991 as *Bryopteris trinitensis*); Tilarán, Standley & Valerio 44802 (S, Stotler and Crandall-Stotler 1974 as *Bryopteris 'liebmanniana'*; Morales 1991 as *Bryopteris liebmanniana*); Tilarán, 500–600 m, Standley 44308 (Herzog 1951 as *Bryopteris fruticulosa*; Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Tilarán, Valerio 1169 (MO, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*; Morales 1991 as *Bryopteris trinitensis*). HEREDIA: Barva cantón, Barva forest, Pittier 6019 (Stephani 1893c as *Bryolejeunea fruticulosa*); Barva cantón, Barva forest, Pittier 6050 (Stephani 1893c as *Bryolejeunea tenuicaulis*); Barva cantón, Barva forest, Pittier 6051 (Stephani 1893c as *Bryolejeunea flaccida*; Morales 1991 as *Bryopteris flaccida*); Barva cantón, Cerro Gallito (S, Morales 1991 as *Bryopteris trinitensis*); Barva cantón, Cerro Gallito, Valerio 32245, 32246 (CR, Morales 1991 as *Bryopteris fruticulosa* subsp. *monoica*); La Uvita, Morales 265 (Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Monte Cristo, 1,720 m, Rojas 477 (MO, Stotler and Crandall-Stotler 1974 as *Bryopteris flaccida*; Morales 1991 as *Bryopteris flaccida*); San Isidro cantón, Cerro Zurquí, Standley & Valerio 50711 (S, Morales 1991 as *Bryopteris flaccida*); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, Standley 50711 (Herzog 1951 as *Bryopteris flaccida*); San Isidro cantón, Cerro Zurquí, NE of San Isidro, 2,000–2,400 m, Standley & Valerio 51304 (US, Stotler and Crandall-Stotler 1974 as *Bryopteris flaccida*); San Isidro cantón, Yerba Buena, Standley & Valerio 49965 (US, Stotler and Crandall-Stotler 1974 as *Bryopteris 'liebmanniana'*; Morales 1991 as *Bryopteris liebmanniana*; Gradstein 1994); San Isidro cantón, Yerba Buena, 2,000 m, Standley 49965 (Herzog 1951 as *Bryopteris trinitensis*). LIMÓN: Pococí cantón, Braulio Carrillo National Park, Botarrama trail, Lücking 92-30, 92-194, 94-30 (hb. Lücking, Lücking 1995); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, Lücking (Lücking 1997); Pococí cantón, Guápiles, 300–500 m, Standley 37049, 373217 (Herzog 1951 as *Bryopteris tenuicaulis* f. *flagellifera*; Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*; Morales 1991 as *Bryopteris trinitensis*); Pococí cantón, Tortuguero, Steere 76, 87, 88, 89 (NY, Gradstein 1994); Siquirres cantón, Cairo (Dauphin 2005); Siquirres cantón, Cairo, Finca Hamburgo, Standley & Valerio 48683, 48714, 48847 (US, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*; Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Siquirres cantón, Cairo, Finca Hamburgo, Standley 48092, 48683, 48847, etc. (Herzog 1951 as *Bryopteris fruticulosa* and *Bryopteris tenuicaulis* f. *flagellifera*); Siquirres

cantón, Finca La Colombiana, 70 m, Standley 36749 (JE?, US, TYPE of *Bryopteris fruticulosa* f. *propagulifera*, Herzog 1951 as *Bryopteris fruticulosa* f. *propagulifera*; Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*; Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Siquirres cantón, Finca La Colombiana, 70 m, Standley 36849 (US, Herzog 1951 as *Bryopteris fruticulosa*; Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Siquirres cantón, Finca La Colombiana, 70 m, Standley 36946 (Herzog 1951 as *Bryopteris fruticulosa*; Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*; Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Siquirres cantón, La Colombiana Farm of United Fruit, ~70 m, Standley 36489 (US, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Talamanca cantón, Reserva Indígena Talamanca Sukut, 9°24'15"N, 82°58'10"W, 350–550 m, 6 Jul 1989, Hammel et al. 17553, det. Dauphin May 2017 (MO-3977741! <https://tropicos.org/specimen/804477>, this publication); Talamanca cantón, Río Cerere, Carballo 484 (CR, Dauphin 2005). PUNTARENAS: Coto Brus cantón, Las Cruces, Jardín Botánico Wilson, Picado 248 (CR, Dauphin 2005); Coto Brus cantón, San Vito de Java, Moore (F, NY, Gradstein 1994); Garabito cantón, Carara National Park, Quebrada Los Monos, Zúñiga 2301 (CR, Dauphin 2005); Garabito cantón, vicinity of Capulín, Río Grande de Tárcoles, 80 M, Standley 40141 (US, Herzog 1951 as *Bryopteris fruticulosa*; Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*; Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Golfito cantón, Piedra Blanca, 2,000 m, Valerio (S, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*; Morales 1991 as *Bryopteris trinitensis*); Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, Gradstein et al. (U, Sillett et al. 1995); Monteverde, James, J. 16 (US, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*, Morales 1991 as *Bryopteris trinitensis*); Monteverde, James, J. 26 p.p. (REED, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa* and *Bryopteris trinitensis*; Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa* and *Bryopteris trinitensis*); Monteverde, James, J. 33 (US, REED, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*; Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa*; Gradstein 1994); Monteverde, James, J. 63 (REED, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*; Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Monteverde, James, J. 84 (REED, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*; Morales 1991 as *Bryopteris trinitensis*); Monteverde, James, J. B27 (REED, Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Monteverde, James, J. (US, REED, F, Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Monteverde, Feb 1963, James, W. (US, Reed and Robinson 1971 as *Bryopteris*

- fruticulosa*); Monteverde, 29 Dec 1964, James, W. 28, 33 (US, Reed and Robinson 1971 as *Bryopteris fruticulosa*); Monteverde, 10 Jun 1966, James, M. 16 (R, Reed and Robinson 1971 as *Bryopteris trinitensis*); Osa cantón, Osa Peninsula, Rincón, Centro Boscosa, 150 m, Oct 1993, Gradstein (Gradstein 1999b); S. loc. (Merwin et al. 2001); S. loc., Gradstein & Dauphin 9351 (Hartmann et al. 2006); S. loc., Quesada 1229 (Hartmann et al. 2006); S. loc., Stephani 15512 (G, Stotler and Crandall-Stotler 1974 as *Bryopteris flaccida*). SAN JOSÉ: Alajuelita cantón, La Cruz, Rojas 398 (MO, Stotler and Crandall-Stotler 1974 as *Bryopteris 'liebmanniana'*; Morales 1991 as *Bryopteris liebmanniana*); Aserri cantón, between Aserri and Tarbaca, 1,600–1,900 m, 12 Feb 1924, Standley 34170, 34191 (US, Herzog 1951 as *Bryopteris flaccida*; Stotler and Crandall-Stotler 1974 as *Bryopteris flaccida*; Morales 1991 as *Bryopteris flaccida*; Lemos-Michel and Yano 1998 as *Bryopteris flaccida*); Aserri cantón, Tablazo, 1,800 m, 27 Jul 1927 (S, Lemos-Michel and Yano 1998 as *Bryopteris flaccida*); Cerro Gallito, 2,000 m (S, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*); Cerro Zurquí, Standley & Valerio 48090, 48092 (US, Stotler and Crandall-Stotler 1974 as *Bryopteris flaccida*; Morales 1991 as *Bryopteris flaccida*); Chirripó National Park, Chaverri et al. 1875 (U, Gradstein 1994); Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, 7 km N de Santa María de Dota, Standley 43838 (US, Morales 1991 as *Bryopteris trinitensis*); Dota cantón, NE of El Copey, Laguna de la Escadra, 2,000–2,200 m, Standley 41798 (US, Herzog 1951 as *Bryopteris tenuicaulis*; Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*; Morales 1991 as *Bryopteris trinitensis*); Dota cantón, Quebradillas, 7 km N of Santa María de Dota, 1,800 m, Standley 43038 (Herzog 1951 as *Bryopteris tenuicaulis*; Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, Santa María, Kappelle 2033 (U, Gradstein 1994); Dota cantón, Santa María, 1,500–1,800 m, Standley 41724 (Herzog 1951 as *Bryopteris tenuicaulis*); Dota cantón, Santa María, Standley 41734 (US, Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Dota cantón, Santa María, 1,500–1,800 m, Standley 42417 (Herzog 1951 as *Bryopteris fruticulosa*; Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *monoica*; Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa* and *Bryopteris fruticulosa* subsp. *monoica*); Montañas de Escazú, Little 5503 (hb. Little, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*; Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Moravia cantón, Camino a La Hondura, Griffin et al. 358 (FLAS, USJ, Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Moravia cantón, Cerro Zurquí, Standley & Valerio 48075 (US, TYPE of *Bryopteris filicina* var. *fissiflora*, Stotler and Crandall-Stotler 1974 as *Bryopteris 'liebmanniana'*; Morales 1991 as *Bryopteris liebmanniana*); Moravia cantón, Cerro Zurquí, Standley & Valerio 48268 (US, Morales 1991 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Moravia cantón, Cerro Zurquí, Standley & Valerio 48280 (Stotler and Crandall-Stotler 1974 as *Bryopteris 'liebmanniana'*; Morales 1991 as *Bryopteris liebmanniana*); Moravia cantón, Cerro Zurquí, 2,000–2,500 m, Standley 48628 (US, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Moravia cantón, Cerro Zurquí, 2,000–2,500 m, Standley 48075, 48092 (Herzog 1951 as *Bryopteris trinitensis*); Moravia cantón, Cerro Zurquí, 2,000–2,500 m, Standley 48082, 48090 (Herzog 1951 as *Bryopteris flaccida*); Moravia cantón, Cerro Zurquí, 2,000–2,500 m, Standley 48268 (Herzog 1951); Pérez Zeledón cantón, San Gerardo de Rivas, Quesada 1349 (CR, Dauphin 2005); S. loc., Brenes 19013 (F, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*; Morales 1991 as *Bryopteris trinitensis*); S. loc., Holz & Schäfer-Verwimp CR 99-235, CR 99-1127 (Hartmann et al. 2006); S. loc., Polakowsky (Polakowsky 1879); S. loc., Jul 1875, Polakowsky 297 (Polakowsky 1877).
- PANAMA. S. loc. (Verdoorn 1931 as *Bryopteris tenuicaulis*; Fulford 1987 as *Bryopteris trinitensis*; Fulford and Sharp 1990 as *Bryopteris flaccida*, *Bryopteris fruticulosa*, *Bryopteris 'liebmanniana'*, and *Bryopteris trinitensis*; Lücking 1995; Stotler et al. 1998 as *Bryopteris fruticulosa* subsp. *fruticulosa*; Oliveira-e-Silva and Yano 2000); S. loc., Gradstein (Nagashima et al. 1994); S. loc., Taylor 1104, 1105, 1106 (hb. Fulford, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*; Stotler et al. 1998 as *Bryopteris fruticulosa* subsp. *fruticulosa*); S. loc., Troll 47 (PC, Bischler 1965 as *Bryopteris tenuicaulis*); S. loc., Willis 134 (F, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*; Stotler et al. 1998 as *Bryopteris trinitensis*). CHIRIQUÍ: Boquete distrito, Dexter's Brook, Cornman 3081 (MO, Stotler and Crandall-Stotler 1974 as *Bryopteris 'liebmanniana'*; Stotler et al. 1998 as *Bryopteris liebmanniana*); Boquete distrito, Dexter's trail to the divide, Cornman 3093 (MO, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*; Stotler et al. 1998 as *Bryopteris trinitensis*); Boquete distrito, Dexter's trail to the divide, Cornman 3095 (MO, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*; Stotler et al. 1998 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Boquete distrito, Holcomb Trail, Cornman 3136, 3178 (MO, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Boquete distrito, Plateau above Boquete, Cornman 3162 (MO, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*; Stotler et al. 1998 as *Bryopteris trinitensis*); David, Héllion (NY, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*; Gradstein 1994); Gualaca distrito, Fortuna Forest Reserve, foothills of Cerro Pinola, 1,280–2,000 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna, Spörle & Aranda 1.39 (NY, PMA, U, Stotler et al. 1998 as *Bryopteris fruticulosa* subsp. *fruticulosa*); S. loc., Gonzáles 65 (Hartmann et al. 2006); Tierras Altas distrito, El Hato, Stern & Chambers 69 p.p., 74 p.p. (Y, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Tierras Altas distrito, N of Audubon Cabin, Croat 13616A (MO, U, Gradstein 1994). COCLÉ: Antón distrito, above El Valle, Gentry 5673 (MO, Stotler et al. 1998 as

Bryopteris liebmaniana); Antón distrito, El Valle de Antón, *Brako* 8435 (NY, Gradstein 1994; Stotler et al. 1998 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Antón distrito, El Valle, along Río Indio, 500–700 m, *Dodge & Hunter* 413 (MO, Stotler and Crandall-Stotler 1974 as *Bryopteris flaccida*; Stotler et al. 1998 as *Bryopteris flaccida*); Antón distrito, El Valle, Río Antón, ~500 m, *Dodge & Hunter* 421 (MO, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*; Stotler et al. 1998 as *Bryopteris fruticulosa* subsp. *fruticulosa*); La Pintada distrito, El Copé, *Knapp & Dressler* 3475 (MO, Stotler et al. 1998 as *Bryopteris trinitensis*), *Salazar Allen et al.* 1491 (PMA, NY, Stotler et al. 1998 as *Bryopteris fruticulosa* subsp. *fruticulosa*); La Pintada distrito, El Copé, Parque Nacional General División Omar Torrijos Herrera, sendero La Rana Dorada, Río Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López* 662, 663, 664, etc. (PMA, Sierra et al. 2019a); La Pintada distrito, road Llano Grande-Coclesito km 7, *Antonio* 1385, 1401 (MO, U, Gradstein 1994; Stotler et al. 1998 as *Bryopteris fruticulosa* subsp. *fruticulosa*). COLÓN: Colón, Juan Mina, Chagres River, *Bartlett & Lesser* 16870 (MICH, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Colón distrito, Nuevo Limón, *Maxon* 6869 (US, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*; Stotler et al. 1998 as *Bryopteris trinitensis*); Colón distrito, Quebrada Bonita, 70–80 m, 27 Dec 1934, *Steyermark & Allen* 17204, det. Dauphin May 2017 (MO-513409 <http://tropicos.org/specimen/190076799>, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*; Stotler et al. 1998 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Colón distrito, Quebrada Salamanca, 70 m, *Dodge et al.* 17023, 17027 (MO, Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*; Stotler et al. 1998 as *Bryopteris trinitensis*). DARIÉN: Cerro Pirre (Stotler et al. 1998 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Cerro Pirre, *Salazar Allen & Gradstein* 9211, 9244 (PMA, U, Gradstein 1994; Stotler et al. 1998 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Cerro Pirre, along trail to Rancho Mojado, 400–500 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992); Cerro Pirre, around INRENARE field station, ~100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992); Chepigana distrito, Cerro Sapo, *Hammel* 1247, 7296 (MO, U, Gradstein 1994; Stotler et al. 1998 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Pinogana distrito, ~20 km SSW of Boca de Cupé, ~200 m, *Allen* 8656, 8689 (MO, NY, U, Gradstein 1994; Stotler et al. 1998 as *Bryopteris fruticulosa* subsp. *fruticulosa* and *Bryopteris liebmaniana*); Pinogana distrito, Cruce de Mono, *Allen* 8634 (MO, Stotler et al. 1998 as *Bryopteris fruticulosa* subsp. *fruticulosa*); S. loc., *Gentry* M-9 (MO, Stotler et al. 1998 as *Bryopteris fruticulosa* subsp. *fruticulosa*). LOS SANTOS: Las Tablas distrito, Península de Azuero, Cerro Canajagua, 950 m, *Troll*, det. C, F, MO, NY, PR, S-PA, US, hb. Fulford (Stotler and Crandall-Stotler 1974 as *Bryopteris trinitensis*; Stotler et al. 1998 as *Bryopteris trinitensis*; Gradstein 1994); S. loc., *Troll* (NY, U, Stotler et al. 1998 as *Bryopteris trinitensis*). NASO TJËR DI COMARCA: Hydroelectric Project

Teribe, 2,000 m, *Mendoza* 1610 (PMA, NY, Gradstein 1994; Stotler et al. 1998 as *Bryopteris liebmaniana*). PANAMA WEST: La Chorrera distrito, Barro Colorado Island (Salazar Allen and Chung 2003); La Chorrera distrito, Barro Colorado Island, *Willis* 5a,b,c (F, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*; Stotler et al. 1998 as *Bryopteris fruticulosa* subsp. *fruticulosa*); La Chorrera distrito, Barro Colorado Island, in Gatún Lake, ~120 m, *Standley* 40883 (F, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*; Stotler et al. 1998 as *Bryopteris fruticulosa* subsp. *fruticulosa*; Dauphin et al. 2022); Las Cascadas, *Dodge & Hunter* (MO, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*; Stotler et al. 1998 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Panamá distrito, Pedro Miguel, *Cornman* 3031 (F, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*; Stotler et al. 1998 as *Bryopteris fruticulosa* subsp. *fruticulosa*); S. loc. (He et al. 2016). PANAMA: Capiरा distrito, Cerro Campana, *Crosby* 4359 (MO, Stotler et al. 1998 as *Bryopteris trinitensis*); Capiरा distrito, Cerro Campana, *Garibaldi* 140 (PMA, Stotler et al. 1998 as *Bryopteris trinitensis*), *Salazar Allen & Gradstein* (PMA, U, Gradstein 1994; Stotler et al. 1998 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Capiरा distrito, Cerro Campana, *Stimson* 5395, 5417 (US, Gradstein 1994; Stotler et al. 1998 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Chepo distrito, Sabana, 30 m, *Dodge & Hunter* 416 (MO, Stotler and Crandall-Stotler 1974 as *Bryopteris flaccida*; Stotler et al. 1998 as *Bryopteris flaccida*); S. loc., *Lewis et al.* 3273 (MO, Stotler et al. 1998 as *Bryopteris fruticulosa* subsp. *fruticulosa*). VERAGUAS: Montijo distrito, Isla de Coiba (Parque Nacional Coiba), Boca Grande, 7°22'13.6"N, 81°39'26.9"W, 1995–1996, *Galdames* 3725, 3727 (MA, PMA, Salazar Allen and Chung 1997a); Montijo distrito, Isla de Coiba (Parque Nacional Coiba), camino que va hacia la cabecera del Río Negro, a la izquierda del campamento San Juan Viejo, 7°25'27.9"N, 81°44'10.4"W, 1995–1996, *Aranda* 2458 (MA, PMA, Salazar Allen and Chung 1997a); Santa Fe distrito, Calovébora, *Nordenskiöld* (S, Stotler and Crandall-Stotler 1974 as *Bryopteris fruticulosa* subsp. *fruticulosa*; Stotler et al. 1998 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Santa Fe distrito, Cerro Tute W of Santa Fe, *Knapp & Sytsma* 2477 (MO, U, Gradstein 1994; Stotler et al. 1998 as *Bryopteris fruticulosa* subsp. *fruticulosa*); Soná distrito, Región de Bahía Honda, Río Limón cerca de la cascada, Jan 2002, *Salazar Allen et al.* 20500 (PMA, Salazar Allen and Chung 2003, 2006).

Also found in Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

***Calycularia* Mitt., J. Proc. Linn. Soc., Bot. 5(18): 122, 1860 (Mitten 1860a).**

Calycularia crispula Mitt., J. Proc. Linn. Soc., Bot. 5(18): 122, 1861 (Mitten 1860a). Type: India.

COSTA RICA. S. loc. (Düll 1999; Gradstein et al. 2001b; Singh et al. 2016; Stotler and Crandall-Stotler 2017). SAN JOSÉ: Dota cantón, Los Quetzales National Park (Amengual et al.

2007); Pan-American Highway Sur, km 93, 9°36'N, 83°50'W, 3,000 m, 11 Feb 2018, *Dauphin & Ramírez* 2257 (CR, *Dauphin et al.* 1998; *Dauphin* 2005).

Also reported from Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Western Indian Ocean, China, Eastern Asia, Indian Subcontinent, Indo-China, Mexico.

Calypogeia Raddi, Jungermannigr. Etrusca: 31, 1818 (Raddi 1818b).

Calypogeia andicola Bischl., *Candollea* 18: 79, 1962 (Bischler 1962c). Type: Colombia.

COSTA RICA. CARTAGO: Cordillera de Talamanca, Páramo Buenavista, 3,400 m, *Dauphin* 2917 (NY <http://sweetgum.nybg.org/science/vh/specimen-details/?irn=1430808>). *Dauphin* 2005).

Also reported from Western South America, Brazil.

Calypogeia densifolia (Steph.) Steph., *Bull. Herb. Boissier*, sér. 2, 8(9): 676 (=Sp. *Hepat. [Stephani]* 3: 408), 1908 (Stephani 1908g).

≡*Kantius densifolius* Steph., *Hedwigia* 34(2): 52, 1895 (Stephani 1895a). Type: Brazil.

≡*Calypogeia lechleri* var. *densifolia* (Steph.) Bischl., *Candollea* 18: 101, 1962 (Bischler 1962b).

COSTA RICA. GUANACASTE: Liberia cantón, Guanacaste National Park, Pitilla, *Dauphin* 1914 (CR, *Dauphin* 2005). PUNTARENAS: Coto Brus cantón, Las Cruces, Jardín Botánico Wilson, sendero al Río Java, 1,000 m, *Dauphin* 1705 (CR, *Dauphin* 2005).

Also reported from Western South America, Brazil.

Calypogeia grandistipula (Steph.) Steph., *Bull. Herb. Boissier*, sér. 2, 8(9): 669 (=Spec. *Hepat. [Stephani]* 3: 401), 1908 (Stephani 1908g).

≡*Kantius grandistipulus* Steph., *Hedwigia* 34(2): 52, 1895 (Stephani 1895a). Type: Brazil.

?**GUATEMALA.** ?ALTA VERAPAZ: Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, 2,100–2,360 m, *Pérez* (Pérez 2006 as *Calypogeia* cf. *grandistipula*). Note: We are not aware of any positively identified specimen from Guatemala.

PANAMA. VERAGUAS: Close to river Calovébora, area of El Guabal, *Salazar Allen* 380 (PMA, *Stotler et al.* 1998).

Also reported from Northern South America, Western South America, Brazil, Southern South America.

Calypogeia laxa Gottsche et Lindenb., *Syn. Hepat.* 5: 713, 1847 (Gottsche et al. 1847). Type: Mexico.

GUATEMALA. S. loc. (Fulford 1987; Fulford and Sharp 1990). ALTA VERAPAZ: Cobán municipio, N of Cobán, *Sharp* 2972 (TENN, *Fulford* 1968; *Freire* 2006; *Pérez* 2009); Cobán, 1,350 m, *Türkheim* (NY, BM, *Stephani* 1908g). BAJA VERAPAZ: S. loc., 4,100 ft (1,250 m), *Sharp* 5178 p.p., 5242 (TENN, *Fulford* 1968; *Freire* 2006; *Pérez* 2009). IZABAL: S. loc., *Jones & Facey* 3351 (NY,

Fulford 1968; *Freire* 2006; *Pérez* 2009). ZACAPA: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007).

BELIZE. CAYO: Helicopter Pad G995, ~0.6 km SW of Fork Camp, 16°31'N, 89°04'W, 4 Dec 1993, *Allen* 15055, det. *Whittemore* 1994 (BRH, MO-4421598, *Whittemore and Allen* 1996); S. loc., Dec 1993, *Allen* 15247 (BRH, MO, *Whittemore and Allen* 1996); Southern Maya Mountains, Doyle's Delight, 16°29'N, 89°02'W, 1,000 m, 13 Dec 1993, *Allen* 15491, det. *Whittemore* 1994 (MO-4421597! <https://tropicos.org/specimen/90019397>, *Whittemore and Allen* 1996); same location, *Allen* 15085, det. *Whittemore* 1994 (BRH, MO-3981776, *Whittemore and Allen* 1996); same location, *Allen* 15105, det. *Dauphin* May 2017 (MO-3981776! <http://tropicos.org/specimen/90019399>, *Whittemore and Allen* 1996); same location, *Allen* 15370, det. *Dauphin* May 2017 (MO-3981775! <http://tropicos.org/specimen/90019400>, *Whittemore and Allen* 1996).

COSTA RICA. S. loc. (Cole 1983). ALAJUELA: Poás National Park (Dauphin 2005); Poás Volcano, 31 Jul 1977, *Griffin & Araya* 90 (USJ, *Morales and Griffin* 1983; *Morales* 1991). CARTAGO: El Guarco cantón, Casa Mata, *Mata* 48 (USJ, *Dauphin* 2005). PUNTARENAS: Monteverde cantón, NE from Biological Station, 10°18'N, 84°48'W, 1,500 m, 24 Mar 1992, *Lyon* 456, det. *Dauphin* May 2017 (MO-4412799! <https://tropicos.org/specimen/90050823>, *this publication*). SAN JOSÉ: Acosta cantón, Cangrejal, Cerro Caraigres, 2,500 m, *Dauphin* 3405 (CR, *Dauphin* 2005).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Calypogeia lechleri (Steph.) Steph., *Bull. Herb. Boissier*, sér. 2, 8(9): 680 (=Spec. *Hepat. [Stephani]* 3: 412), 1908 (Stephani 1908g).

≡*Kantius lechleri* Steph., *Hedwigia* 34(2): 53, 1895 (Stephani 1911a). Lectotype: Peru.

GUATEMALA. ZACAPA: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007).

***BELIZE.** *CAYO: Southern Maya Mountains, Doyle's Delight, 16°30'N, 89°03'W, 5 Dec 1993, *Allen* 15105, det. *Dauphin* May 2017 (MO-3981776! <http://tropicos.org/specimen/90019399>, *this publication*); same location, *Allen* 15370, det. *Dauphin* May 2017 (MO-3981775! <http://tropicos.org/specimen/90019400>, *this publication*).

COSTA RICA. S. loc. (Bischler 1962b). CARTAGO: Paraíso cantón, Orosi, 1,000 m, 30 Mar 1924, *Standley* 39843 (JE-04001641, JE-04001642, B-20831, *Bischler* 1962b as *Calypogeia lechleri* var. *lechleri*). *PUNTARENAS: Coto Brus cantón, lindero SE Reserva Coto Brus-Guaymí, 1,400–1,500 m, 16 Oct 1993, *Dauphin et al.* 753, det. G. *Dauphin* Dec 2020 (USJ-59452!, *this publication*).

PANAMA. COCLÉ: Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8°N, 80°06.9–7.0°W, 860–1,015 m, 25 Mar 2009,

Schäfer-Verwimp & *Verwimp* 34224/A (JE, Schäfer-Verwimp 2014). DARIÉN: Cerro Pirre (Stotler et al. 1998); Cerro Pirre, 1,200–1,300 m, *Salazar Allen & Gradstein* 9273, 9274 (PMA, Stotler et al. 1998); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992); S. loc. (Schäfer-Verwimp 2014).

Also reported from Northern South America, Western South America, Brazil, Southern South America.

Calypogeia miquelii Mont. ex Gottsche, Lindenb. et Nees, *Syn. Hepat.* 2: 200, 1845 (Gottsche et al. 1845b). Type: Suriname.

*HONDURAS. *ATLÁNTIDA: Along stream entering Rio Bonito at confluence camp, 15°40'N, 86°51'W, 25 Apr 1996, *Allen* 17609, det. Whittemore 1996 (MO-4428675! <http://tropicos.org/specimen/90039803>, this publication); El Porvenir municipio, Pico Bonito National Park, trail from confluence to ridge camps, 15°38–39'N, 86°51–52'W, 20 Apr 1996, *Allen* 17414, det. Whittemore 1996 (MO-4428676! <http://tropicos.org/specimen/90039804>, this publication).

COSTA RICA. GUANACASTE: Liberia cantón, Guanacaste National Park, Sector Pitilla, *Dauphin* 1887 (CR, *Dauphin* 2005). PUNTARENAS: Osa cantón, Rincón, Boscosa trail to Cerro Chocuaco, 300–400 m, *Gradstein & Dauphin* 9318 (U, USJ, *Gradstein et al.* 1994; *Dauphin* 2005); Osa cantón, Rincón, trail to Cerro Chocuaco, 300–400 m, *Gradstein & Dauphin* 9319 (U, USJ, *Gradstein et al.* 1994; *Dauphin* 2005).

PANAMA. *COLÓN: Colón distrito, near top of hill on N side of Gamboa, 9°07'30"N, 79°42'10"W, 175 m, 18 Aug 1973, *Nee* 6527, det. *Dauphin* May 2017 (MO-6230304! <https://tropicos.org/specimen/100366528>, this publication). DARIÉN: Cerro Pirre (Stotler et al. 1998); Cerro Pirre, 400–500 m, *Salazar Allen & Gradstein* 9231 (PMA, Stotler et al. 1998); Cerro Pirre, along trail to Rancho Mojado, 400–500 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992). PANAMA WEST: La Chorrera distrito, Barro Colorado Island, *Gradstein & Salazar Allen* 15091 (PMA, *Dauphin et al.* 2022); La Chorrera distrito, Barro Colorado Island, Basilisk Bay, 2003, *Dauphin* 3163 (CR, PMA, *Dauphin et al.* 2022); La Chorrera distrito, Barro Colorado Island, in Gatún Lake, ~120 m, *Standley* 40883 (F, *Dauphin et al.* 2022); La Chorrera distrito, Barro Colorado, Barbour Point, 2003, *Dauphin* 3155 (CR, PMA, *Dauphin et al.* 2022); La Chorrera distrito, Barro Colorado, Shannon, 2003, *Dauphin* 3074 (CR, PMA, *Dauphin et al.* 2022); La Chorrera distrito, Barro Colorado, Standley, 2003, *Dauphin* 3118 (CR, PMA, *Dauphin et al.* 2022). VERAGUAS: Isla Canales de Tierra, Sendero Punta, 7°45'N, 81°35'W, Jan 2002, *Salazar Allen et al.* 20143 (PMA, *Salazar Allen and Chung* 2003, 2006); Soná distrito, Región de Bahía Honda, Sendero de Manglarito hacia Playa Limón, Jan 2002, *Salazar Allen et al.* 20336, 20421 (PMA, *Salazar Allen and Chung* 2003, 2006).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Calypogeia peruwiana Nees et Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 9: 47, 1838 (Montagne 1838). Type: Peru.

=*Kantius heterophyllus* Steph., *Hedwigia* 34(2): 35, 1895 (Stephani 1911a). Type: Brazil.

=*Calypogeia heterophylla* (Steph.) Steph., *Bull. Herb. Boissier*, sér. 2, 8(9): 67 (=Spec. Hepat. [Stephani] 3: 407), 1908 (Stephani 1908g).

=*Calypogeia subrotunda* Steph., *Biblioth. Bot.* 87(2): 223, 1916 (Stephani 1916b), syn. fide Fulford (1968). Type: Bolivia.

=*Calypogeia heterophylla* var. *subrotunda* (Steph.) Bischl., *Candollea* 18: 69, 1962 (Bischler 1968).

GUATEMALA. S. loc. (Pagán 1942b; Bonner 1963a; Schuster 1969a; Freire et al. 2012); S. loc., *Türckheim*, hb. Levier 5823 (G, NY, *Stephani* 1908g). ALTA VERAPAZ: Cobán municipio, Chicoyonito, 4,400 ft (1,341 m), Dec 1885, *Türckheim* 1 (G, Bischler 1962c; Fulford 1968; Freire 2006); Finca Bucaral, *Sharp* 2765 p.p. (TENN, Fulford 1968; Freire 2006; Pérez 2009); Pansamala, 3,800 ft (1,158 m), *Türckheim* (BM, G, NY, S, Y, Fulford 1968); Pansamala, 3,800 ft (1,158 m), 30 Jan 1886, *Türckheim* 12 (G [Nos. 1837, 1838, 1841], BM, NY, S, Y, Bischler 1962c; Freire 2006); Panzós municipio, Cahabón and/or Senahú, 2012, *Pérez & López-Medina*, det. M. Pérez (Pérez and López-Medina 2012); S. loc., *Pérez* 162 (USCG, Pérez 2009); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 104, 145, 147, etc. (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005); Purhulhá municipio, Civija, 4,100 ft (1,250 m), *Sharp* 5200 p.p., 5219 (TENN, Fulford 1968; Freire 2006). EL PROGRESO: Between Calera and summit of Volcán Siglo, 2,000–3,000 m, *Steyermark* 43057 (F, Fulford 1968; Freire 2006; Pérez 2009); San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, *Ramírez* (USCG, BIGU, Ramírez 2007); summit of Volcán Santa Luisa, 2,000–3,000 m, *Steyermark* 43513 (F, Fulford 1968; Freire 2006). HUEHUETENANGO: Barillas municipio, San José Maxbal, Laguna Maxbal, 15°56'23"N, 91°18'19"W, *Pérez* 1400 (USCG, Pérez 2009). IZABAL: Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, *Ramírez* (USCG, BIGU, Ramírez 2007). QUETZALTENANGO: San Carlos Sija municipio, Cerro de Sija, 9,500 ft (2,896 m), *Sharp* 22195049 (TENN, Fulford 1968; Freire 2006); San Carlos Sija municipio, Cerro de Sija, 10,000 ft (3,048 m), *Sharp* 5050 p.p. (TENN, Freire 2006; Pérez 2009); San Carlos Sija municipio, Cerro de Sija, *Sharp* 5059 (TENN, Fulford 1968). QUICHÉ: Uspantán, 15°27'23.7"N, 90°47'58.9"W, 2,365 m, 2007, *Pérez et al.* 2340 (USCG, Pérez 2009). SAN MARCOS: Tajumulco municipio, slope of Tajumulco, 8,000 ft (2,438 m), *Sharp* 5501 p.p. (TENN, Fulford 1968; Freire 2006; Pérez 2009); Tajumulco municipio, slope of Tajumulco, 8,000 ft (2,438 m), *Sharp* 5503 (TENN, Fulford 1968; Freire 2006). ZACAPA: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, Ramírez 2007).

***BELIZE.** ***CAYO:** Southern Maya Mountains, summit of Doyle's Delight, 16°48'45"N, 88°37'13"W, 1,140 m, 10 Dec 1993, *Allen* 15333, det. Dauphin May 2017 (MO-3981762! <http://tropicos.org/specimen/90019402>, **this publication**); Whittemore and Allen 1996 as *Calypogeia lophocoleoides*. ***TOLEDO:** Columbia River Forest Reserve, Camp 1, 16°22'59"N, 89°07'18"W, 12 Feb 1997, *Allen* 18604, det. Dauphin May 2017 (MO-5228096! <http://tropicos.org/specimen/90101526>, **this publication**); Columbia River Forest Reserve, Camp 2, 16°23'17"N, 89°05'30"W, 14 Feb 1997, *Allen* 18714, det. Whittemore 1997 (MO-4417016! <http://tropicos.org/specimen/90046816>, **this publication**); Columbia River Forest Reserve, Little Quartz Ridge, 16°23'58"N, 89°06'41"W, 950 m, 19 Feb 1997, *Allen* 18907, det. Dauphin May 2017 (MO-5228095! <http://tropicos.org/specimen/90101525>, **this publication**).

HONDURAS. **COMAYAGUA:** El Plan to Cerro El Mañadero, ~11 km E of Lake Yojoa, 1740–2,040 m, 12 Mar 1993, *Allen* 13898, det. Dauphin May 2017 (MO-5232337! <https://tropicos.org/specimen/90102259>, **this publication**); Ojos de Agua municipio, E of Ojos de Agua, *Standley* 4814, 4835 *p.p.* (F, *Fulford* 1968); Siguatepeque municipio, El Achote, *Yuncker* 6552, 6640 (DPU, *Fulford* 1968). **CORTÉS:** San Pedro Sula municipio, Cusuco National Park, along Rio Cusuco, ~22 km W of San Pedro Sula, 15°31'N, 88°14'W, 1,500 m, 18 Mar 1993, *Allen* 14120, det. Dauphin May 2017 (MO-5232336! <https://tropicos.org/specimen/90102260>, **this publication**); slopes of Cerro de Nyerca, *Standley* 759 (F, *Fulford* 1968). **EL PARAÍSO:** El Paraíso municipio, El Zamorano, *Standley* 43630 (F, *Fulford* 1968). ***LEMPIRA:** Gracias municipio, Montaña de Celaque, along Rio Arcagual, and ridge to summit of Cerro La Castilla, 14°33'N, 88°41'W, 2,480–2,827 m, 17 Nov 1991, *Allen* 11540, det. Whittemore 1992 (MO-3965019! <https://tropicos.org/specimen/101212788>, **this publication**).

***EL SALVADOR.** ***SANTA ANA:** Trail up to the top of Monte Cristo, 26 Oct 1977, *Watson* ES-0016, det. Whittemore (MO-3679000!, **this publication**).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); Cordillera de Talamanca, *Kappelle* 5474a (U, *Kappelle* 1996); S. loc. (Bischler 1962c as *Calypogeia heterophylla*; Bonner 1977 as *Calypogeia heterophylla* var. *subrotunda*; Cole 1982 also as *Calypogeia subrotunda*, 1983 also as *Calypogeia subrotunda*; Dauphin 2005; Gradstein and Holz 2005). **ALAJUELA:** Poás National Park, 10°12'N, 84°14'W, Aug 1973, *Griffin et al.* (*Griffin et al.* 1974); Poás Volcano, *Griffin & Araya* 7, 15, 33, 74, 170 (USJ, FLAS, *Morales* 1991; *Dauphin* 2005); Poás Volcano, 31 Jul 1977, *Griffin & Araya* 78, 91 (USJ, FLAS, *Morales* and *Griffin* 1983; *Morales* 1991; *Dauphin* 2005); Poás Volcano, Aug 1977, *Griffin et al.* 33 (FLAS-020498, *Morales* and *Griffin* 1983); San Ramón cantón, Los Ángeles, *Brenes* 15110, 15119 *p.p.* (F, *Fulford* 1968; *Morales* 1991; *Dauphin* 2005). **CARTAGO:** Paraíso cantón, Orosi, Tapantí, *Griffin & Morales* 170 (USJ, FLAS, *Dauphin* 2005; *Morales* 1991). **PUNTARENAS:** Cerro Estaquero, 3,200 m, *Gómez-Pignataro* 19548, det. Dauphin May 2017 (MO-6230303! <https://tropicos.org/specimen>

/100366529, **this publication**); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, *Holz et al.* 2002); Dota cantón, 8 km sur de El Empalme, *Little* 5643b, 8671d (hb. *Little*, *Fulford* 1968; *Morales* 1991; *Dauphin* 2005); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, Santa María, 1,500–1,800 m, *Standley* 41094 (*Herzog* 1938 as *Calypogeia subrotunda*); Dota cantón, Santa María, *Standley* 41694 (B-20558, *Morales* 1991; *Dauphin* 2005); Dota cantón, Santa María, *Standley* 48694 (hb. *Herzog*, S, *Bischler* 1962c as *Calypogeia heterophylla* var. *subrotunda*; *Fulford* 1968; *Morales* 1991; *Dauphin* 2005); Moravia cantón, La Palma, *Griffin & Morales* A59 (USJ, FLAS, *Morales* 1991); Moravia cantón, La Palma, 1,556 m, *Pittier* 48694 (G, *Fulford* 1968); Moravia cantón, La Palma, 1,550 m, *Pittier* 6018a (G, *Bischler* 1962c as *Calypogeia heterophylla* var. *heterophylla* f. *heterophylla*; *Morales* 1991; *Dauphin* 2005).

PANAMA. **CHIRIQUÍ:** Gualaca distrito, Fortuna Dam, 13 Sep 1977, *Folsom et al.* 5405C, det. Whittemore 1990 (MO-2843194!, *Stotler et al.* 1998); Gualaca distrito, Fortuna Forest Reserve, foothills of Cerro Pinola, 1,280–2,000 m (*Salazar Allen et al.* 2021); Gualaca distrito, Fortuna Forest Reserve, NE of camping site, 900–1,200 m (*Salazar Allen et al.* 2021); Gualaca distrito, Fortuna Forest Reserve, NW of camping site, 1,000–1,200 m (*Salazar Allen et al.* 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (*Salazar Allen et al.* 2021); Gualaca distrito, Hornito, Fortuna, 1,000 m, *Salazar Allen et al.* 615b (PMA, *Stotler et al.* 1998); Gualaca distrito, Hornito, Fortuna, *Stotler & Crandall-Stotler* 3498 (ABSH, *Stotler et al.* 1998); S. loc. (Schäfer-Verwimp 2014). **COCLÉ:** Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8°N, 80°06.9–7.0°W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34234/A (JE, *Schäfer-Verwimp* 2014). **DARIÉN:** Cerro Pirre (*Stotler et al.* 1998); Cerro Pirre, 1,200–1,300 m, *Salazar Allen & Gradstein* 9304 (PMA, *Stotler et al.* 1998); Cerro Pirre, 1,200–1,300 m, *Salazar Allen & Gradstein* 9305 (PMA, *Stotler et al.* 1998); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein* and *Salazar Allen* 1992); ridge trail above Cana to Pirre Massif, 800–900 m, 5 May 1990, *Allen* 8986, det. Whittemore 1990 (MO-3678077, *Stotler et al.* 1998); S. loc. (Schäfer-Verwimp 2014).

Also reported from West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Calypogeia rhombifolia (Spruce) Steph., *Bull. Herb. Boissier*, sér. 2, 8(9): 667 (399), 1908 (Stephani 1908g).

≡ *Kantius rhombifolius* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 413, 1885 (Spruce 1885). Type: Ecuador.

COSTA RICA. **PUNTARENAS:** Coto Brus, 1,550 m, *Dauphin* 1726 (CR, *Dauphin* 2005); Monteverde cantón, Monteverde

Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a); Monteverde, 1,550 m, *Gradstein & Solano 9409 p.p.* (U, USJ, *Gradstein et al.* 1994; *Dauphin* 2005).

PANAMA. **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, Quebrada Alemán, 1,200–1,400 m (*Salazar Allen et al.* 2021). **NASO TJEER DI COMARCA:** Cerro Fábrega, *De Gracia* 279 (PMA, *Dauphin* 2007).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Calypogeia subintegra (Gottsche, Lindenb. et Nees) Bischl., *Candollea* 18: 75, 1962 (Bischler 1962b).

≡ *Calypogeia peruviana* β *subintegra* Gottsche, Lindenb. et Nees, *Syn. Hepat.* 5: 712, 1847 (Gottsche et al. 1847). Type: Mexico.

***BELIZE.** ***CAYO:** Southern Maya Mountains, summit of Doyle's Delight, 16°48'45"N, 88°37'13"W, 1,140 m, 10 Dec 1993, *Allen 15345A*, det. *Dauphin* May 2017 (MO-3981763! <http://tropicos.org/specimen/90019401>, **this publication**; *Whittemore* and *Allen* 1996, erroneously as *Calypogeia lophocoleoides*).

***HONDURAS.** ***COMAYAGUA:** El Plan to Cerro El Manadero, ~11 km E of Lake Yojoa, 11 Mar 1993, *Allen 13821*, det. *Dauphin* May 2017 (MO-5232334! <http://tropicos.org/specimen/90102262>, **this publication**). ***FRANCISCO MORAZÁN:** Distrito Central municipio, La Tigre National Park, 14°07'–19'N, 87°03'–07'W, 26 May 1992, *Allen 12350*, det. *Dauphin* May 2017 (MO-3968249! <http://tropicos.org/specimen/101212966>, **this publication**). ***OCOTEPEQUE:** La Labor municipio, Montana del Candado, 13 km E of Nueva Ocotepeque and Cerro El Cocal, 14°27'N, 89°04'W, 24 Mar 1993, *Allen 14518*, det. *Dauphin* May 2017 (MO-5232338! <http://tropicos.org/specimen/90102258>, **this publication**).

PANAMA. S. loc. (*Schäfer-Verwimp* and *Pócs* 2009; *Schäfer-Verwimp et al.* 2013). **CHIRIQUÍ:** Tierras Altas distrito, Parque Internacional La Amistad, along trail to Cerro Punta, 2,462 m, *Stotler & Crandall-Stotler 3496* (ABSH, *Stotler et al.* 1998). ***NGÄBE-BUGLÉ COMARCA:** Nole Duima distrito, Cerro Colorado Copper Mine, 1,200–1,500 m, 13 Mar 1976, *Croat 33224*, det. *Dauphin* May 2017 (MO-5274400! <https://tropicos.org/specimen/90132406>, **this publication**).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Calypogeia uncinulatula Herzog, *Hedwigia* 67(6): 250, 1927 (Herzog 1927). Type: Brazil.

GUATEMALA. S. loc. (*Gradstein* 2021). **BAJA VERAPAZ:** Purhulhá municipio, Civija, 4,000 ft (1,219 m), *Sharp 5183* (TENN, *Fulford* 1968; *Freire* 2006; *Pérez* 2009). **EL PROGRESO:** Calera, Volcán Siglo, 2,000–3,000 m, *Steyermark 43057* (F, *Fulford* 1968; *Freire* 2006; *Pérez* 2009). **QUETZALTENANGO:** Chiquival, 7,700 ft (2,347 m), *Sharp 2082* (TENN, *Fulford* 1968; *Freire* 2006); Quetzaltenango municipio, Volcán Santa María, 1,300–1,500 m, *Steyermark 33659* (F, *Fulford* 1968;

Freire 2006; *Pérez* 2009); Zunil municipio, Volcán Zunil, *Standley 85970* (F, *Fulford* 1968; *Freire* 2006). **SAN MARCOS:** Barranco, Eminencia, 2,500–2,700 m, *Standley 86462* (F, *Fulford* 1968; *Freire* 2006; *Pérez* 2009); San Pablo municipio, El Porvenir, slope of Tajumulco, 8,000 ft (2,438 m), *Sharp 5501* (TENN, *Fulford* 1968; *Freire* 2006).

***BELIZE.** ***CAYO:** Southern Maya Mountains, summit of Doyle's Delight, 16°48'45"N, 88°37'13"W, 1,140 m, 10 Dec 1993, *Allen 15370*, det. *Dauphin* May 2017 (MO-3981775! <http://tropicos.org/specimen/90019400>, **this publication**; *Whittemore* and *Allen* 1996a as *Calypogeia laxa*).

***EL SALVADOR.** ***SANTA ANA:** Metapán municipio, Montecristo, calle a Los Planes, 12 Nov 2014, *Búcaro H345*, det. *Dauphin* (MHES!, **this publication**).

COSTA RICA. S. loc. (Cole 1983). **ALAJUELA:** Poás Volcano, 30–31 Jul 1977, *Griffin & Araya 54* (USJ, FLAS, Morales and Griffin 1983 as *Calypogeia* aff. *uncinulatula*; *Morales* 1991 as *Calypogeia uncinulatula*; *Dauphin* 2005).

Also reported from Northern South America, Western South America, Brazil.

***Caudalejeunea* Schiffn., *Hepat.* (Engl.-Prantl): 129, 1893 (Schiffner 1893a).**

Caudalejeunea lehmanniana (Gottsche) A. Evans, *Bull. Torrey Bot. Club* 34(11): 554, 1908 (Evans 1907b).

≡ *Lejeunea lehmanniana* Gottsche, *Syn. Hepat.* 3: 325, 1845 (Gottsche et al. 1845a). Type: Brazil.

= *Mastigolejeunea dentilobula* Herzog, *Rev. Bryol. Lichénol.* 20(1/2):134, 1951 (Herzog 1951), syn. fide *Gradstein* (1994). Lectotype (*Gradstein* 1994): Honduras, Atlántida, Lancetilla Valley, near Tela, 20–600 m, Dec 1927–Mar 1928, *Standley 48775a* [=48775 p.p. on herbarium label] (JE-04001662 <https://je.jacq.org/JE04001662>).

GUATEMALA. S. loc. (*Fulford* and *Sharp* 1990). **EL PETÉN:** San José municipio, El Zotz, *Can et al.* (USCG, *Morales* 2011).

BELIZE. S. loc. (Oliveira-e-Silva and Yano 2000; *Bastos* 2004). ***BELIZE:** Mile 24 to 25, Northern Highway, 29 Jan 1974, *Dwyer & Liesner 12046*, det. *Dauphin* May 2017 (MO-2184623!, **this publication**). ***CAYO:** Las Cuevas Field Station, 16°44'N, 88°59'W, 550 m, 8 Dec 1996, *Allen 18139*, det. *Whittemore* 1997 (MO-4417023! <https://tropicos.org/specimen/90046808>, **this publication**). **ORANGE WALK:** Lamanai, 550 m, *Hebda B5* (NY, *Gradstein* 1994); S. loc. (*Whittemore* and *Allen* 1996).

HONDURAS. S. loc. (Oliveira-e-Silva and Yano 2000; *Bastos* 2004). **ATLÁNTIDA:** Tela municipio, Lancetilla Valley (*Geissler and Bischler* 1985 as *Mastigolejeunea dentilobula*); Tela municipio, Lancetilla Valley, 20–600 m, Dec 1927–Mar 1928, *Standley 48755 p.p.* (JE-04001662 <https://je.jacq.org/JE04001662>, **TYPE** of *Mastigolejeunea dentilobula*); Tela municipio, Lancetilla Valley, 20–600 m, 1928, *Standley* (*Herzog* 1951 as *Mastigolejeunea dentilobula*). **COPÁN:** Copán municipio, Copán Ruinas, *Hape 50949* (US, *Gradstein* 1994).

COSTA RICA. S. loc. (Pagán 1939c; Schuster 1980d; Fulford and Sharp 1990; Oliveira-e-Silva and Yano 2000; Bastos 2004); S. loc., *Standley 48775 p.p.* (Herzog 1951 as *Mastigolejeunea dentilobula*; Geissler and Bischler 1985 as *Mastigolejeunea dentilobula*); S. loc., *Tonduz* (Evans 1907b). **PUNTARENAS:** Golfo Dulce, *Taylor 253* (CINC, Morales 1991); Osa cantón, Santo Domingo de Golfo Dulce, *Taylor 39-753* (AHFH, MICH, CINC, Steere 1946; Crandall 1969; Dauphin 2005); Osa cantón, Santo Domingo de Golfo Dulce, *Tonduz 15601* (G, Gradstein 1994).

PANAMA. S. loc. (Oliveira-e-Silva and Yano 2000; Bastos 2004). **COCLÉ:** La Pintada distrito, El Copé, *Meijer 173* (PMA, Stotler et al. 1998). **DARIÉN:** Cerro Pirre (Stotler et al. 1998); Cerro Pirre, 1,200–1,300 m, *Salazar Allen & Gradstein 208* (PMA, Stotler et al. 1998); Cerro Pirre, 1,300 m, *Salazar Allen & Gradstein 9308* (PMA, Stotler et al. 1998); Cerro Pirre, between Pirre 1 and Pirre 2, 50 m, *Salazar Allen & Gradstein 9208* (PMA, Stotler et al. 1998); Cerro Pirre, Trail El Real–Pirre, along Río Pirre, ~50 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992). **PANAMA WEST:** La Chorrera distrito, Barro Colorado Island (Salazar Allen and Chung 2003); La Chorrera distrito, Barro Colorado Island, *Gradstein & Salazar Allen 15071, 15097* (PMA, Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, *Machado 32* (NY, Gradstein 1994; Stotler et al. 1998); La Chorrera distrito, Barro Colorado Island, Barbour trail 900, 9 Feb 1969, *Croat 7799*, det. Dauphin May 2017 (MO-5280880! <https://tropicos.org/specimen/90136958>, this publication); La Chorrera distrito, Barro Colorado Island, Camino Balboa, *Salazar Allen 4346a* (PMA, Stotler et al. 1998; Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Camino Wheeler 4–5, *Salazar Allen 4741* (PMA, Stotler et al. 1998; Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Wetmore 15–16, *Salazar Allen 5959* (PMA, Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Wetmore trail 15–16, *Salazar Allen et al. 5959* (PMA, Stotler et al. 1998); La Chorrera distrito, Barro Colorado, Snyder-Molino, 2003, *Dauphin 3055* (CR, PMA, Dauphin et al. 2022). **VERAGUAS:** Soná distrito, Región de Bahía Honda, Playa Bejucosa–Limón, Jan 2002, *Salazar Allen et al. 20258* (PMA, Salazar Allen and Chung 2003, 2006); Soná distrito, Región de Bahía Honda, Sendero hacia Playa El Edén, Jan 2002, *Salazar Allen et al. 20472* (PMA, Salazar Allen and Chung 2003, 2006); Soná distrito, Región de Bahía Honda, Sendero hacia Playa El Edén, Jan 2002, *Salazar Allen et al. 20475* (PMA, Salazar Allen and Chung 2003, 2006).

***COCOS I.** Río Genio, 5°32'57"N, 87°03'56"W, 10 m, 25 Jan 1990, *Dauphin 1054 p.p.*, det. G. Dauphin Jan 2021 (USJ-47222!, CR-4468294!, this publication); Río Genio, 5°32'57"N, 87°03'56"W, 10 m, 26 Jan 1994, *Dauphin 1054 p.p.*, det. G. Dauphin Jan 2021 (USJ-47222!, this publication).

Also reported from West Tropical Africa, West-Central Tropical Africa, East Tropical Africa, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

***Cephalozia* (Dumort.) Dumort., *Recueil Observ. Jungerm.*: 18, 1835 (Dumortier 1835).**

Cephalozia bicuspidata (L.) Dumort., *Recueil Observ. Jungerm.*: 18, 1835 (Dumortier 1835), subsp. *bicuspidata*.

≡*Jungermannia bicuspidata* L., *Sp. Pl.* 1: 1132, 1753 (Linnaeus 1753). Type: Europe.

GUATEMALA. S. loc. (Schuster 1974; Gradstein and Váňa 1987; Fulford and Sharp 1990; Damsholt 2002, 2013; Linares and Uribe 2002); S. loc., *Godman & Sabin* (NY, Fulford 1968; Freire 2006). **QUETZALTENANGO:** Above Chiquival, 7,500 ft (2,286 m), *Sharp 2024 p.p.*, 2050 (TENN, Fulford 1968; Freire 2006); Las Nubes, 2,500 m, *Standley 85141* (F, Fulford 1968; Freire 2006); San Carlos Sija municipio, Gatena area, N of Sija, 9,500 ft (2,896 m), *Sharp 2206, 2225, 2229, 2242* (TENN, Fulford 1968; Freire 2006; Pérez 2009). **SAN MARCOS:** N of Palestina, 9,000 ft (2,743 m), *Sharp 2606* (TENN, Fulford 1968); N of Palestina, 9,000 ft (2,743 m), 16 Feb 1945, *Sharp 2633* (TENN, Fulford 1968; Freire 2006; Pérez 2009). **TOTONICAPÁN:** E of Totoncapán, *Sharp 2606* (TENN, Fulford 1968; Freire 2006; Pérez 2009).

COSTA RICA. S. loc. (Dauphin et al. 2011). **ALAJUELA:** Poás Volcano, 17 Sep 1972, *Morales & Lacayo 528* (USJ, Morales and Griffin 1983; Morales 1991; Dauphin 2005). **GUANACASTE:** Liberia cantón, Rincón de La Vieja National Park, Las Pailas, *Dauphin 1860* (CR, Dauphin 2005).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa, Macaronesia, Siberia, Russian Far East, Caucasus, Western Asia, China, Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, Southeastern USA, Mexico, Western South America, Southern South America.

Cephalozia crossii Spruce, *Cephalozia*: 46, 1882 (Spruce 1882). Type: Colombia.

≡*Cephalozia dussii* Fulford, *Mem. New York Bot. Gard.* 11(3): 321, 1968 (Fulford 1968), syn. fide Gradstein (1999a). Type: Guadeloupe.

***HONDURAS.** ***LEMPIRA:** Gracias municipio, Montaña de Celaque, along Río Arquequal, 7.5 km SW of Gracias, 14°34'N, 88°39'W, Gracias municipio, 1,400 m, 11 Nov 1991, *Allen 11129*, det. Whittemore 1992 (MO-3695025! <http://tropicos.org/specimen/101212641>, this publication).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Gradstein 1999a; Dauphin 2005; Gradstein and Holz 2005; Ellis et al. 2018a). **ALAJUELA:** Poás Volcano, *Morales & Canessa 437* (Morales 1991; Dauphin 2005); Poás Volcano, 10 Jun 1968, *Morales & Canessa 437* (Morales and Griffin 1983 as *Cephalozia dussii*). **CARTAGO:** Pan-American Highway km 93, *Dauphin & Ramírez 2251* (CR, Dauphin 2005). **PUNTARENAS:** Coto Brus cantón, Fila Pittier, *Dauphin 1413B* (CR, Dauphin 2005). **SAN JOSÉ:** Acosta cantón, Cangrejal, Cerro Caraigres, *Dauphin 3394* (CR,

Dauphin 2005); Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin 2005); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,200 m, *Gradstein* 9726 (USJ, *Gradstein et al.* 1994); S. loc., *Schäfer-Verwimp & Holz* SV/H-0255 (M, *Feldberg et al.* 2016, 2017).

Also reported from Macaronesia, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

***Cephaloziella* (Spruce) Schiffn., Hepat. (Engl.-Prantl): 98, 1893 (Schiffner 1893a).**

Cephaloziella divaricata (Sm.) Schiffn., *Hepat. (Engl.-Prantl)*: 99, 1893 (Schiffner 1893b).

≡*Jungermannia divaricata* Sm., *Engl. Bot.* 10: table 719, 1800 (Smith and Sowerby 1800). Type: England.

GUATEMALA. S. loc. (Gradstein and Váña 1987). ALTA VERAPAZ: Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Cephaloziella* cf. *divaricata*); Tukurú, Chelemhá II, Cultivo arriba de la Ermita, 15°22'32"N, 90°05'05"W, 2,050 m, Pérez 85 (USCG, Pérez 2009).

*HONDURAS. *COMAYAGUA: El Plan to Cerro El Mañadero, ~11 km E of Lake Yojoa, 11 Mar 1993, *Allen* 13802, det. Dauphin May 2017 (MO-5227626! <http://tropicos.org/specimen/90096770>, this publication). *LEMPIRA: Gracias municipio, Montaña de Celaque, Rio Naranjo, ~10 km SW of Gracias, 14°32'N, 88°39'W, 12 May 1992, *Allen* 12003, det. Dauphin May 2017 (MO-5227636! <http://tropicos.org/specimen/90096761>, this publication).

COSTA RICA. S. loc. (Cole 1982, 1983). HEREDIA: Barva cantón, Braulio Carrillo National Park, Sector Volcán Barva, 6 Feb 1969, *Griffin et al.* D190 (FLAS, USJ, MO-2846628, *Morales* 1991; *Dauphin* 2005). SAN JOSÉ: Dota cantón, San Gerardo, Río Savegre, 2,000 m, 5 Jan 2000, *Schäfer-Verwimp & Holz* SV/H-0510 (CR, PRC, hb. *Schäfer-Verwimp*, *Holz et al.* 2001; *Dauphin* 2005); Pérez Zeledón cantón, Chirripó National Park, Valle de Los Conejos, *Kubbi* 603 (B-225760, *Dauphin* 2005).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa, Macaronesia, Middle Atlantic Ocean, Siberia, Russian Far East, Middle Asia, Caucasus, Western Asia, China, Mongolia, Eastern Asia, Indian Subcontinent, New Zealand, Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, South-Central USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Cephaloziella fragillima (Spruce) Fulford, *Mem. New York Bot. Gard.* 11(4): 409, 1976 (Fulford 1976).

≡*Cephalozia fragillima* Spruce, *Mem. Torrey Bot. Club* 1(3): 131, 1890 (Spruce 1890). Type: Bolivia.

=*Cephalozia granatensis* J.B.Jack ex Steph., *Bull. Herb. Boissier*, sér. 2, 8(7): 500 (=Spec. *Hepat. [Stephani]* 3: 330), 1908 (Stephani 1908a), syn. fide *Gradstein* (2021). Type: Colombia.

≡*Cephaloziella granatensis* (J.B.Jack ex Steph.) Fulford, *Mem. New York Bot. Gard.* 11(4): 411, 1976 (Fulford 1976).

*HONDURAS. *ATLÁNTIDA: El Porvenir municipio, Pico Bonito National Park, trail from confluence to ridge camps, 15°38'–39'N, 86°51'–52'W, 500–1,550 m, 20 Apr 1996, *Allen* 17387, det. Dauphin May 2017 (MO-6236049! <http://tropicos.org/specimen/100371090>, this publication).

COSTA RICA. Cordillera de Talamanca (*Holz* 2003; *Holz and Gradstein* 2005b); S. loc. (*Gradstein* 1999a as *Cephaloziella granatensis*; *Dauphin* 2005 as *Cephaloziella granatensis*; *Gradstein and Holz* 2005 as *Cephaloziella granatensis*; *Schäfer-Verwimp and Pócs* 2009 as *Cephaloziella granatensis*). ALAJUELA: Poás Volcano, 31 Jul 1977, *Griffin & Araya* 77 (USJ, FLAS, *Morales and Griffin* 1983 as *Cephaloziella granatensis*; *Morales* 1991 as *Cephaloziella granatensis*; *Dauphin* 2005 as *Cephaloziella granatensis*). SAN JOSÉ: Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,000 m, *Gradstein* 9747 (U, USJ, *Gradstein et al.* 1994 as *Cephaloziella granatensis*).

PANAMA. S. loc. (*Gradstein* 1999a); S. loc., *Dauphin et al.* 1548 (GOET, *Feldberg et al.* 2013, 2014, both as *Cephaloziella granatensis*); BOCAS DEL TORO: S. loc. (*Schäfer-Verwimp* 2014 as *Cephaloziella granatensis*). CHIRIQUÍ: Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,600 m, 4 Apr 2006, *Schäfer-Verwimp & Verwimp* 30925 (JE, *Schäfer-Verwimp* 2014 as *Cephaloziella granatensis*). NASO TJÉR DI COMARCA: Parque Internacional La Amistad, Cerro Fábrega, 3,150–3,353 m, *Dauphin* 1548 (GOET, CR, PMA, U, *Stotler et al.* 1998 as *Cephaloziella granatensis*; *Dauphin* 2007 as *Cephaloziella granatensis*); Parque Internacional La Amistad, Cerro Fábrega, 3,150–3,353 m, *Dauphin* 1550 (PMA, *Stotler et al.* 1998 as *Cephaloziella granatensis*); Cerro Fábrega, *De Gra* 295 (PMA, *Dauphin* 2007).

Also reported from Macaronesia, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Cephaloziella hampeana (Nees) Schiffn. ex Loeske, *Moosfl. Harz.*: 92, 1903 (Loeske 1903).

≡*Jungermannia hampeana* Nees, *Naturgesch. Eur. Leberm.* 3: 560, 1838 (Nees 1838b). Type: Germany.

GUATEMALA. S. loc. (*Gradstein and Váña* 1987; *Fulford and Sharp* 1990). QUICHÉ: Nebaj, 6,500 ft (1,981 m), *Sharp* 5305 (TENN, *Fulford* 1976; *Freire* 2006; *Pérez* 2009); S. loc. (*Flores et al.* 2017).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, Macaronesia, Siberia, Russian Far East, Middle Asia, Caucasus, Western Asia, China, Mongolia, Eastern Asia, Indian Subcontinent(?), Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, South-Central USA, Southeastern USA, Mexico, Southern South America.

Cephaloziella subtilis (Lindenb. et Gottsche) Steph., *Hedwigia* 32(5): 318, 1893 (Stephani 1893a).

≡ *Jungermannia subtilis* Lindenb. et Gottsche, *Syn. Hepat.* 5: 685, 1847 (Gottsche et al. 1847). Type: Mexico.

COSTA RICA. **GUANACASTE:** La Cruz cantón, Guanacaste National Park, Sector Santa Elena, Playa Respingue, 10°53'22"N, 85°53'14"W, 0–50 m, 27 Aug 2003, *Dauphin & Grayum* 3271, det. Dauphin (CR, Dauphin 2005; Dauphin and Grayum 2005); La Cruz cantón, Guanacaste National Park, Sector Santa Elena, Playa Respingue, 10°53'22"N, 85°53'14"W, 0–50, 27 Aug 2003, *Dauphin & Grayum* 3272, det. Dauphin (CR, Dauphin 2005; Dauphin and Grayum 2005).

Also reported from Mexico.

***Cephaloziopsis* (Spruce) Schiffn., *Hepat.* (Engl.-Prantl): 85, 1893 (Schiffner 1893a).**

Cephaloziopsis intertexta (Gottsche) R.M.Schust., *Nova Hedwigia* 22: 183, 1972 (Schuster 1971b).

≡ *Jungermannia intertexta* Gottsche, *Syn. Hepat.* 1: 107, 1844 (Gottsche et al. 1844). Type: St. Kitts.

≡ *Cladopodiella intertexta* (Gottsche) Fulford., *Mem. New York Bot. Gard.* 11(3): 347, 1968 (Fulford 1968).

GUATEMALA. S. loc. (Schuster 1971b; Fulford 1987; León et al. 1998; Linares and Uribe 2002). **QUETZALTENANGO:** S. loc., *Standley* 6027 (F, Pérez 2009 as *Cladopodiella intertexta*); Zunil municipio, Fuentes Georgianas, slopes of Volcán de Zunil, 2,300–2,500 m, *Standley* 86027 (F, Fulford 1968 as *Cladopodiella intertexta*, 1976; Freire 2006 also as *Cladopodiella intertexta*; Pérez 2009); Zunil municipio, Fuentes Georgianas, slopes of Volcán de Zunil, 2,300–2,500 m, *Standley* 86028, 86052 (F, Fulford 1968 as *Cladopodiella intertexta*, 1976; Crandall 1969 as *Cladopodiella intertexta*; Freire 2006 also as *Cladopodiella intertexta*).

***HONDURAS.** ***CORTÉS:** San Pedro Sula municipio, Cusuco National Park, along Rio Cusuco, ~22 km W of San Pedro Sula, 15°31'N, 88°14'W, 18 Mar 1993, *Allen* 14084, det. Dauphin May 2017 (MO-5227622! <http://tropicos.org/specimen/90096774>, this publication); San Pedro Sula municipio, Cusuco National Park, along Rio Cusuco, ~22 km W of San Pedro Sula, 15°31'N, 88°14'W, 18 Mar 1993, *Allen* 14108, det. Dauphin May 2017 (MO-5227623! <http://tropicos.org/specimen/90096775>, this publication); San Pedro Sula municipio, from Rio Cusuco to Cerro Cantiles, 19 Mar 1993, *Allen* 14169, det. Dauphin May 2017 (MO-5227618! <https://tropicos.org/specimen/90096778>, this publication). ***YORO:** Cordillera Nombre de Dios, N slope between Rio Guán Guán and Quebrada Aguacatal, 15°30'N, 87°28'W, 6 Mar 1993, *Allen* 13663, det. Dauphin May 2017 (MO-5227630! <http://tropicos.org/specimen/90096767>, this publication).

COSTA RICA. **ALAJUELA:** San Carlos, Volcán Arenal, 14 Dec 1977, *Balász B/77/14/A*, det. Dauphin Jan 2017 (EGR, CR!, this publication); San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, Nov 2010, *Norris* 110080 (UC, Norris et al. 2017). **CARTAGO:** Paraíso cantón, Orosi, Tapantí National Park, *Griffin*

& Eakin 239 (FLAS, Morales 1991, Dauphin 2005). **GUANACASTE:** Liberia cantón, Rincón de La Vieja National park, Las Pailas, *Dauphin* 1861 (CR, Dauphin 2005). **PUNTARENAS:** Coto Brus cantón, Fila Cruces, Laguna Gamboa, 8°57'00"N, 83°04'20"W, *Dauphin* 1738 (CR, Dauphin 2005).

PANAMA. **VERAGUAS:** Santa Fe distrito, Rio Santa María, 8°32'N, 81°06'W, 400–450 m, 1 Apr 2006, *Schäfer-Verwimp & Verwimp* 30799/A (JE, Schäfer-Verwimp 2014).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

***Ceratolejeunea* (Spruce) Jack et Steph., *Hedwigia* 31(1): 16, 1892 (Jack and Stephani 1892).**

*****Ceratolejeunea brevinervis*** (Spruce) A.Evans, *Bull. Torrey Bot. Club* 32(6): 282, 1908 (Evans 1905a).

≡ *Lejeunea brevinervis* Spruce, *J. Linn. Soc., Bot.* 30(210): 342, 1895 (Gepp 1895). Type: Guadeloupe, Dominica.

?GUATEMALA. **?ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, Ramírez 2007 as *Ceratolejeunea* aff. *brevinervis*). Note: We are not aware of any positively identified specimen from Guatemala.

***COCOS I.** Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 21 Jan 1990, *Dauphin* 968 p.p., det. G. Dauphin Jan 2021 (USJ-47226!, CR-4468154!, this publication).

Also reported from the Caribbean, Western South America.

Ceratolejeunea ceratantha (Nees et Mont.) Schiffn., *Bot. Jahrb. Syst.* 23(5): 582, 1897 (Schiffner 1897).

≡ *Lejeunea ceratantha* Nees et Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 14: 335, 1840 (Montagne 1840). Type: French Guiana.

***HONDURAS.** ***COMAYAGUA:** San Juanillo, Cordillera de Montecillos Biological Reserve Forest, 14°30'N, 87°53'W, 1,700–2,000 m, 3 Jun 1993, *Liesner* 26780, det. Dauphin May 2017 (MO-5227805! <http://tropicos.org/specimen/801992>, this publication).

PANAMA. **COCLÉ:** La Pintada distrito, Corregimiento El Copé, Parque Nacional G. D. Omar Torrijos H., Sendero La Rana Dorada, 8°40'06"N, 80°35'26"W, 696 m, 31 Jul 2017, *Dauphin & Gudiño* 4485 p.p. (PMA, Dauphin et al. 2015).

Also reported from Southeastern USA, the Caribbean, Northern South America, Western South America, Brazil.

Ceratolejeunea coarina (Gottsche) Schiffn., *Hepat. (Engl.-Prantl)*: 125, 1893 (Schiffner 1893a).

≡ *Lejeunea coarina* Gottsche, *Syn. Hepat.* 3: 395, 1845 (Gottsche et al. 1845a). Type: Brazil.

≡ *Lejeunea plumula* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 201, 1884 (Spruce 1884), syn. fide Dauphin (2003). Type: Brazil.

≡ *Ceratolejeunea plumula* (Spruce) Steph., *Sp. Hepat. (Stephani)* 5: 433, 1913 (Stephani 1913).

***BELIZE.** ***TOLEDO:** Punta Gorda, *White* 54, det. Dauphin May 2017 (MO-5247759! <http://tropicos.org/specimen>

/90121015, **this publication**); Punta Gorda, Feb 1963, *White* 86, det. Dauphin May 2017 (MO-5247574!, **this publication**).

HONDURAS. S. loc. (Schäfer-Verwimp and Pócs 2009).

ATLÁNTIDA: Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 54841 (B, JE, Dauphin 2000, 2003).

***NICARAGUA.** ***ATLÁNTICO NORTE:** Siuna municipio, trail from Cerro El Inocente toward Cerro Saslaya, 13°46'N, 85°00–01'W, 8 Mar 1978, *Stevens* 6730 *p.p.*, det. Dauphin May 2017 (MO-6699909! <http://tropicos.org/specimen/100988663>, **this publication**). ***MATAGALPA:** La Dalia municipio, Macizos de Peñas Blancas, top and N slope of steep ridge SW of finca El Cielo, S of Rio Gusaneras, 13°15'N, 85°42'W, 16 Jan 1979, *Stevens* 11626 *p.p.*, det. Dauphin May 2017 (MO-6699921! <http://tropicos.org/specimen/100988643>, **this publication**).

COSTA RICA. S. loc. (Ilkui-Borges 2000; Bastos 2004; Schäfer-Verwimp and Pócs 2009). **ALAJUELA:** San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 5 Jul 2007, *Norris* 110166b (UC, Norris et al. 2017). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 32173, 91-88, 92-218, *etc.* (hb. Lücking, GOET, ULM, *Lücking* 1995, 1997, both as *Ceratolejeunea plumula*; Dauphin et al. 1998 as *Ceratolejeunea plumula*; Dauphin 2000, 2003, 2005). **PUNTARENAS:** Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (*Sonnleitner* et al. 2009); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 80–140 m (GOET, Wanek and Pörtl 2008 as *Ceratolejeunea plumula*); Osa cantón, Rincón, trail Boscosa to Cerro Chocuaco, 480 m, *Gradstein & Dauphin* 9315 (GOET, Dauphin 2000, 2003, 2005). ***SAN JOSÉ:** Moravia cantón, trail from La Ventana to Rio Hondura, 10°04'20"N, 84°59'00"W, 4 Sep 1990, *Kennedy & Solomon* 5493, det. Dauphin May 2017 (MO-5626890!, **this publication**).

PANAMA. ***BOCAS DEL TORO:** Bocas del Toro distrito, Dolphin Bay, 9°13'16.9"N, 82°13'03.0"W, 16 m, 15 Aug 2017, *Dauphin* 4616, det. Dauphin Aug 2017 (PMA, **this publication**). **COCLÉ:** La Pintada distrito, Cerro El Tigrero, 8°37'33"N, 80°41'18"W, 1,200 m, *Salazar Allen & Villarreal* 19031 (PMA, Dauphin et al. 2006); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Rio Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López* 686, 701, 715, *etc.* (PMA, *Sierra et al.* 2019a). **PANAMA WEST:** La Chorrera distrito, Barro Colorado Island, Bay East from Gross 5, 2003, *Dauphin* 3173 (CR, PMA, Dauphin et al. 2022); La Chorrera distrito, Barro Colorado, Shannon, 2003, *Dauphin* 3072 (CR, PMA, Dauphin et al. 2022). ***PANAMA:** Panamá distrito, Cerro Jefe, 4 Jan 1970, *Lewis* 7608, det. Dauphin May 2000 (MO-5139408!, **this publication**).

COCOS I. Bahía Yglesias, 0–20 m, Apr 1992, *Lücking* 456 (ULM, Bernecker-Lücking 2000 as *Ceratolejeunea plumula*); Bahía Yglesias, 0–20 m, Apr 1992, *Lücking* 462, 471 (USJ, Bernecker-Lücking 2000 as *Ceratolejeunea plumula*); Río Genio, 5°32'57"N, 87°03'56"W, 0–50 m, Apr 1992, *Lücking* 262, 520,

544 (ULM, USJ, Bernecker-Lücking 2000 as *Ceratolejeunea plumula*); S. loc. (Dauphin 1995, 1999 both as *Ceratolejeunea plumula*).

Also reported from West Tropical Africa, West-Central Tropical Africa, Western Indian Ocean, the Caribbean, Northern South America, Western South America, Brazil.

Ceratolejeunea confusa R.M.Schust., *J. Elisha Mitchell Sci. Soc.* 72(2): 313, 1956 (Schuster 1956a). Type: Trinidad.

GUATEMALA. **IZABAL:** Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007).

COSTA RICA. S. loc. (Gradstein and Costa 2003; Bastos 2004; Alvarenga et al. 2008; Mello et al. 2011; Campos et al. 2014; Costa 2017; Costa et al. 2017, 2020; Stotler and Crandall-Stotler 2017). **LIMÓN:** Talamanca cantón, Punta Uva, *Dauphin & Rodriguez-Huettmann* (NY, Dauphin 2000, 2003, 2005).

PANAMA. **BOCAS DEL TORO:** Bocas del Toro distrito, Dolphin Bay, 9°13'16.9"N, 82°13'03.0"W, 16 m, 15 Aug 2017, *Dauphin* 4612, det. Dauphin Aug 2017 (PMA, **this publication**); Bocas del Toro distrito, Dolphin Bay, 9°13'16.9"N, 82°13'03.0"W, 16 m, 15 Aug 2017, *Dauphin* 4614 (PMA, **this publication**); Dolphin Bay (9°13'14.7"N, 82°13'02.9"W), Aug 2017 (*Salazar Allen et al.* 2022); Tranquilo Bay Eco Adventure Lodge (9°15'23.1"N, 82°08'41.4"W) in Isla Bastimento (*Salazar Allen et al.* 2022).

COCOS I. Fila sobre Valle Wafer, 5°32'57"N, 87°03'36"W, 180 m, 26 Jan 1994, *Dauphin* 1080, det. G. Dauphin Apr 2021 (USJ-47191!, CR-4468414!, W-0207414! <https://w.jacq.org/W0207414>, **this publication**); S. loc., *Dauphin* 1080 (USJ, Dauphin 2000, 2003, 2005).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Ceratolejeunea cornuta (Lindenb.) Steph., *Pflanzenw. Ost-Afrikas* C: 65, 1895 (Stephani 1895c).

≡*Jungermannia cornuta* Lindenb., *Syn. hepat. eur.*: 23, 1829 (Lindenberg 1829). Type: Jamaica.

≡*Lejeunea involvens* Nees et Mont., *Ann. Sci. Nat., Bot.*, ser. 2, 14: 336, 1840 (Montagne 1840), syn. fide Dauphin (2003). Type: French Guiana.

≡*Ceratolejeunea involvens* (Nees et Mont.) Steph., *Sp. Hepat. (Stephani)* 5: 419, 1913 (Stephani 1913).

≡*Lejeunea variabilis* Lindenb., *Syn. Hepat.* 3: 399, 1845 (Gottsche et al. 1845a), syn. fide Dauphin (2003). Type: Saint Kitts.

≡*Ceratolejeunea variabilis* (Lindenb.) Pearson, *Forh. Vidensk.-Selsk. Kristiania* 1892(8): 8, 1892 (Pearson 1892).

≡*Lejeunea maritima* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 210, 1884 (Spruce 1884), syn. fide Dauphin (2005). Type: Brazil.

≡*Ceratolejeunea maritima* (Spruce) Steph., *Sp. Hepat. (Stephani)* 5: 423, 1913 (Stephani 1913).

≡*Lejeunea megalophysa* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 202 (Spruce 1884), syn. fide Dauphin (2003). Type: Brazil.

≡*Ceratolejeunea megalophysa* (Spruce) Steph., *Sp. Hepat. (Stephani)* 5: 425, 1913 (Stephani 1913).

=*Ceratolejeunea valida* Evans, *Bull. Torrey Bot. Club* 32(6): 280, 1905 (Evans 1905a), syn. fide Dauphin (2005). Type: Puerto Rico.

=*Ceratolejeunea spruceana* Zwickel, *Ann. Bryol.* 6: 108, 1933 (Zwickel 1933), syn. fide Dauphin (2003). Type: Brazil.

=*Ceratolejeunea lobata* L.Clark, *Proc. Calif. Acad. Sci.*, ser. 4, 27(18): 597, 1953 (Clark 1953a), syn. fide Dauphin (2003). Holotype: Costa Rica, Cocos Island, Wafer Bay, 28 Jun 1932, *Clark* 221 (CAS-372425, isotype MO-2201093 <http://tropicos.org/specimen/100323908>).

GUATEMALA. S. loc. (Bastos 2004). **ALTA VERAPAZ:** Panzós municipio, Cahabón and/or Senahú, 2012, *Pérez & López-Medina*, det. M. Pérez (*Pérez and López-Medina* 2012); Santa María Cahabón municipio, Secanquim, *Maxon & Hay* 3206 (US, *Dauphin* 2000, 2003; *Pérez* 2009); Tukurú municipio, Reserva Privada Chelemhá (*Pérez* 2006). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al.* 2005 also as *Ceratolejeunea valida*); S. loc., 2007, *Pérez*, det. Pérez (USCG, *Barillas de Klee et al.* 2008). **EL PETÉN:** San José municipio, El Zotz, *Can et al.* (USCG, *Morales* 2011 as *Ceratolejeunea* cf. *corniculata*) Note: We are not aware of any positively identified specimen from El Petén. **EL PROGRESO:** San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, *Ramírez* (USCG, *BIGU, Ramírez* 2007 as *Ceratolejeunea valida*). **IZABAL:** Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, *Ramírez* (USCG, *BIGU, Ramírez* 2007).

BELIZE. S. loc. (Jovet-Ast 1957 as *Ceratolejeunea megalophysa*). **CAYO:** Santa Teresa, *Steere* 2707 (hb. *Steere, Fulford* 1945 as *Ceratolejeunea megalophysa*); Southern Maya Mountains, Doyle's Delight, 16°48'45"N, 88°37'13"W, 1,140 m, 9 Dec 1993, *Allen* 15314, det. Dauphin Jun 2017 (MO-4421582! <http://tropicos.org/specimen/90019439>, *Whittemore and Allen* 1996 as *Ceratolejeunea maritima*). ***TOLEDO:** Columbia River Forest Reserve, Little Quartz Ridge, 16°23'58"N, 89°06'41"W, 970 m, 21 Feb 1997, *Allen* 19017, det. Dauphin Jun 2017 (MO-5221232! <https://tropicos.org/specimen/90078944>, *this publication*); Columbia River Forest Reserve, Union Camp, 16°23'54"N, 89°08'29"W, 650 m, 10 Feb 1997, *Allen* 18529, det. Dauphin Jun 2017 (MO-5141703! <https://tropicos.org/specimen/90078945>, *this publication*); S. loc. (*Whittemore and Allen* 1996 as *Ceratolejeunea megalophysa*).

HONDURAS. S. loc. (Jovet-Ast 1951 as *Ceratolejeunea maritima*, 1957 as *Ceratolejeunea maritima*, 1959 as *Ceratolejeunea megalophysa*, 1960 as *Ceratolejeunea maritima*; *Fulford* 1967 as *Ceratolejeunea maritima*, 1987; *Fulford and Sharp* 1990 as *Ceratolejeunea maritima*; *Lücking* 1995 as *Ceratolejeunea maritima*; *Bastos* 2004). **ATLÁNTIDA:** La Ceiba municipio, Pico Bonito National Park, 86°55'W, 15°40'N, 29 Dec 2001, *Dauphin & Ferrufino* 3004, det. Dauphin 2016 (CR!, *this publication*); Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 54584 (F, JE, *Fulford* 1945 as *Ceratolejeunea maritima*; *Herzog* 1951 as *Ceratolejeunea maritima*); Tela municipio, Lancetilla Valley, *Standley* 55629 (C, F, JE, *Fulford* 1945); Tela municipio, Lancetilla Valley,

Standley 54587 (B, *Dauphin* 2000, 2003); Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 54841 (B, JE, *Dauphin* 2000, 2003); Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 54841a (*Herzog* 1951 as *Ceratolejeunea spruceana*); Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 55207 (C, F, *Fulford* 1945; *Dauphin* 2000, 2003); Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 55626 (JE, C, *Fulford* 1945). **COMAYAGUA:** Siguatepeque municipio, 12 km NW of Siguatepeque, *Maas & Molina* 1049 (GOET, *Dauphin* 2000, 2003). ***COPÁN:** Copán municipio, Copan Ruinas, ~18 km N of Copan Ruinas, road to Agua Caliente at El Zapote, 14°58'N, 89°10'W, 900–1,000 m, 30 Apr 1996, *Allen* 17744, det. Dauphin May 2017 (MO-6230305! <https://tropicos.org/specimen/100367461>, *this publication*); **CORTÉS:** N of Lake Yojoa, *Morton* 7636j (US, *Dauphin* 2000, 2003); San Francisco de Yojoa municipio, Along Río Lindo, N of Lake Yojoa, *Morton* 7540a, 7851a (US, *Dauphin* 2000, 2003); San Pedro Sula municipio, Peña Blanca, *Tag* 29128 (US, 2000, *Dauphin* 2003).

EL SALVADOR. S. loc. (*Fulford and Sharp* 1990 as *Ceratolejeunea maritima* and *Ceratolejeunea variabilis*; *Lücking* 1995 as *Ceratolejeunea maritima*). ***MORAZÁN:** La Tejera municipio, calle a Sabanetas, 3 Dec 2008, *Búcaro* H109, det. Dauphin (MHES!, *this publication*). **SANTA ANA:** Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler* A/2/10, A/5/7, A/8/1, A/23/1, A/25/3, A/26/7 (*Winkler* 1967 as *Ceratolejeunea maritima*).

***NICARAGUA.** ***ATLÁNTICO SUR:** Nueva Guinea municipio, road from Río Blanco to Río Copalar, 12°52'30" N, 85°02'30" W, 13 Feb 1979, *Stevens* 12050, det. Dauphin May 2017 (MO-5238329! <http://tropicos.org/specimen/90108646>, *this publication*); Nueva Guinea municipio, road to Colonia Yolaina, 11°40'N, 84°26'W, 11–12 Feb 1978, *Stevens* 6326, det. Dauphin May 2017 (MO-5238557! <http://tropicos.org/specimen/90108891>, *this publication*). ***ESTELÍ:** Condega municipio, N Slope of Cerro El Fraile, 13°25'N, 86°15'–6'W, 28 Sep 1980, *Stevens & Montiel* 18129, det. Dauphin May 2017 (MO-5238373! <http://tropicos.org/specimen/90108649>, *this publication*).

COSTA RICA. Cordillera de Talamanca (*Holz* 2003; *Holz and Gradstein* 2005b); S. loc. (Jovet-Ast 1957 as *Ceratolejeunea maritima*, 1960 as *Ceratolejeunea maritima*; *Bonner* 1963b as *Ceratolejeunea involvens*; *Fulford* 1967 as *Ceratolejeunea maritima*, 1987 also as *Ceratolejeunea involvens*; *Cole* 1982 also as *Ceratolejeunea maritima*, 1983 also as *Ceratolejeunea maritima*; *Fulford and Sharp* 1990 as *Ceratolejeunea maritima*; *Bastos* 2004); S. loc., *Schäfer-Verwimp & Holz* SV/H-0285/A (JE, *Scheben et al.* 2016; *Sierra et al.* 2018b); S. loc., *Tonduz* 15551 (G-Stephani 15551, *Morales* 1991); S. loc., *Tonduz* (*Fulford* 1945). **ALAJUELA:** Río Cuatro cantón, Laguna Hule, *Dauphin & Gonzáles* 2138 (GOET, CR, *Dauphin* 2000, 2003, 2005); San Ramón cantón, Nectandra Cloud Forest, Quebrada Verde, *Norris* 110255, 110410, 111087c, 111095 (UC, *Norris et al.* 2017); San Ramón, *Brenes* 16206, 16215, 16255, 16261 (C, *Fulford* 1945 as *Ceratolejeunea maritima*; *Morales* 1991 as *Ceratolejeunea*

maritima). **CARTAGO**: Cerro de La Muerte, *King c1159b* (US, Dauphin 2000, 2003, 2005); Jiménez cantón, Río Naranjo, 200–250 m, Mar 1893, *Tonduz* (Hb. Cardot 1550, **Bonner 1953b** as *Ceratolejeunea involvens*; **Morales 1991** as *Ceratolejeunea involvens*); Paraíso cantón, Orosi, Tapantí, *Morales 1797 p.p.*, det. Morales (USJ, **Morales 1991** as *Ceratolejeunea valida*). **HEREDIA**: Sarapiquí cantón, Estación Biológica La Selva, sendero SUR, *Lücking 34242* (hb. Bernecker-Lücking, Dauphin 2000, 2003, 2005); Sarapiquí cantón, Estación Biológica La Selva, sendero SUR, *Lücking 97-10* (hb. Bernecker-Lücking, Dauphin 2000, 2003); Sarapiquí cantón, Horquetas cerca del Río Villalobos y Hotel Rara Avis, *Dauphin 2204* (GOET, CR, Dauphin 2000, 2003, 2005); Sarapiquí, *Lücking* (GOET, Dauphin 2000, 2003, 2005). **LIMÓN**: Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking 92-162, 92-179, 92-180, etc.* (hb. Lücking, Dauphin et al. 2006); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (*Lücking 1997* as *Ceratolejeunea maritima*); Pococí cantón, Chemin de Carrillo, versant atlantique, *Pittier & Biolley 6066* (PC, Dauphin 2000, 2003, 2005); Pococí cantón, Cuatro Esquinas de San Juan, *Dauphin et al. 1669* (GOET, CR, Dauphin 2000, 2003, 2005); Pococí cantón, Tortuga Lodge near Tortuguero, 21 Feb 1985, *Eggers CR 12/82* (Eggers et al. 2001 as *Ceratolejeunea cf. maritima* in specimen of *Cololejeunea guadelupensis*); Pococí cantón, Tortuguero, 10°31'N, 83°32'W, 2 Aug 1993, *Timme 11247b*, det. Dauphin Jun 2017 (MO-6690015! <https://tropicos.org/specimen/100860963>, **this publication**); Pococí cantón, Tortuguero, up to 5 km inland from Green Turtle station, *Steere CR-9, CR-143* (NY, Dauphin 2000, 2003, 2005). **PUNTARENAS**: Coto Brus cantón, Parque Internacional La Amistad, Camino Pittier-Altamira, *Dauphin 1650* (GOET, CR, Dauphin 2000, 2003, 2005); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (*Sonnleitner et al. 2009*); Monteverde cantón, John Campbell property, 10°18'N, 84°48'W, 1,500 m, 23 Mar 1992, *Lyon 439*, det. Dauphin Jun 2017 (MO-4411444! <https://tropicos.org/specimen/90029618>, **this publication**); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, *Gradstein 9480, 9486, 9506, 9553* (GOET, Dauphin 2000, 2003, 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, **Gradstein et al. 2001a** also as *Ceratolejeunea maritima*); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995 also as *Ceratolejeunea maritima*); Monteverde, Feb 1963, *James, W. 63B32*, det. Dauphin May 2017 (MO-6168137!, **this publication**); Monteverde, Feb 1963, *James, W. 63M-7B*, det. Dauphin May 2017 (MO-6168136!, **this publication**); Monteverde, 10 Jan 1965, *James, M. 31*, det. Robinson (MO-6161165!, **this publication**); Monteverde, 10 Jan 1965, *James, M. 31a* (R, **Reed and Robinson 1971**); Monteverde, 15 Jan 1965, *James, W. 40e*, det. Dauphin 2017 (MO-6168110!, R, **Reed and Robinson 1971**); Monteverde, 4,300 ft (1,310 m),

Feb 1969, *James, W. 1969-13*, det. Dauphin Jun 2017 (MO-6167471!, R, **Reed and Robinson 1971** as *Ceratolejeunea maritima*); Osa cantón, Osa Peninsula, Centro Boscosa, *Gradstein & Dauphin 9336, 9346* (GOET, USJ, Dauphin 2000, 2003, 2005); Osa cantón, Osa Peninsula, Rincón, Centro Boscosa, 150 m, Oct 1993, *Gradstein* (**Gradstein 1999b** as *Ceratolejeunea maritima*); Osa cantón, Santo Domingo de Golfo Dulce, *Tonduz* (Hb. Cardot 15551, **Bonner 1953b** as *Ceratolejeunea involvens*; **Morales 1991** as *Ceratolejeunea involvens*); S. loc. (**Merwin et al. 2001**). **SAN JOSÉ**: Atirro Esperanza, *Maas* (GOET, U, Dauphin 2005); Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, **Holz et al. 2002** as *Ceratolejeunea maritima*); Moravia cantón, Bajo de La Hondura, *Standley & Valerio 51842* (US, Dauphin 2005); Moravia cantón, Bajo de La Hondura, *Standley 51842* (US, Dauphin 2000, 2003); Moravia cantón, La Palma, *Griffin & Morales A57* (FLAS, **Morales 1991** as *Ceratolejeunea maritima*); Moravia cantón, La Palma, *Maas 844h* (GOET, U, Dauphin 2005); Moravia cantón, La Palma, 500–2,500 m, 17 Mar 1924, *Standley 37971 p.p.* (JE, S, **Herzog 1951** as *Ceratolejeunea variabilis*; **Morales 1991** as *Ceratolejeunea variabilis*).

PANAMA. Canal Zone (Schäfer-Verwimp 2014); S. loc. (Jovet-Ast 1951, 1957, 1960 all as *Ceratolejeunea maritima*; Fulford 1967 as *Ceratolejeunea maritima*, 1987 as *Ceratolejeunea variabilis*; Fulford and Sharp 1990 as *Ceratolejeunea maritima* and *Ceratolejeunea variabilis*; **Gradstein 1993** as *Ceratolejeunea maritima*; Lücking 1995 as *Ceratolejeunea maritima*; Stotler et al. 1998 as *Ceratolejeunea maritima*; Bastos 2004); S. loc., *Rottenberg 3* (GOET, Dauphin 2000, 2003); S. loc., *Schäfer-Verwimp & Verwimp 34172/B, 34271, 34748* (JE, **Scheben et al. 2016**; **Sierra et al. 2018b**). **BOCAS DEL TORO**: Bocas del Toro distrito, Bastimentos, Salt Creek, Sendero a Long Beach, 9.29456°N, 82.10303°W, 70 m, 16 Aug 2017, *Dauphin 4620*, det. Dauphin Aug 2017 (PMA, **this publication**); Bocas del Toro distrito, Bastimentos, Salt Creek, Sendero a Long Beach, 9.29456°N, 82.10303°W, 70 m, 16 Aug 2017, *Dauphin 4625*, det. Dauphin Aug 2017 (PMA, **this publication**); Salt Creek (9°17'39.7"N, 82°06'11.2"W) on Isla Bastimento, Aug 2017 (**Salazar Allen et al. 2022**). **CHIRIQUÍ**: Boquete distrito, Palo Alto, 1,300–1,400 m, *Salazar Allen et al. 751* (PMA, **Stotler et al. 1998** as *Ceratolejeunea megalophysa*); Bugaba distrito, Santa Marta, *Vinda 1517* (NY, PMA, **Stotler et al. 1998**; Dauphin 2000, 2003; Dauphin et al. 2006); Gualaca distrito, Fortuna Forest Reserve, NW of camping site, 1,000–1,200 m (**Salazar Allen et al. 2021**); Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (**Salazar Allen et al. 2021**); Gualaca distrito, Fortuna Forest Reserve, Quijada del Diablo, 1,200–1,600 m (**Salazar Allen et al. 2021**); Gualaca distrito, Fortuna Forest Reserve, SW of camping site, from Finca Pitti to foothills of Cerro Fortuna, 1,000–1,270 m (**Salazar Allen et al. 2021**); Gualaca distrito, Fortuna, Homitos, Camino en la Quijada del Diablo hacia el Río Chiriquí Viejo y la quebrada en el camino, *Salazar Allen et al. 6287* (GOET, U, Dauphin 2000, 2003; Dauphin et al. 2006); Gualaca distrito, Hornito, Fortuna,

- 1,000 m, *Salazar Allen et al.* 595, 615b, 616a, 662 (PMA, *Stotler et al.* 1998 as *Ceratolejeunea maritima*); S. loc. (Schäfer-Verwimp 2014); S. loc., *Miliou* 424 (G, *Bonner* 1953b as *Ceratolejeunea variabilis*; *Stotler et al.* 1998 as *Ceratolejeunea variabilis*); Tierras Altas distrito, El Hato, *Stern & Chambers* 70, 71 (PMA, *Stotler et al.* 1998 as *Ceratolejeunea maritima*). **COCLÉ**: Antón distrito, El Valle de Antón, Golden Frog Inn and near surroundings, 8°36.6'N, 80°06.6'W, 640–650 m, 7 Apr 2006, *Schäfer-Verwimp & Verwimp* 31038, 31058 (JE, *Schäfer-Verwimp* 2014); Antón distrito, El Valle de Antón, La Mesa, *Salazar Allen & Béliz* 1379 (NY, *Dauphin* 2000, 2003; *Dauphin et al.* 2006); Antón distrito, El Valle de Antón, La Mesa, *Salazar Allen et al.* 1379 (PMA, *Stotler et al.* 1998); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Río Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López* 662, 663, etc. (PMA, *Sierra et al.* 2019a). **COLÓN**: Chico Trail, Río Indio, *Steyermark & Allen* 17451 (MO, *Fulford* 1945 as *Ceratolejeunea maritima*; *Stotler et al.* 1998 as *Ceratolejeunea maritima*); Colón distrito, Quebrada Bonita, 70–80 m, 27 Dec 1934, *Steyermark & Allen* 17188, det. *Dauphin* Jun 2017 (MO-5139406! <https://tropicos.org/specimen/90076800>, this publication); Colón distrito, Tank Farm area or Gamboa Forest Preserve, N of Gamboa, *Welch* 20114 (NY, *Dauphin* 2000, 2003; *Dauphin et al.* 2006); Colón distrito, W of Quebrada Salamanca, 70 m, *Dodge et al.* 17092 (MO, *Stotler et al.* 1998 as *Ceratolejeunea megalophysa*); S. loc. (Schäfer-Verwimp 2014). **DARIÉN**: Cerro Pirre (*Stotler et al.* 1998 also as *Ceratolejeunea maritima*); Cerro Pirre, 400–500 m, *Salazar Allen & Gradstein* 9233 (PMA, *Stotler et al.* 1998); Cerro Pirre, 1,000–1,100 m, *Salazar Allen & Gradstein* 9246 (PMA, *Stotler et al.* 1998; *Dauphin et al.* 2006); Cerro Pirre, 1,200–1,300 m, *Salazar Allen & Gradstein* 9277 (PMA, GOET, U, *Stotler et al.* 1998 as *Ceratolejeunea maritima*; *Dauphin* 2000, 2003; *Dauphin et al.* 2006); Cerro Pirre, along trail to Rancho Mojado, 400–500 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992 as *Ceratolejeunea cf. maritima*); Chepigana distrito, Cerro Sapo, approach from Garachiné, *Hammel* 7249 (GOET, U, *Dauphin* 2000, 2003; *Dauphin et al.* 2006); Chepigana distrito, Guayabo Chiquito, *Stern & Chambers* 200 (MO, *Stotler et al.* 1998 as *Ceratolejeunea maritima*); Chepigana distrito, Punta Guayabo Grande y Punta Guayabo Chiquito, *Stern & Chambers* 206 (MO, *Stotler et al.* 1998 as *Ceratolejeunea maritima*); S. loc. (Schäfer-Verwimp 2014). **PANAMA WEST**: Capira distrito, Altos de Campana National Park, Sendero de Interpretación, 800–900 m, *Salazar Allen et al.* 6842 (PMA, *Stotler et al.* 1998); La Chorrera distrito, Barro Colorado Island, *Gradstein & Salazar Allen* 15072, 15142 (GOET, *Dauphin et al.* 2022); La Chorrera distrito, Barro Colorado Island, *Shattuck* 2CH (F, *Stotler et al.* 1998 as *Ceratolejeunea maritima*); La Chorrera distrito, Barro Colorado Island, Basilisk Bay, 2003, *Dauphin* 3162 (CR, PMA, *Dauphin et al.* 2022); La Chorrera distrito, Barro Colorado Island, Camino Lutz, *Shattuck* 568 p.p. (F, PMA, *Stotler et al.* 1998); La Chorrera distrito, Barro Colorado Island, Quebrada R. Shannon, *Marino* 9, 32 (PMA, *Stotler et al.* 1998; *Dauphin et al.* 2022); La Chorrera distrito, Barro Colorado Island, Shannon Creek and ridge top, 1 Dec 1990, *Marino & Salazar Allen* (STRI, *Marino and Salazar Allen* 1992); La Chorrera distrito, Barro Colorado, Laboratory Cove, 2003, *Dauphin* 3140 (CR, PMA, *Dauphin et al.* 2022). **PANAMA**: Panamá distrito, Cerro Jefe, *Salazar Allen & Gradstein* 9405 (PMA, *Stotler et al.* 1998 as *Ceratolejeunea maritima*; *Dauphin* 2000, 2003); Panamá distrito, Cerro Jefe, 2 km before the top of Cerro Jefe on the south side, *Martínez* 880 (PMA, *Stotler et al.* 1998 as *Ceratolejeunea maritima*); Panamá distrito, Cerro Jefe, behind INTEL tower northwards, *Salazar Allen & Chung* 5205 (GOET, U, *Dauphin* 2000, 2003; *Dauphin et al.* 2006); Panamá distrito, near summit of Cerro Jefe, ~1,000 m, 11 Jun 1987, *Salazar Allen & Gradstein* 280 (EGR, *Pócs* 2011); Panamá distrito, near summit of Cerro Jefe, 12 Jun 1991, *Salazar Allen & Gradstein* 9405, det. *Dauphin* Jun 2017 (MO-3955642!, B, F, GOET, U, *Dauphin et al.* 2006); Panamá distrito, Summit Experimental Garden, *Welch* 20057, 20153, 20174 (NY, *Dauphin* 2000, 2003; *Dauphin et al.* 2006); S. loc. (Schäfer-Verwimp 2014). **VERAGUAS**: Isla Canales de Tierra, Sendero camino a Ensenada Guabo, 7°45'N, 81°35'W, Jan 2002, *Salazar Allen et al.* 19960, 20061, 20110, 20113, det. G. *Dauphin* (PMA, *Salazar Allen and Chung* 2003, 2006); Isla Canales de Tierra, Sendero de la vía del tren hacia el laboratorio, 7°45'N, 81°35'W, Jan 2002, *Salazar Allen et al.* 20190, det. G. *Dauphin* (PMA, *Salazar Allen and Chung* 2003, 2006); Isla Canales de Tierra, Sendero de los tanques de reserva de agua, 7°45'N, 81°35'W, Jan 2002, *Salazar Allen et al.* 19926, det. G. *Dauphin* (PMA, *Salazar Allen and Chung* 2003, 2006); Isla Canales de Tierra, Sendero Punta, 7°45'N, 81°35'W, Jan 2002, *Salazar Allen et al.* 20126, det. G. *Dauphin* (PMA, *Salazar Allen and Chung* 2003, 2006); Santa Fe distrito, base of Cerro Tute, 8°30'N, 81°06'W, 710–890 m, 26 Mar 2009, *Schäfer-Verwimp & Verwimp* 34271 (JE, *Schäfer-Verwimp* 2014); Soná distrito, Región de Bahía Honda, Península de Punta Gorda, Jan 2002, *Wong* 608, 619, det. G. *Dauphin* (PMA, *Salazar Allen and Chung* 2003, 2006); Soná distrito, Región de Bahía Honda, Sendero de Manglarito hacia Playa Limón, Jan 2002, *Salazar Allen et al.* 20395, det. G. *Dauphin* (PMA, *Salazar Allen and Chung* 2003, 2006).
- COCOS I.** Boca Río Yglesias, 5°32'57"N, 87°03'56"W, 0–5 m, *Dauphin* 1140, det. G. *Dauphin* Apr 2021 (USJ-47962, CR-4468419!, W-0207415! <https://w.jacq.org/W0207415>, this publication); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 14 Feb 1994, *Dauphin* 971 (USJ, *Dauphin* 1995 as *Ceratolejeunea maritima*, 1999 as *Ceratolejeunea maritima*); Chatham bay, *Weber* 580 (GOET, U, *Dauphin* 2000, 2003, 2005); S. loc. (*Jovet-Ast* 1951 as *Ceratolejeunea maritima*; *Fosberg and Klawe* 1966 as *Ceratolejeunea lobata*; *Dauphin* 1995, 1999 both as *Ceratolejeunea lobata*); Wafer Bay, 28 Jun 1932, *Clark* 221 (CAS-372425, MO-2201093 <http://tropicos.org/specimen/100323908>, TYPE of *Ceratolejeunea lobata*, *Dauphin* 2000, 2003); Wafer Bay, 28 Jun 1932, *Howell* 227 p.p. (CAS, *Clark*

1953a as *Ceratolejeunea maritima*); Wafer Bay, 28 Jun 1932, Walton Clark 221 (CAS-372425, Clark 1953a as *Ceratolejeunea lobata*).

Also reported from West Tropical Africa, West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Western Indian Ocean, Indian Subcontinent, Malesia, Southwestern Pacific, Southeastern Pacific, Northwestern Pacific, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Ceratolejeunea cubensis (Mont.) Schiffn., *Hepat. (Engl.-Prantl)*: 125, 1893 (Schiffner 1893a).

≡ *Lejeunea cubensis* Mont., *Hist. Phys. Cuba, Bot., Pl. Cell.*: 481, 1842 (Montagne 1842b). Type: Cuba.

= *Ceratolejeunea guadelupensis* Steph., *Sp. Hepat. (Stephani)* 5: 415, 1913 (Stephani 1913), syn. fide Dauphin (2003). Type: Guadeloupe.

GUATEMALA. S. loc. (Schuster 1956a, 1980d; Fulford and Sharp 1990; Oliveira-e-Silva and Yano 2000); S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008). **EL PETÉN:** La Libertad, Lundell 2693 (SR, Fulford 1945). **ZACAPA:** Río Hondo, Caserio Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007 also as *Ceratolejeunea* aff. *cubensis*).

BELIZE. S. loc. (Fulford 1938; Frye and Clark 1947; Schuster 1956a, 1980d; Whittemore and Allen 1996).

***HONDURAS.** S. loc. (Oliveira-e-Silva and Yano 2000).

***ATLÁNTIDA:** La Ceiba municipio, Pico Bonito National Park, 86°55'W, 15°40'N, 29 Dec 2001, Dauphin & Ferrufino 3007 (CR!, this publication); La Ceiba municipio, Pico Bonito National Park, 86°55'W, 15°40'N, 29 Dec 2001, Dauphin & Ferrufino 3012 (CR!, this publication); La Ceiba municipio, Pico Bonito National Park, 86°55'W, 15°40'N, 29 Dec 2001, Dauphin & Ferrufino 3017 (CR!, this publication); La Ceiba municipio, Pico Bonito National Park, 86°55'W, 15°40'N, 29 Dec 2001, Dauphin & Ferrufino 3018 (CR!, this publication).

COSTA RICA. **ALAJUELA:** Poás National Park (Dauphin 2005); San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, Norris 110243 (UC, Norris et al. 2017). **HEREDIA:** San Isidro cantón, Yerba Buena, NE of San Isidro, 2,000 m, Standley 50010, 50049 (JE, Dauphin 2000, 2003); Sarapiquí cantón, Estación Biológica La Selva, sendero SUR, Lücking 97-11 (hb. Bernecker-Lücking, Dauphin 2000, 2003); Sarapiquí cantón, La Selva, Lücking 34273 (Dauphin 2005). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, Lücking 91-20, 92-23, 92-393 (hb. Lücking, Lücking 1995 as *Ceratolejeunea* cf. *guadalupensis*); Pococí cantón, Braulio Carrillo National Park, Botarrama, Lücking 92-578 (Dauphin 2000, 2003, 2005); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, Lücking (Lücking 1997 as *Ceratolejeunea* cf. *guadalupensis*); Pococí cantón, Cerro Tortuguero, Dauphin (Dauphin 2005). **PUNTARENAS:** Golfito cantón, Piedras Blancas National Park,

Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009).

PANAMA. S. loc. (Frye and Clark 1947; Schuster 1956a, 1980d; Fulford and Sharp 1990; Stotler et al. 1998; Oliveira-e-Silva and Yano 2000). **BOCAS DEL TORO:** Bocas del Toro distrito, Dolphin Bay, 9°13'16.9"N, 82°13'03.0"W, 16 m, 15 Aug 2017, Rojas-Carvajal A1, det. Dauphin Aug 2017 (PMA, this publication); Dolphin Bay (9°13'14.7"N, 82°13'02.9"W), Aug 2017 (Salazar Allen et al. 2022); Salt Creek (9°17'39.7"N, 82°06'11.2"W) on Isla Bastimento, Aug 2017 (Salazar Allen et al. 2022); Tranquilo Bay Eco Adventure Lodge (9°15'23.1"N, 82°08'41.4"W) in Isla Bastimento (Salazar Allen et al. 2022). **COCLÉ:** Antón distrito, River Antón, Hunter & Allen (MO, Fulford 1945; Stotler et al. 1998); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Rio Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, Sierra & López 672, 673, 692, 747, 823 (PMA, Sierra et al. 2019a). **COLÓN:** Colón distrito, Quebrada Bonita, 70–80 m, 20 Dec 1934, Dodge & Allen 8803, det. Dauphin May 2017 (MO-5139407! <https://tropicos.org/specimen/90066876>, this publication); Colón distrito, Tank Farm area or Gamboa Forest Preserve, N of Gamboa, Welch 20066 (NY, Dauphin 2000, 2003; Dauphin et al. 2006). **DARIÉN:** Cerro Pirre, Estación del INRENARE, 900 m, Salazar Allen & Gradstein 9212 (PMA, GOET, U, Dauphin 2000, 2003; Dauphin et al. 2006). **PANAMA WEST:** La Chorrera distrito, Barro Colorado Island, 9°09'N, 79°51'W, 20–170 m, Salazar Allen & Gradstein 15142 (GOET, Dauphin 2000, 2003; Dauphin et al. 2006); La Chorrera distrito, Barro Colorado Island, Brook 2 and 3, AVA and Zetek, Willis 5d, 7c, 30d, 54c, 54f (MO, Stotler et al. 1998; Dauphin et al. 2022). **PANAMA:** Chepo distrito, Sabana, Hunter & Allen (US, Dauphin et al. 2006); Chepo distrito, Sabana, 20 Jan 1935, Hunter & Allen, det. Dauphin Jun 2017 (MO-6168155!, this publication); Panamá distrito, Parque Municipal Summit (Canal Zone Experimental Gardens), 24 Jul 1950, Chickering (MICH, Crum and Arzeni 1953; Stotler et al. 1998); Panamá distrito, Summit Experimental Garden, Welch 20160, 20166 (NY, Dauphin 2000, 2003; Dauphin et al. 2006).

COCOS I. Fila sobre Valle Wafer, 5°32'57"N, 87°03'56"W, 180 m, 14 Feb 1994, Dauphin 1078 (USJ, Dauphin 1995, 1999); Río Genio, 5°32'57"N, 87°03'56"W, 80 m, 26 Jan 1994, Dauphin 1066, det. G. Dauphin Apr 2021 (USJ-47197!, CR-4468417!, W-0207416! <https://w.jacq.org/W0207416>, this publication); S. loc. (Dauphin 1995); Serranías al NE de la Isla, 5°32'57"N, 87°03'56"W, 200 m, 15 Feb 1994, Dauphin 1106 (USJ, GOET, Dauphin 1995, 1999, 2000, 2003, 2005; Dauphin et al. 1998).

Also reported from Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Ceratolejeunea desciscens (Sande Lac.) Schiffn., *Hepat. (Engl.-Prantl)*: 126, 1893 (Schiffner 1893a).

≡ *Lejeunea desciscens* Sande Lac., *Syn. Hepat. Jav.*: 107, 1857 (Sande Lacoste 1856). Type: Suriname.

GUATEMALA. **IZABAL:** Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007).

†**COSTA RICA.** †**CARTAGO:** Paraíso cantón, Orosi, Refugio de Fauna Silvestre Tapantí, *Morales* 2137 (USJ, *Morales* 1991). Note: Specimen is a misidentified *Ceratolejeunea globulifera* (G. Dauphin).

PANAMA. S. loc. (Gradstein 2021); **COCLÉ:** Antón distrito, El Valle de Antón, ascent to "India Dormida," 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, *Schäfer-Verwimp & Verwimp* 34136/C (JE, *Schäfer-Verwimp* 2014).

Also reported from Northern South America, Western South America, Brazil.

Ceratolejeunea fallax (Lehm. et Lindenb.) Bonner, *Candollea* 14: 189, 1953 (Bonner 1953b).

≡*Jungermannia fallax* Lehm. et Lindenb., *Nov. Stirp. Pug.* 5: 17, 1833 (Lehmann 1833). Type: Brazil.

≡*Lejeunea fallax* (Lehm. et Lindenb.) Gottsche, Lindenb. et Nees, *Syn. Hepat.* 3: 407, 1845 (Gottsche et al. 1845a).

=*Lejeunea brasiliensis* Gottsche, *Syn. Hepat.* 3: 398 (Gottsche et al. 1845a), syn. fide Dauphin (2003). Type: Brazil.

≡*Ceratolejeunea brasiliensis* (Gottsche) Steph., *Primit. Fl. Costar.*: 179, 1893 (Stephani 1893c).

=*Ceratolejeunea corniculata* Spruce ex Steph., *Spec. Hepat. (Stephani)* 5: 404, 1913 (Stephani 1913), syn. fide Dauphin (2003). Type: Brazil.

=*Ceratolejeunea fusilobula* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 149, 1951 (Herzog 1951), syn. fide Dauphin (2003). Lectotype (Söderström and Hentschel 2023: 5): Costa Rica, Viento Fresco, 1908, P. C. Standley 47806 p.p., "Typus! Unicum" (JE-04001125 <https://je.jacq.org/JE04001125>).

GUATEMALA. S. loc., 2007, *Pérez*, det. *Pérez* (USCG, *Bariillas de Klee et al.* 2008).

***BELIZE.** ***TOLEDO:** Columbia River Forest Reserve, 16°22'59"N, 89°07'18"W, 12 Feb 1997, *Allen* 18643, det. Dauphin Jun 2017 (MO-5141702! <http://tropicos.org/specimen/90078946>, *this publication*); Columbia River Forest Reserve, Little Quartz Ridge, 16°23'58"N, 89°06'41"W, 970 m, 21 Feb 1997, *Allen* 19017A, det. Dauphin Jun 2017 (MO-5141701! <http://tropicos.org/specimen/101411589>, *this publication*).

HONDURAS. S. loc. (Fulford 1987; Fulford and Sharp 1990). **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 55622a (*Herzog* 1951 as *Ceratolejeunea corniculata*). ***COMAYAGUA:** Rio Selguapa, ~4 km SE of Siguatopeque, 14°34'N, 87°48'W, 1,600 m, 8 May 1992, *Allen* 11780, det. Dauphin Jun 2017 (MO-5264279! <https://tropicos.org/specimen/90083707>, *this publication*). ***INTIBUCÁ:** S. loc., 17 Jul 1982, *Tag* 1982-208, det. Dauphin Jun 2017 (MO-6168162!, *this publication*).

COSTA RICA. S. loc. (Fulford 1987; Fulford and Sharp 1990). **ALAJUELA:** Alajuela cantón, Viento Fresco, 1,600–1,900 m, *Standley* 47806 p.p. (G, JE-04001125, **TYPE** of *Ceratolejeunea fusilobula*, *Herzog* 1951 as *Ceratolejeunea fusilobula*;

Morales 1991 as *Ceratolejeunea fusilobula*; Dauphin 2000, 2003); Alajuela cantón, Viento Fresco, 1,600–1,900 m, *Standley* 47806 (*Bonner* 1953b, 1963b, both as *Ceratolejeunea fusilobula*); San Ramón cantón, La Balsa, 10°11'N, 84°30'W, 1,050–1,150 m, 10 Sep 1979, *Stevens* 14254, det. Dauphin May 2017 (MO-5274319! <https://tropicos.org/specimen/90132329>, *this publication*); San Ramón cantón, Monteverde Cloud Forest Reserve, Refugio El Alemán, 10°18'N, 84°46–47'W, 1,600 m, 2 Apr 1992, *Lyon* 633, det. Dauphin May 2017 (MO-4411700! <https://tropicos.org/specimen/90028936>, *this publication*). **CARTAGO:** Jimenéz cantón, Pejibaye, ~900 m, *Standley* 46809 (JE, B, US, *Zwickel* 1932 as *Ceratolejeunea brasiliensis*). **GUANACASTE:** Liberia cantón, Guanacaste National Park, Sector Pitilla, Cerro Orosilito, *Dauphin* 1896 (CR, Dauphin 2005). **HEREDIA:** San Isidro cantón, Yerba Buena, NE of San Isidro, 2,000 m, *Standley* 50010, 50049 (JE, *Zwickel* 1932 as *Ceratolejeunea brasiliensis*). **PUNTARENAS:** Monteverde cantón, Monteverde Cloud Forest Preserve, 10°15'N, 84°45'W, 5 Aug 1993, *Timme* 11375, det. Dauphin Jun 2017 (MO-6690013! <https://tropicos.org/specimen/100861231>, *this publication*); Monteverde, *Gradstein* 9610 (GOET, Dauphin 2000, 2003, 2005); Osa cantón, Corcovado National Park, Sirena-Los Patos, *Kunz* (USJ, Dauphin 2000, 2003, 2005). **SAN JOSÉ:** Moravia cantón, Chemin a Carrillo, *Pittier & Biolley* (PC, *Morales* 1991; Dauphin 2000, 2003, 2005); Moravia cantón, Chemin a Carrillo, *Pittier* 6066 (*Stephani* 1893c as *Ceratolejeunea brasiliensis*; *Morales* 1991); Moravia cantón, Chemin de Carillo, versant Atlantique, 300 m, Nov 1890, *Biolley* (*Bonner* 1953b); Moravia cantón, La Palma, Jan 1960, *Horich* 275A, det. Dauphin May 2017 (MO-6168138!, *this publication*).

PANAMA. S. loc. (Fulford and Sharp 1990, Fulford 1987, Stotler et al. 1998); S. loc., *Rottenberg* 2 (GOET, Dauphin 2000, 2003). **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, NE of camping site, 900–1,200 m (*Salazar Allen et al.* 2021 as *Ceratolejeunea corniculata*); Barú Volcano National Park (*Rodríguez-Quiel et al.* 2022). **COCLÉ:** Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8'N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34262/E (JE, *Schäfer-Verwimp* 2014); Antón distrito, El Valle de Antón, La Mesa, 10 Aug 1971, *Spellman et al.* B116, det. Dauphin May 2017 (MO-2126682!, *this publication*); Antón distrito, El Valle de Antón, La Mesa, 900–930 m, 22 Jul 1976, *Croat* 37465B, det. Dauphin May 2017 (MO-5274369! <https://tropicos.org/specimen/90132430>, *this publication*). ***NGÄBE-BUGLÉ CO-MARCA:** Nole Duima distrito, Cerro Colorado Copper Mine, 13 Mar 1976, *Croat* 33221, det. Dauphin May 2017 (MO-2852734!, *this publication*). **PANAMA WEST:** La Chorrera distrito, Barro Colorado Island (Salazar Allen and Chung 2003 as *Ceratolejeunea corniculata*); La Chorrera distrito, Barro Colorado Island, *Shattuck* 568 p.p. (Dauphin et al. 2022 as *Ceratolejeunea corniculata*). **PANAMA:** Panamá distrito, near summit of

Cerro Jefe, 12 Jun 1991, *Salazar Allen & Gradstein* 9405, det. Dauphin Jun 2017 (MO-3955642!, B, F, GOET, U, **this publication**); S. loc. (Schäfer-Verwimp 2014).

COCOS I. Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 21 Jan 1990, *Dauphin* 971, det. G. Dauphin Apr 2021 (USJ-47181!, CR-4468426!, W-0207417! <https://w.jacq.org/W0207417>, **this publication**); S. loc. (Dauphin 2005; Salazar Allen and Chung 2003 as *Ceratolejeunea corniculata*); S. loc., *Stewart* 1354 p.p. (GOET, *Dauphin* 2000, 2003).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Ceratolejeunea filaria (Taylor) Steph., *Sp. Hepat. (Stephani)* 5: 412, 1913 (Stephani 1913).

≡ *Lejeunea filaria* Taylor, *Nouv. Stirp. Pug.* 8: 28, 1844 (Lehmann 1844). Type: Venezuela.

≡ *Lejeunea longicornis* Gottsche, *Syn. Hepat.* 3: 401, 1845 (Gottsche et al. 1845a), syn. fide Reiner-Drehwald (1999). Type: St. Kitts.

≡ *Colura longicornis* (Gottsche) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 402, 1877 (Trevisan 1877).

≡ *Ceratolejeunea longicornis* (Gottsche) Steph., *Sp. Hepat. (Stephani)* 5: 421, 1913 (Stephani 1913).

≡ *Lejeunea fastigiata* Spruce, *Mem. Torrey Bot. Club* 1: 123, 1890 (Spruce 1890), syn. fide Dauphin (2003). Type: Bolivia.

≡ *Ceratolejeunea fastigiata* (Spruce) Steph., *Sp. Hepat. (Stephani)* 5: 411, 1913 (Stephani 1913).

≡ *Ceratolejeunea schwaneckeii* Steph., *Hedwigia* 34(5): 237, 1895 (Stephani 1895c), syn. fide Dauphin (2003). Type: Puerto Rico.

≡ *Ceratolejeunea spinosa* var. *flagelliformis* Steph., *Hedwigia* 34(5): 238, 1895 (Stephani 1895c), syn. fide Dauphin (2003). Type: Martinique.

≡ *Ceratolejeunea flagelliformis* Fulford, *Bull. Torrey Bot. Club.* 71(6): 637, 1944 (Fulford 1944).

≡ *Ceratolejeunea spinosa* var. *costaricensis* Zwickel, *Beib. Bot. Centralbl.* 49: 610, 1932 (Zwickel 1932). Lectotype (Söderström and Hentschel 2023: 5): Costa Rica, La Hondura, province of San José, altitude 1,300–1,700 m, Mar 2–4, 1924, Standley 36412 (JE-04010817 <https://je.jacq.org/JE04010817>, isoelectotype US-00070810 <http://n2t.net/ark:/65665/3a2ee40c9-7fb7-4922-8e0d-63bf13d92362>).

≡ *Ceratolejeunea multiocellata* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 150, 1951 (Herzog 1951), syn. fide Dauphin (2003). Lectotype (Söderström and Hentschel 2023: 5): Costa Rica, Cartago, Pejivalle, 900 m, 7–8 Feb 1926, Standley & Valerio 46809 (JE-04002356 <https://je.jacq.org/JE04002356>, isoelectotypes JE-04007798 <https://je.jacq.org/JE04007798>, US-00070808 <http://n2t.net/ark:/65665/314bfd475-b8c1-4edc-8d0e-ea01f687a74c>).

***BELIZE.** ***CAYO:** Southern Maya Mountains, Doyle's Delight, 16°48'45"N, 88°37'13"W, 1,140 m, 9 Dec 1993, *Allen* 15314, det. Dauphin Jun 2017 (MO-4421582! <http://tropicos.org/specimen/90019439>, **this publication**).

HONDURAS. S. loc. (Stephani 1913 as *Ceratolejeunea longicornis*; Arnell 1959 as *Ceratolejeunea longicornis*; Winkler 1967 as *Ceratolejeunea multiocellata*). **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, 20–600 m, Standley 54380, 54388, 54584, 55629 (C, F, JE, *Dauphin* 2000, 2003). **COMAYAGUA:**

Siguatopeque municipio, El Achioté, *Yuncker et al.* 6639, 6644 (NY, *Dauphin* 2000, 2003).

EL SALVADOR. **CHALATENANGO:** Citalá municipio, Cayacuanca, *Winkler C/1* (Winkler 1967 as *Ceratolejeunea multiocellata*).

NICARAGUA. S. loc. (Bonner 1963b as *Ceratolejeunea longicornis* and *Colura longicornis*); S. loc., *Rothschub* (Bonner 1953b as *Ceratolejeunea longicornis*).

COSTA RICA. S. loc. (Jovet-Ast 1959 as *Ceratolejeunea flagelliformis*; Fulford et al. 1970, 1987, both as *Ceratolejeunea flagelliformis*; Fulford et al. 1970 as *Ceratolejeunea flagelliformis*; Schäfer-Verwimp 1999 as *Ceratolejeunea flagelliformis*).

ALAJUELA: Alajuela cantón, Viento Fresco, 1,600–1,900 m, Standley 47806 (Herzog 1951 as *Ceratolejeunea spinosa* var. *flagelliformis*; Morales 1991 as *Ceratolejeunea flagelliformis*; *Dauphin* 2000, 2003); San Ramón cantón, Alto de La Palma, Brenes 11765, 16218a, 19066, 19132, 20402 (C, Fulford 1945 as *Ceratolejeunea flagelliformis*; Morales 1991 as *Ceratolejeunea flagelliformis*); San Ramón cantón, Monteverde Cloud Forest Reserve, Refugio El Alemán, 10°18'N, 84°46'–47'W, 1,600 m, 2 Apr 1992, Lyon 652, det. Dauphin 2017 (MO-4411445! <https://tropicos.org/specimen/90029159>, **this publication**).

CARTAGO: El Guarco cantón, Cerro de La Muerte, 3 de Junio and surroundings, Gradstein & Mues 9689 (GOET, *Dauphin* 2000, 2003); Jiménez cantón, Pejivalle, 900 m, 7–8 Feb 1926, Standley & Valerio 46809 (JE-04002356 <https://je.jacq.org/JE04002356>, B, US, TYPE of *Ceratolejeunea multiocellata*, Herzog 1951 as *Ceratolejeunea multiocellata*; Bonner 1953b as *Ceratolejeunea multiocellata*; Morales 1991 as *Ceratolejeunea multiocellata*; *Dauphin* 2000, 2003); Jiménez cantón, Rio Naranjo (Dauphin 2005); Jiménez cantón, Rio Naranjo, Mar 1893, Tonduz (B, M, *Dauphin* 2000, 2003). **PUNTARENAS:** Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, Gradstein et al. (U, Sillett et al. 1995 as *Ceratolejeunea fastigiata*); Monteverde, James 31 (US, *Dauphin* 2000, 2003); Monteverde, 10 Jan 1965, James, M. 31, det. Robinson (MO-6161165!, *Dauphin* 2000, 2003); Monteverde, 15 Jan 1965, James, W. 40e, det. Dauphin 2017 (MO-6168110!, R, **this publication**); S. loc. (Merwin et al. 2001). **SAN JOSÉ:** Moravia cantón, La Hondura Bajo, 1,300–1,700 m, Standley 36412 (B, US, S, JE, Herzog 1951 as *Ceratolejeunea spinosa* var. *flagelliformis*, Morales 1991 as *Ceratolejeunea flagelliformis*; *Dauphin* 2000, 2003); Moravia cantón, La Hondura Bajo, Standley 37971 (US, *Dauphin* 2000, 2003); Moravia cantón, La Hondura, Standley 37691 (Morales 1991 as *Ceratolejeunea flagelliformis*; *Dauphin* 2000, 2003); Moravia cantón, La Hondura, 1,300–1,700 m, Standley 37961 (Herzog 1951 as *Ceratolejeunea spinosa* var. *flagelliformis*); Moravia cantón, La Palma, Maas 844 (GOET, U, *Dauphin* 2000, 2003); Moravia cantón, La Palma, 1,500 m, Valerio 35 (Herzog 1951 as *Ceratolejeunea spinosa* var. *flagelliformis*; Morales 1991 as *Ceratolejeunea flagelliformis*); Moravia cantón, La Palma, Bajo de La Hondura (Dauphin 2005); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 2,600–3,000 m (Dauphin 2005).

PANAMA. S. loc., *Schäfer-Verwimp & Verwimp* 34174, 34466, 34727 (JE, Scheben et al. 2016; Sierra et al. 2018b); S. loc., *Schäfer-Verwimp & Verwimp* 34215 (JE, Scheben et al. 2016; Sierra et al. 2018b; Zhu et al. 2018a, 2019). CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, SW of camping site, from Finca Pittí to foothills of Cerro Fortuna, 1,000–1,270 m (Salazar Allen et al. 2021); Gualaca distrito, Hornito, Fortuna, 1,000–1,200 m, Salazar Allen 2544 (PMA, Stotler et al. 1998 as *Ceratolejeunea flagelliformis*); S. loc. (Schäfer-Verwimp 2014). COCLÉ: Antón distrito, El Valle de Antón, Alto de La Mesa, 8°38.3'N, 82°07.6'W, 850–870 m, 3 Apr 2009, *Schäfer-Verwimp & Verwimp* 34727, 34732, 34740, 34744 (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8°N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34215 (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37'N, 80°07'W, 1,000 m, 26 Mar 2013, *Schäfer-Verwimp & Verwimp* 34215, det. Schäfer-Verwimp (MO-6690257! <https://tropicos.org/specimen/103070423>, JE, this publication); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Rio Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, Sierra & López 666, 668, 676, etc. (PMA, Sierra et al. 2019a). DARIÉN: Cerro Pirre (Stotler et al. 1998 as *Ceratolejeunea fastigiata*); Cerro Pirre, 1,000–1,100 m, Salazar Allen & Gradstein 9246 (PMA, Stotler et al. 1998 as *Ceratolejeunea fastigiata*; Dauphin 2000, 2003); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, Gradstein & Salazar Allen (PMA, U, Gradstein and Salazar Allen 1992 as *Ceratolejeunea fastigiata*); S. loc. (Schäfer-Verwimp 2014). PANAMA WEST: La Chorrera distrito, Barro Colorado Island, Zatek & Shattuck (Haynes 1933 as *Ceratolejeunea schwaneckeii*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Ceratolejeunea globulifera Herzog, *Rev. Bryol. Lichénol.* 13(1): 23, 1942 (Herzog 1942a). Type: Colombia.

?GUATEMALA. ?IZABAL: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008 as *Ceratolejeunea* cf. *globulifera*). Note: We are not aware of any positively identified specimens from Guatemala.

COSTA RICA. S. loc. (Linares and Uribe 2002; Gradstein and Uribe 2016; Gradstein 2021). ALAJUELA: San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 5 Jul 2007, Norris 110455 (UC, Norris et al. 2017). CARTAGO: Paraíso cantón, Orosi, Refugio de Fauna Silvestre Tapantí, Morales 2137 (USJ, Dauphin 2000, 2003, 2005).

Also reported from Western South America.

***Ceratolejeunea grandiloba* J.B. Jack et Steph., *Hedwigia* 31(1): 16, 1892 (Jack and Stephani 1892) subsp. *grandiloba*. Type: Colombia.

*COSTA RICA. *PUNTARENAS: Buenos Aires cantón, Cordillera de Talamanca, Cerro Hoffmann (on the Pacific/

Caribbean divide), 9°5.819'N, 82°58.687'W, 18 Feb 2012, Wilbraham CR12-302, det. G. Dauphin Sep 2020 (CR-5152110!, this publication).

Also reported from Northern South America, Western South America.

Ceratolejeunea guianensis (Nees et Mont.) Steph., *Sp. Hepat. (Stephani)* 5: 416, 1913 (Stephani 1913).

≡*Lejeunea guianensis* Nees et Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 14: 335, 1840 (Montagne 1840). Type: French Guiana.

*BELIZE. *CAYO: Mountain Pine Ridge Area along Mahogany Creek, ~5 km S of Augustine, 16°55'N, 89°00'W, 480 m, 9 Dec 1996, Allen 18211, det. Dauphin May 2017 (MO-5141710! <http://tropicos.org/specimen/90083701>, this publication).

HONDURAS. S. loc. (Fulford and Sharp 1990; Ilkiu-Borges 2000). ATLÁNTIDA: El Porvenir municipio, Pico Bonito National Park, E side of Rio Bonito, ~0.5 km from confluence with Quebrada Grande, 15°42'N, 86°51'W, 110 m, 12 Apr 1996, Allen 17243, det. Dauphin May 2017 (MO-6230306! <https://tropicos.org/specimen/100367460>, this publication); Tela municipio, Lancetilla Valley, Standley 54388, 55728 (C, F, Fulford 1945).

PANAMA. S. loc. (Frye and Clark 1947; Fulford and Sharp 1990; Ilkiu-Borges 2000). BOCAS DEL TORO: Bocas del Toro distrito, Dolphin Bay, 9°13'16.9"N, 82°13'03.0"W, 16 m, 15 Aug 2017, Gudiño 3350, det. Gudiño Aug 2017 (PMA, this publication); Dolphin Bay (9°13'14.7"N, 82°13'02.9"W), Aug 2017 (Salazar Allen et al. 2022). COCLÉ: La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Rio Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, Sierra & López 838 p.p. (PMA, Sierra et al. 2019a). PANAMA WEST: La Chorrera, Barro Colorado Island, Camino Lutz, Shattuck 568 p.p. (F, PMA, Fulford 1945). PANAMA: Panamá distrito, Parque Municipal Summit (Canal Zone Experimental Gardens), 24 Jul 1950, Chickering (MICH, Crum and Arzeni 1953; Stotler et al. 1998).

*COCOS I. S. loc., Soto, det. G. Dauphin Apr 2021 (USJ-47365!, this publication).

Also reported from Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Ceratolejeunea laetefusca (Austin) R.M. Schust., *J. Elisha Mitchell Sci. Soc.* 72(2): 306, 1956 (Schuster 1956a).

≡*Lejeunea laetefusca* Austin, *Bot. Bull. (Hanover)* 1(8): 36, 1876 (Austin 1876). Type: Florida.

=*Ceratolejeunea integrifolia* A. Evans, *Bull. Torrey Bot. Club* 38(6): 213, 1911 (Evans 1911b), syn. fide Schuster (1980c). Type: Bahamas.

=*Ceratolejeunea deficiens* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 148, 1951 (Herzog 1951), syn. fide Dauphin (2003). Lectotype (Dauphin 2003): Costa Rica, Guanacaste, vicinity of Tilarán, 500–650 m, 10–31 Jan 1926, Standley & Valerio 44392 (JE-04001122 <https://je.jacq.org/JE04001122>, isoelectotype US-00070803 <http://n2t.net/ark:/65665/321f74d78-ae3f-4927-8e55-2bb9cfe66bc6>).

GUATEMALA. IZABAL: Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007).

BELIZE. *CAYO: Las Cuevas Field Station, 16°44'N, 88°59'W, 550 m, 6 Dec 1996, *Allen* 18007, det. Dauphin Apr 2000 (MO-5141709! <http://tropicos.org/specimen/90083702>, **this publication**). **COROZAL:** Progreso Lagoon, *Balick et al.* 2208 (NY, *Dauphin* 2000, 2003). ***TOLEDO:** Columbia River Forest Reserve, 16°22'59"N, 89°07'18"W, 710 m, 12 Feb 1997, *Allen* 18643A, det. Dauphin May 2000 (MO-5221230! <http://tropicos.org/specimen/101411586>, **this publication**); Punta Gorda, Nov 1932, *White* 18, det. Dauphin May 2017 (MO-5247572! <https://tropicos.org/specimen/101411595>, **this publication**); Punta Gorda, Nov 1932, *White* 28, det. Dauphin May 2017 (MO-5247571! <http://tropicos.org/specimen/101411602>, **this publication**); Punta Gorda, Nov 1932, *White* 70c, det. Dauphin May 2017 (MO-5247567! <http://tropicos.org/specimen/101411604>, **this publication**); Punta Gorda, Feb 1933, *White* 105, det. Dauphin May 2017 (MO-5247573! <http://tropicos.org/specimen/101411605>, **this publication**).

HONDURAS. S. loc. (Bonner 1963b as *Ceratolejeunea deficiens*). **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, *Standley* 54380 p.p. (F, *Dauphin* 2000, 2003); Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 55622 (Bonner 1953b as *Ceratolejeunea deficiens*); Tela municipio, Lancetilla Valley, 20–600 m, Dec 1927–Mar 1928, *Standley* 55622 p.p. (JE, Herzog 1951 as *Ceratolejeunea deficiens*).

***NICARAGUA. *ATLÁNTICO NORTE:** Siuna municipio, along caño Majagua, 13°45'N, 85°00'30"W, 750–850 m, 10–11 Mar 1978, *Stevens* 6951 p.p., det. Dauphin May 2017 (MO-6699939! <http://tropicos.org/specimen/100988185>, **this publication**).

COSTA RICA. S. loc. (Bastos 2004). **ALAJUELA:** San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 5 Jul 2007, *Norris* 17207 (UC, *Norris et al.* 2017). **GUANACASTE:** La Cruz cantón, E slope of Volcán Orosí, 11°00'N, 85°30'W, 800 m, 8 May 1992, *Moran & Moran* 5823, det. Dauphin May 2017 (MO-3965748! <https://tropicos.org/specimen/767661>, **this publication**); La Cruz cantón, Guanacaste National Park, Volcán Orosí, Sendero Casafrán, *Dauphin* 2512 (CR, *Dauphin* 2005); Tilarán (Dauphin 2005); Tilarán cantón, El Silencio, 400–700 m, *Standley* 44392 (Herzog 1951 as *Ceratolejeunea deficiens*; Bonner 1953b, 1963b, both as *Ceratolejeunea deficiens*; Morales 1991 as *Ceratolejeunea deficiens*); Tilarán, 500–650 m, *Standley & Valerio* 44392 p.p. (JE, US, TYPE of *Ceratolejeunea deficiens*, *Dauphin* 2000, 2003); Tilarán, 500–650 m, *Standley* 44309 p.p. (Syntype, JE, Herzog 1951 as *Ceratolejeunea deficiens*; Bonner 1953b, 1963b, both as *Ceratolejeunea deficiens*; *Dauphin* 2000, 2003). **HEREDIA:** San Isidro cantón, Yerba Buena, NE of San Isidro, 2,000 m, *Standley* 50010 p.p. (*Dauphin* 2000, 2003 reidentified as *Ceratolejeunea cubensis* by G. Dauphin); San Isidro cantón, Yerba Buena, NE of San Isidro, 2,000 m, *Standley* 50010 (JE, Herzog 1951 as *Ceratolejeunea deficiens*; Bonner 1953b, 1963b, both as *Ceratolejeunea deficiens*; Morales 1991

as *Ceratolejeunea deficiens*, reidentified as *Ceratolejeunea cubensis* by G. Dauphin); San Isidro, Yerba Buena, NE of San Isidro, 2,000 m, *Standley* 50049 (JE, Herzog 1951 as *Ceratolejeunea deficiens*; Bonner 1953b, 1963b, both as *Ceratolejeunea deficiens*; Morales 1991 as *Ceratolejeunea deficiens*, reidentified as *Ceratolejeunea fallax* by G. Dauphin).

PANAMA. BOCAS DEL TORO: Bocas del Toro distrito, Dolphin Bay, 9°13'16.9"N, 82°13'03.0"W, 16 m, 15 Aug 2017, *Dauphin* 4607, det. Dauphin Aug 2017 (PMA, **this publication**); Bocas del Toro distrito, Dolphin Bay, 9°13'16.9"N, 82°13'03.0"W, 16 m, 15 Aug 2017, *Dauphin* 4617, det. Dauphin Aug 2017 (PMA, **this publication**); Bocas del Toro distrito, Dolphin Bay, 9°13'16.9"N, 82°13'03.0"W, 16 m, 15 Aug 2017, *Dauphin* 4618, det. Dauphin Aug 2017 (PMA, **this publication**); Dolphin Bay (9°13'14.7"N, 82°13'02.9"W), Aug 2017 (*Salazar Allen et al.* 2022). ***COLÓN:** Colón distrito, Pipeline road 4 km NW of Gamboa, 50 m, 23 Oct 1973, *Nee* 7547, det. Dauphin Jun 2017 (MO-5243734! <https://tropicos.org/specimen/90119103>, **this publication**). **DARIÉN:** Cerro Pirre (Stotler et al. 1998); Cerro Pirre, 900 m, *Salazar Allen & Gradstein* 9245 (PMA, *Stotler et al.* 1998); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992); Cerro Pirre, along trail to Rancho Mojado, 400–500 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992); Cerro Pirre, around INRENARE field station, ~100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992); Cerro Pirre, Estación del INRENARE, 900 m, *Salazar Allen & Gradstein* 9212 (PMA, GOET, U, *Stotler et al.* 1998). **PANAMA WEST:** La Chorrera distrito, Barro Colorado Island, *Shattuck* 568 p.p. (Haynes 1933 as *Ceratolejeunea integrifolia*; *Dauphin et al.* 2022); La Chorrera distrito, Barro Colorado Island, 7 Dec 1931, *Shattuck*, det. Dauphin Jun 2017 (MO-5247472!, **this publication**); La Chorrera distrito, Barro Colorado Island, *Shattuck* 4CH, 568 p.p. (F, PMA, *Stotler et al.* 1998); La Chorrera distrito, Barro Colorado, Fairchild, 2003, *Dauphin* 3052, 3075, 3103, 3134 (CR, PMA, *Dauphin et al.* 2022). ***PANAMA:** Panamá distrito, along River Chagres, between junction with River Pequeni and River Indio, 70 m, 5 Dec 1934, *Steyermark & Allen* 16802, det. Dauphin Jun 2017 (MO-5139405! <https://tropicos.org/specimen/90076803>, **this publication**); Panamá distrito, along River Chagres, between junction with River Pequeni and River Indio, 70 m, 5 Dec 1934, *Steyermark & Allen* 16809 p.p., det. Dauphin Jun 2017 (MO-6699928! <https://tropicos.org/specimen/100988579>, **this publication**).

***COCOS I.** Cerro Yglesias, 5°32'57"N, 87°03'36"W, 580 m, 22 Jan 1994, *Dauphin* 980, det. G. Dauphin Apr 2021 (USJ-47188!, CR-4468429!, W-0207423! <https://w.jacq.org/W0207423>, **this publication**); Fila al este de Bahía Chatham, 5°32'57"N, 87°03'56"W, 200 m, 10 Mar 1990, *Dauphin* 1189, det. G. Dauphin Mar 2021 (USJ-47187!, CR-4468420!, W!, **this publication**); Fila sobre Valle Wafer, 5°32'57"N, 87°03'56"W, 180 m, 25 Jan 1990, *Dauphin* 1077, det. G. Dauphin Apr 2021 (USJ-47190!, CR-4468421!, W!, **this publication**); Fila sobre Valle

Wafer, 5°32'57"N, 87°03'56"W, 180 m, 25 Jan 1990, *Dauphin* 1078, det. G. Dauphin Apr 2021 (USJ-47185!, CR-4468415!, W-0207420!, **this publication**); Fila sobre Valle Wafer, 5°32'57"N, 87°03'36"W, 180 m, 26 Jan 1994, *Dauphin* 1082, det. G. Dauphin Apr 2021 (USJ-47184!, CR-4468418!, W-0207419! <https://w.jacq.org/W0207419>, **this publication**); Serranías al NE de la Isla, 5°32'57"N, 87°03'36"W, 200 m, 30 Jan 1994, *Dauphin* 1106, det. G. Dauphin Apr 2021 (USJ-47179!, CR-4468416!, W-0207418! <https://w.jacq.org/W0207418>, **this publication**); Serranías al NE de la Isla, 5°32'57"N, 87°03'56"W, 200 m, 29 Jan 1990, *Dauphin* 1108, det. G. Dauphin Apr 2021 (USJ-47641!, CR-4468337!, **this publication**); Serranías al NE de la Isla, 5°32'57"N, 87°03'56"W, 200 m, 29 Jan 1990, *Dauphin* 1112, det. G. Dauphin Apr 2021 (USJ-47248!, CR-44688318!, **this publication**).

Also reported from Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Ceratolejeunea panamensis Fossatti, C.J.Bastos et A.R.Benitez, *Phytotaxa* 459(3): 248, 2020 (Fossatti et al. 2020). Holotype: Panama. Chiriquí: Parque Internacional La Amistad (PILA), Tierras Altas, 8°53'4.21"N, 82°36'59.7"W, 2,665 m, on canopy branches of *Alnus acuminata* Kunth in montane rainforest, 17 Sep 2018, *I. Fossatti* 001 (UCH).

PANAMA. CHIRIQUÍ: Tierras Altas distrito, Parque Internacional La Amistad, 8°53'4.21"N, 82°36'59.7"W, 2,665 m, 17 Sep 2018, *Fossatti* 001 (UCH, TYPE, Fossatti et al. 2020; Söderström et al. 2022a).

Not found outside Central America.

Ceratolejeunea patentissima (Hampe et Gottsche) A.Evans, *Bull. Torrey Bot. Club* 32(6): 286, 1905 (Evans 1905a).

≡ *Lejeunea patentissima* Hampe et Gottsche, *Limnaea* 25(3): 355, 1853 (Hampe and Gottsche 1852). Type: Puerto Rico.

COSTA RICA. S. loc. (Lavocat Bernard et al. 2009; Schäfer-Verwimp and Pócs 2009; Schäfer-Verwimp et al. 2013). GUANACASTE: Liberia cantón, Guanacaste National Park, Sector Volcán Cacao, 10°55'43"N, 85°28'10"W, *Alverson & Dauphin* 2875 (CR, *Dauphin* 2005). PUNTARENAS: Osa cantón, Península de Osa, Cerro Chocuaco, 450 m, *Gradstein & Dauphin* 9333b (GOET, U, USJ, *Gradstein et al.* 1994; *Dauphin* 2000, 2003, 2005; Scheben et al. 2016; Sierra et al. 2018b); S. loc. (Merwin et al. 2001).

PANAMA. S. loc., *Gradstein & Salazar Allen* 9249d (JE, *Dauphin* 2000, 2003); S. loc., *Salazar Allen & Gradstein* (JE, *Dauphin et al.* 2006). COCLÉ: La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Rio Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López* 722 p.p. (PMA, *Sierra et al.* 2019a). DARIÉN: Cerro Pirre, along trail to Rancho Mojado, 400–500 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992). *PANAMA: Panamá distrito, 4.5 km N of Lago Cerro Azul, vicinity of Finca Vega, 675 m, 17 Sep 1973, *Nee* 7016, det. Dauphin May 2016 (MO-5228021! <https://tropicos.org/specimen/90102777>, **this publication**).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Ceratolejeunea pungens Steph., *Sp. Hepat. (Stephani)* 5: 434, 1913 (Stephani 1913). Type: Ecuador.

PANAMA. VERAGUAS: Santa Fe distrito, Cerro Los Gringos, Alto de Piedra, 1 May 2005, *I. Ramírez* 146 (PMA, *Dauphin* 2007).

Also reported from Western South America.

Ceratolejeunea rubiginosa Steph., *Hedwigia* 34(5): 237, 1895 (Stephani 1895c). Type: Cuba.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 507 (USCG, *Freire et al.* 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al.* 2005). HUEHUETENANGO: S. loc., 2007, *Pérez*, det. Pérez (USCG, *Barillas de Klee et al.* 2008). ZACAPA: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007).

COSTA RICA. S. loc. (Linares and Uribe 2002; Lavocat Bernard et al. 2009; Schäfer-Verwimp and Van Melick 2016; Stotler and Crandall-Stotler 2017; Sierra et al. 2019b; Gradstein 2021). ALAJUELA: San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 5 Jul 2007, *Norris* 110513 (UC, *Norris et al.* 2017). HEREDIA: Sarapiquí cantón, La Selva, *Lücking* 97-9 (*Dauphin* 2000, 2003, 2005).

COCOS I. Bahía Yglesias, 0–20 m, Apr 1992, *Lücking* 464 (USJ, *Bernecker-Lücking* 2000); Entre Chatham y Wafer, 5°32'57"N, 87°03'36"W, 220 m, *Dauphin* 1121, det. G. Dauphin Apr 2021 (USJ-47182!, CR-4468735!, W-0207425! <https://w.jacq.org/W0207425>, **this publication**); Fila sobre Valle Wafer, 5°32'57"N, 87°03'56"W, 180 m, 25 Jan 1990, *Dauphin* 1076, det. G. Dauphin Apr 2021 (USJ-47180!, CR-4468428!, W!, **this publication**); Fila sobre Valle Wafer, 5°32'57"N, 87°03'56"W, 180 m, 15 Feb 1994, *Dauphin* 1076 (USJ, *Dauphin* 1995, 1999, 2000, 2003, 2005); Río Genio, 5°32'57"N, 87°03'56"W, 10 m, 25 Jan 1990, *Dauphin* 1054.2, det. G. Dauphin Jan 2021 (USJ-47222!, CR-4468295!, **this publication**); Río Genio, 5°32'57"N, 87°03'36"W, 10 m, 26 Jan 1994, *Dauphin* 1055, det. G. Dauphin Apr 2021 (USJ-47186!, CR-4468427!, W-0207427! <https://w.jacq.org/W0207427>, **this publication**); Río Genio, 5°32'57"N, 87°03'56"W, 0–50 m, Apr 1992, *Lücking* 509 (ULM, *Bernecker-Lücking* 2000); Río Genio, 5°32'57"N, 87°03'56"W, 10 m, 15 Feb 1994, *Dauphin* 1055 (USJ, *Dauphin* 1995, 1999, 2000, 2003, 2005); S. loc. (Lavocat Bernard et al. 2009; Schäfer-Verwimp and Van Melick 2016; Stotler and Crandall-Stotler 2017); S. loc., *Dauphin* 1121 (USJ, *Dauphin* 2000, 2003, 2005); S. loc., *Stewart* 1354 p.p. (GOET, *Dauphin* 2000, 2003, 2005); Yglesias B, 150–250 m, Apr 1992, *Lücking* 292 (hb. *Bernecker, Bernecker-Lücking* 2000).

Also reported from Mexico(?), the Caribbean, Northern South America, Western South America, Brazil.

Ceratolejeunea spinosa (Gottsche) Steph., *Hedwigia* 34(5): 238, 1895 (Stephani 1895c).

≡ *Lejeunea spinosa* Gottsche, *Syn. Hepat.* 3: 402, 1845 (Gottsche et al. 1845a). Type: Saint Kitts.

?GUATEMALA. ?EL PROGRESO: San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007 as *Ceratolejeunea* aff. *spinosa*). ?ZACAPA: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007 as *Ceratolejeunea* aff. *spinosa*). Note: We are not aware of any positively identified specimen from Guatemala.

*HONDURAS. *ATLÁNTIDA: La Ceiba municipio, Pico Bonito National Park, 86°55'W, 15°40'N, 200–400, 29 Dec 2001, Dauphin & Ferrufino 3011 (CR!, this publication).

COSTA RICA. S. loc. (Fulford 1987; Gradstein and Uribe 2016; Sierra et al. 2019b); S. loc., *Schäfer-Verwimp & Holz SV/H-0485* (JE, Scheben et al. 2016; Sierra et al. 2018b). ALAJUELA: San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 5 Jul 2007, Norris 110278 (UC, Norris et al. 2017); San Ramón cantón, Los Ángeles, Brenes 14857 (C, Fulford 1945; Morales 1991). HEREDIA: Sarapiquí cantón, Finca el Plástico, Sendero el Tigre, Dauphin 2172, 2174 (CR, GOET, Dauphin 2000, 2003, 2005). LIMÓN: Pococí cantón, Braulio Carrillo National Park, Botarrama trail, Lücking 92-594 (Dauphin 2000, 2003, 2005). PUNTARENAS: Monteverde, 480–600 m, James, W. 1971-34 (MO-616145, Dauphin 2000, 2003, 2005).

PANAMA. S. loc. (Sierra et al. 2019b). CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve (Salazar Allen et al. 2021); Gualaca distrito, Hornito, Fortuna, Spörle (PMA, Stotler et al. 1998). DARIÉN: Cerro Pirre (Stotler et al. 1998); Cerro Pirre, Salazar Allen & Gradstein 9232, 9278, 9300 (GOET, Dauphin 2000, 2003; Dauphin et al. 2006); Cerro Pirre, along trail to Rancho Mojado, 400–500 m, 4–8 Jun 1991, Gradstein & Salazar Allen (PMA, U, Gradstein and Salazar Allen 1992); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, Gradstein & Salazar Allen (PMA, U, Gradstein and Salazar Allen 1992). VERAGUAS: Santa Fe distrito, Escuela Agrícola Alto Piedra, Antonio 3945b (GOET, Dauphin 2000, 2003; Dauphin et al. 2006).

*COCOS I. Cerro Pelón, 5°32'57"N, 87°03'56"W, 400 m, Dauphin 1146 p.p., det. G. Dauphin Nov 2020 (CR!, this publication); Cerro Pelón, 5°32'57"N, 87°03'56"W, 400 m, 9 Feb 1994, Dauphin 1146 p.p., det. G. Dauphin Nov 2020 (CR!, this publication); S. loc. (Dauphin 1995).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

***Cheilolejeunea* (Spruce) Steph., Bot. Gaz. 15(11): 284, 1890 (Stephani 1890d).**

Cheilolejeunea acutangula (Nees) Grolle, *J. Hattori Bot. Lab.* 45: 173, 1979 (Grolle 1979a).

≡ *Jungermannia acutangula* Nees, *Fl. Bras. (Martius)* 1(1): 357, 1833 (Nees 1833b). Type: Brazil.

= *Lejeunea choachina* Gottsche, *Ann. Sci. Nat. Bot.*, sér. 5, 1: 156, 1864 (Gottsche 1864), syn. fide Gradstein and Bastos (2021). Type: Colombia.

≡ *Cheilolejeunea choachina* (Gottsche) Gradst., *Mem. New York Bot. Gard.* 84: 69, 1999 (Gradstein 1999a).

GUATEMALA. ALTA VERAPAZ: Cobán, Las Victorias National Park, 600 m, 2002 (Andersohn 2004). HUEHUETE-NANGO: S. loc., Pérez 1209 (USCG, Pérez 2009).

COSTA RICA. SAN JOSÉ: Dota cantón, San Gerardo, 2,100–2,150 m, *Schäfer-Verwimp & Holz SV/H-0246/B* (hb. Schäfer-Verwimp, Gradstein and Bastos 2021); Dota cantón, San Gerardo, 2,100–2,150 m, *Schäfer-Verwimp & Holz SV/H-0261/B* (hb. Schäfer-Verwimp, Gradstein and Bastos 2021); [Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), *Schäfer-Verwimp & Holz SV/H-0161/A* (M, Heinrichs et al. 2014b as *Cheilolejeunea choachina*; Schäfer-Verwimp et al. 2014 as *Cheilolejeunea choachina*; rejected as *Cheilolejeunea lobulata* by Gradstein and Bastos 2021)].

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, foothills of Cerro Pinola, 1,280–2,000 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, NW of camping site, 1,000–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Hornito, Fortuna, 1,000–1,200 m, Salazar Allen et al. 560 p.p. (PMA, Stotler et al. 1998); Barú Volcano National Park (Rodríguez-Quiel et al. 2022). COLÓN: Portobelo distrito, Playa Langosta, Salazar Allen 868 (PMA, Stotler et al. 1998).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Cheilolejeunea adnata (Kunze ex Lehm.) Grolle, *J. Bryol.* 9(4): 529, 1978 (Grolle 1977b).

≡ *Jungermannia adnata* Kunze ex Lehm., *Nov. Stirp. Pug.* 6: 46, 1834 (Lehmann 1834). Type: Cuba.

≡ *Pycnolejeunea adnata* (Kunze ex Lehm.) Steph., *Sp. Hepat. (Stephani)* 5: 612, 1914 (Stephani 1914).

= *Lejeunea decidua* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 257, 1884 (Spruce 1884), syn. fide Grolle (1977b). Type: Brazil.

≡ *Cheilolejeunea decidua* (Spruce) A. Evans, *Bull. Torrey Bot. Club* 32(4): 188, 1905 (Evans 1905b).

GUATEMALA. ALTA VERAPAZ: Cobán, Las Victorias National Park, 600 m, 2002 (Andersohn 2004).

*BELIZE. *BELIZE: Tropical Education Center Mile 28–29 on Western Highway, 17°21'N, 88°32'W, 10 m, 5 Dec 1996, Allen 18001, det. Dauphin Jun 2017 (MO-5228024! <http://tropicos.org/specimen/90102218>, this publication). TOLEDO: Punta Gorda, Feb 1932, det. Dauphin May 2017 (MO-5223878! <http://tropicos.org/specimen/90093885>, this publication).

HONDURAS. S. loc. (Jovet-Ast 1957 as *Cheilolejeunea decidua*). ATLÁNTIDA: Tela municipio, Lancetilla Valley, 20–600 m, Standley 54369, 54380, 55128, etc. (F, Herzog 1951 as *Pycnolejeunea adnata* and *Cheilolejeunea decidua*).

*EL SALVADOR. *SAN SALVADOR: Nejapa municipio, El Boquerón, 8 Apr 2010, Búcaro H110, det. Dauphin 2016 (MHES!, this publication); Nejapa municipio, El Boquerón,

8 Apr 2010, *Búcaro H111*, det. Dauphin 2016 (MHES!, [this publication](#)).

***NICARAGUA**. ***ATLÁNTICO NORTE**: Siuna municipio, road from Siuna to El Dos, 13°46'N, 84°47'W, 12 Dec 1980, *Stevens 18721*, det. Dauphin May 2017 (MO-5238368! <http://tropicos.org/specimen/90108645>, [this publication](#)). ***CHONTALES**: Cuapa municipio, road between Rio Bizcocho and Rio el Jordan, 12°15'N, 85°16'W, 18 Dec 1983, *Stevens 22594B p.p.*, det. Dauphin May 2017 (MO-6699910! <http://tropicos.org/specimen/100988664>, [this publication](#)). ***GRANADA**: Granada municipio, W slope of Volcán Mombacho, 11°49–50'N, 85°58'W, 1 Oct 1977, *Stevens 4384 p.p.*, det. Dauphin May 2017 (MO-6699914! <http://tropicos.org/specimen/100988657>, [this publication](#)).

COSTA RICA. S. loc. (Schäfer-Verwimp 1999). ?**GUANACASTE**: La Cruz cantón, Guanacaste National Park, Cerros Santa Elena, 10°53'24"N, 85°50'55"W, 650–700, 27 Aug 2003, *Dauphin et al. 3310* (CR, Dauphin and Grayum 2005 as *Cheilolejeunea cf. adnata*). Note: We are not aware of any positively identified specimen from Guanacaste. **LIMÓN**: Pococí cantón, Braulio Carrillo National Park, Botarrama trail (Dauphin 2005); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking 91-142* (hb. Lücking, *Lücking 1995*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking (Lücking 1997)*; Pococí cantón, Tortuguero, 2 Aug 1993, *Timme 11275*, det. Dauphin Jun 2017 (MO-6690014! <https://tropicos.org/specimen/100861269>, [this publication](#)). **PUNTARENAS**: Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, Lee's Tract, 10 Nov 1970, *James 1970-46*, det. Dauphin Jun 2017 (MO-6168135!, [this publication](#)); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, *Gradstein et al. (U, Sillett et al. 1995)*; Monteverde, 6 Nov 1970, *James 1970-25*, det. Dauphin Jun 2017 (MO-6163050!, [this publication](#)); Osa cantón, Osa Peninsula, Rincón, trail Boscosa to Cerro Chocuaco, 300 m, *Gradstein & Dauphin 9317* (U, USJ, *Gradstein et al. 1994*); S. loc. (*Merwin et al. 2001*).

PANAMA. S. loc. (Jovet-Ast 1957 as *Cheilolejeunea decidua*; Stotler et al. 1998). **BOCAS DEL TORO**: Bocas del Toro distrito, Dolphin Bay, 9°13'16.9"N, 82°13'03.0"W, 16 m, 15 Aug 2017, *Caswell-Levy 1036*, det. Caswell-Levy Aug 2017 (PMA, [this publication](#)); Dolphin Bay (9°13'14.7"N, 82°13'02.9"W), Aug 2017 (*Salazar Allen et al. 2022*). ***CHIRIQUÍ**: Gualaca distrito, Reserva Forestal Fortuna, road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 29 Mar 2013, *Schäfer-Verwimp 34355*, det. Dauphin Jun 2017 (MO-6690270!, [this publication](#)). **PANAMA WEST**: Chepo distrito, Bayano Lake, Maje Island, *Salazar Allen 733* (PMA, *Stotler et al. 1998*); La Chorrera distrito, Barro Colorado Island, 1 Aug 1950, *Chickering (MICH, Crum and Arzeni 1953 as Cheilolejeunea decidua; Stotler et al. 1998)*; La Chorrera distrito, Barro Colorado Island, *Gradstein & Salazar Allen 1542a (Dauphin et al. 2022)*; La Chorrera distrito, Barro Colorado Island, Camino F. Miller 24–25, *Salazar Allen & Chung 4508* (PMA,

Stotler et al. 1998; Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, near laboratory, *Salazar Allen & Chung 4728* (PMA, *Stotler et al. 1998; Dauphin et al. 2022*).

COCOS I. Bahía Yglesias, Feb 1976, *Gómez-Pignataro 6579 p.p.*, det. Dauphin May 2017 (MO-6699948!, [this publication](#)); Fila entre Bahía Wafer y Chatham, sobre ladera que va hacia Bahía Weston, 5°32'54.8"N, 87°03'11.4"W, 216 m, *Estrada et al. 6135 p.p.*, det. G. Dauphin May 2021 (CR-4468338!, [this publication](#)); Río Genio, 5°32'57"N, 87°03'56"W, 0–10 m, *Dauphin 1069*, det. G. Dauphin Mar 2021 (USJ-47224!, CR!, W!, [this publication](#)); Río Genio, 5°32'57"N, 87°03'56"W, 0–10 m, *Dauphin 924*, det. G. Dauphin Mar 2021 (USJ-47225!, CR-4468334!, W!, [this publication](#)); Río Genio, 5°32'57"N, 87°03'56"W, 0–50 m, *Lücking 92-284* (USJ, *Dauphin 1995, 1999, 2005*); Río Genio, 5°32'57"N, 87°03'56"W, 0–50 m, Apr 1992, *Lücking 284* (USJ, *Bernecker-Lücking 2000*); S. loc. (Fosberg and Klawe 1966 as *Cheilolejeunea decidua*); S. loc., 1966, *Fosberg & Klawe* (Morales 1991 as *Cheilolejeunea decidua*); Wafer Bay, 28 Jun 1932, *Howell 226 p.p.*, 227, 277, etc. (CAS, *Clark 1953a as Cheilolejeunea decidua*); Yglesias C, 250–350 m, Apr 1992, *Lücking 285* (hb. Bernecker, *Bernecker-Lücking 2000*).

Also reported from Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Cheilolejeunea aneogyna (Spruce) A. Evans, *Trans. Connecticut Acad. Arts* 10(8): 440, 1900 (Evans 1900a).

≡ *Lejeunea aneogyna* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 254, 1884 (Spruce 1884). Type: Venezuela.

***BELIZE**. ***TOLEDO**: Punta Gorda, det. Dauphin May 2017 (MO-5223877! <http://tropicos.org/specimen/90093900> in packet with *Pycnolejeunea macroloba*, [this publication](#)).

***NICARAGUA**. ***BOACO**: Camoapa municipio, 5 km N of El Zancudo empalme, road from Cuapa to Camoapa, 12°20'02"N, 85°23'57"W, 535 m, 10 Dec 2012, *Stevens 33360 p.p.*, det. Dauphin May 2017 (MO-6699936! <http://tropicos.org/specimen/100988173>, [this publication](#)).

PANAMA. S. loc. (Schäfer-Verwimp and Van Melick 2016; Bastos 2017). **CHIRIQUÍ**: Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (*Salazar Allen et al. 2021*); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,630 m, *Schäfer-Verwimp & Verwimp 34414/A* (JE, *Schäfer-Verwimp 2014*); Tierras Altas distrito, Volcán, road to Rio Sereno, 8°49.5'N, 82°41.5'W, 1,580 m, 2 Apr 2009, *Schäfer-Verwimp & Verwimp 34682* (JE, *Schäfer-Verwimp 2014*). **COCLÉ**: Antón distrito, El Valle de Antón, along road to Mato Ahogado, 8°37.05'N, 82°06.60'W, 670 m, 4 Apr 2009, *Schäfer-Verwimp & Verwimp 34759/A, 34761* (JE, *Schäfer-Verwimp 2014*); Antón distrito, El Valle de Antón, Alto de La Mesa, 8°38.3'N, 82°07.6'W, 850–870 m, 3 Apr 2009, *Schäfer-Verwimp & Verwimp 34726*, det. A. Schäfer-Verwimp (JE, *Schäfer-Verwimp 2014*). ***COLÓN**: Colón distrito, trail to triangulation station (200 m, *Dodge 186*, det. Dauphin Jun 2017 (MO-5243729! <https://tropicos.org/specimen/90119098>, [this publication](#)).

*PANAMA: Chepo distrito, Sabana, 20 Jan 1935, *Hunter* 205, det. Dauphin Jun 2017 (MO-5243731!, **this publication**); road between Panama and Chepo, 29 Nov 1934, *Dodge* 8598, det. Dauphin Jun 2017 (MO-5243730!, **this publication**).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Cheilolejeunea asperima (Steph.) Grolle, *J. Hattori Bot. Lab.* 58: 197, 1985 (Grolle 1985).

≡*Taxilejeunea asperima* Steph., *Biblioth. Bot.* 87(2): 259, 1916 (Stephani 1916b). Type: Bolivia.

COSTA RICA. S. loc., *van Melick* 214551 (M, **Heinrichs et al. 2014b**; Schäfer-Verwimp et al. 2014; Bechteler et al. 2016a, 2016c; Zhu et al. 2017, 2018b; Zhu and Shu 2018).

Also reported from Northern South America, Western South America.

Cheilolejeunea aurifera (R.M.Schust.) W.Ye, R.L.Zhu et Gradst., *Cryptog. Bryol.* 36(4): 325, 2015 (Ye et al. 2015).

≡*Aureolejeunea aurifera* R.M.Schust., *Phytologia* 39(6): 429, 1978 (Schuster 1978b). Type: Venezuela.

COSTA RICA. Cordillera de Talamanca (Holz 2003 as *Aureolejeunea aurifera*; Holz and Gradstein 2005b as *Aureolejeunea aurifera*); S. loc. (Gradstein and Holz 2005 as *Aureolejeunea aurifera*; Bastos and Gradstein 2020a, 2020b; Gradstein 2021). CARTAGO: Cordillera de Talamanca, Cerro de La Muerte, Páramo Buena Vista, km 85 of Pan-American Highway, Holz CR 00-812 (GOET, Holz et al. 2001 as *Aureolejeunea aurifera*; Dauphin 2005 as *Aureolejeunea aurifera*; Ye et al. 2015 as *Aureolejeunea aurifera*); Cordillera de Talamanca, Cerro de La Muerte, Páramo Buena Vista, km 85 of Pan-American Highway, 3,100 m, 14 Nov 1999, Holz CR 00-605 (CR, GOET, Holz et al. 2001 as *Aureolejeunea aurifera*; Dauphin 2005 as *Aureolejeunea aurifera*); Cordillera de Talamanca, Cerro de La Muerte, Páramo Buena Vista, km 85 of Pan-American Highway, 3,100 m, 14 Nov 1999, Holz CR 99-598 (CR, GOET, Holz et al. 2001 as *Aureolejeunea aurifera*; Groth-Maloney et al. 2004 as *Aureolejeunea aurifera*; Dauphin 2005 as *Aureolejeunea aurifera*). SAN JOSÉ: Dota cantón, Cerro Sákira, Pan-American Highway km 87, 9°35'N, 83°46'W, 22 Mar 2003, Holz CR 00-696 (GOET, MO-5282862, Wilson et al. 2004, 2007, both as *Aureolejeunea aurifera*; Gradstein et al. 2006b as *Aureolejeunea aurifera*; Heinrichs et al. 2012c as *Aureolejeunea aurifera*; Dong et al. 2013 as *Aureolejeunea aurifera*; Ye and Zhu 2018).

Also reported from Mexico, the Caribbean, Northern South America, Western South America.

Cheilolejeunea beyrichii (Lindenb.) M.E.Reiner, *Nova Hedwigia* 83(3/4): 474, 2006 (Reiner-Drehwald 2006).

≡*Lejeunea beyrichii* Lindenb., *Syn. Hepat.* 3: 371, 1845 (Gottsche et al. 1845a). Type: Brazil.

≡*Euosmolejeunea beyrichii* (Lindenb.) Steph., *Hedwigia* 29(2): 82, 1890 (Stephani 1890c).

GUATEMALA. S. loc. (Schäfer-Verwimp 2014; Gradstein and Uribe 2016; Bastos and Gradstein 2020a, 2020b; Gradstein 2021). ALTA VERAPAZ: Cobán municipio, Aragón, 1,700 m, 18 Sep 2002, *Andersohn* (GOET, Reiner-Drehwald 2006).

HONDURAS. S. loc. (Schäfer-Verwimp 2014). ATLÁN-TIDA: El Porvenir municipio, Pico Bonito National Park, 15°38'N, 86°51'W to 15°39'N, 86°52'W, 20 Apr 1996, *Allen* 17393 (GOET, Dong et al. 2013; Ye et al. 2013, 2015).

COSTA RICA. CARTAGO: Jiménez cantón, Peijivalle, 900 m, *Standley* 64732 (Morales 1991; Dauphin 2005).

PANAMA. COCLÉ: Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 945 m, 31 Mar 2006, *Schäfer-Verwimp & Verwimp* 30787 (JE, Schäfer-Verwimp 2014). PANAMA: Panamá distrito, Cerro Jefe, along unpaved road. 9°13.4–5'N, 79°22.7–9'W, 970–995 m, 28 Mar 1906, *Schäfer-Verwimp & Verwimp* 30733, 30736 (JE, Schäfer-Verwimp 2014).

*COCOS I. Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 21 Jan 1990, *Dauphin* 968, det. G. Dauphin Jan 2021 (USJ-47226!, **this publication**); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 22 Jan 1994, *Dauphin* 968, det. G. Dauphin Jan 2021 (CR!, **this publication**); Cuenca de la Quebrada Pittier, rumbo a Bahía Yglesias, 5°31'81.5"N, 87°03'32.3"W, 312 m, 30 Nov 2013, *Estrada et al.* 6180, det. G. Dauphin May 2021 (CR-4468364!, **this publication**); Río Genio, 5°32'57"N, 87°03'36"W, 10 m, 26 Jan 1994, *Dauphin* 1054, det. G. Dauphin Jan 2021 (USJ-47222!, CR-4468147!, W-0207408! <https://w.jacq.org/W0207408>, **this publication**); Río Genio, 5°32'57"N, 87°03'56"W, 10 m, 25 Jan 1990, *Dauphin* 1068, det. G. Dauphin Mar 2021 (USJ-47223!, CR!, W!, **this publication**); Río Genio, 5°32'57"N, 87°03'56"W, 10 m, 26 Jan 1994, *Dauphin* 1054 *p.p.*, det. G. Dauphin Jan 2021 (USJ-47222!, **this publication**).

Also reported from Northern South America, Western South America, Brazil.

Cheilolejeunea comans (Spruce) R.M.Schust., *Phytologia* 45(5): 431, 1980 (Schuster 1980b).

≡*Lejeunea comans* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 246, 1884 (Spruce 1884). Type: Venezuela.

?GUATEMALA. ?IZABAL: Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, *Ramírez* (USCG, BIGU, Ramírez 2007 as *Cheilolejeunea* aff. *comans*). Note: We are not aware of any positively identified specimen from Guatemala.

*COSTA RICA. *PUNTARENAS: Monteverde cantón, Reserva Biológica Santa Elena, 10°20'N, 84°48'W, 26 Mar 1992, *Lyon* 546, det. Dauphin 2017 (MO-4411437! <https://www.tropicos.org/specimen/90029478>, **this publication**).

PANAMA. S. loc. (Bastos and Gradstein 2020a, 2020b). CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, foothills of Cerro Pinola, 1,280–2,000 m (Salazar Allen et al. 2021); Tieras Altas distrito, Cordillera Talamanca, road from El Volcán to Rio Sereno, 8°49'N, 82°41.5"W, 3 Apr 2013, *Schäfer-Verwimp* 34680/A (hb. Schäfer-Verwimp, ALCB, Bastos 2017).

Also reported from the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Cheilolejeunea conchifolia (A.Evans) W.Ye et R.L.Zhu, *J. Bryol.* 32(4): 280, 2010 (Ye and Zhu 2010).

≡ *Archilejeunea conchifolia* A.Evans, *Mem. Torrey Bot. Club* 8(2): 128, 1902 (Evans 1902b). Type: USA.

= *Leucolejeunea nana* S.Winkl., *Rev. Bryol. Lichénol.* 35(1/4): 326, 1967 (Winkler 1967), syn. nov. Holotype: El Salvador, Santa Ana, Hacienda Montecristo, Cerro Miramundo, 2,240 m, 23 May 1962, *Winkler A/5/4* (ULM). Note: *Leucolejeunea nana* was recognized as “fragment of a juvenile shoot of *Cheilolejeunea conchifolia*” (S. R. Gradstein, Meise Botanic Garden, personal communication) and is here published as a new synonym with Gradstein’s approval.

EL SALVADOR. S. loc. (Schuster 2006 as *Leucolejeunea nana*). **SANTA ANA:** Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, 2,350 m, 23 May 1962, *Winkler A/26/10* (ULM, *Winkler 1967* as *Leucolejeunea nana*); Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, 2,280 m, 23 May 1962, *Winkler A/5/4* (ULM, **TYPE** of *Leucolejeunea nana*, *Winkler 1967* as *Leucolejeunea nana*; *Geissler and Bischler 1985* as *Leucolejeunea nana*; *Gradstein and Geissler 1997* as *Leucolejeunea nana*).

Also reported from South-Central USA, Southeastern USA, Brazil, Southern South America.

Cheilolejeunea discoidea (Lehm. et Lindenb.) R.M.Schust. et Kachroo, *J. Linn. Soc., Bot.* 56(368): 509, 1961 (Kachroo and Schuster 1961).

≡ *Jungermannia discoidea* Lehm. et Lindenb., *Nov. Stirp. Pug.* 6: 47, 1834 (Lehmann 1834). Type: St. Vincent.

GUATEMALA. ?**ALTA VERAPAZ:** Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, 2,100–2,360 m, Pérez (Pérez 2006 as *Cheilolejeunea* cf. *discoidea*) Note: We are not aware of any positively identified report from Alta Verapaz. **IZABAL:** Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez 2007*).

COSTA RICA. **GUANACASTE:** Liberia cantón, Rincón de La Vieja National Park, 750–800 m, 1 Jan 2000, *Schäfer-Verwimp & Holz SV/H-0392b* (ALCB, *Bastos 2017*). **LIMÓN:** Pococí cantón, Cariari, El Carmen, Estación Biológica El Zota, 10°34'N, 83°45'W, *Egremy 379*, det. Dauphin (CR, *Dauphin 2005*). **PUNTARENAS:** Buenos Aires, *Kaczmarek 205*, det. Dauphin (CR, *Dauphin 2005*).

PANAMA. Canal Zone (*Schäfer-Verwimp 2014*); S. loc., *Schäfer-Verwimp & Verwimp 24530* (M, *Heinrichs et al. 2014b*); S. loc., *Schäfer-Verwimp & Verwimp 34530* (M, *Schäfer-Verwimp et al. 2014*; *Bechteler et al. 2016a, 2016c*; *Zhu et al. 2017*, *Zhu 2018a, 2018b, 2019*; *Zhu and Shu 2018*). **CHIRIQUÍ:** Gualaca distrito, entrance to Escuela Los Planes (along road from Chiriquí to Chiriquí Grande), 8°37.8'N, 82°12.8'W, 980 m, 30 Mar 2009, *Schäfer-Verwimp & Verwimp 34530* (JE, *Schäfer-Verwimp*

2014). **COCLÉ:** Antón distrito, El Valle de Antón, Golden Frog Inn and near surroundings, 8°36.6'N, 80°06.6'W, 640–650 m, 7 Apr 2006, *Schäfer-Verwimp & Verwimp 31040* (JE, *Schäfer-Verwimp 2014*). **PANAMA WEST:** La Chorrera distrito, Barro Colorado Island, 9°09'N, 79°51'W, 20–170 m, *Dauphin 3231* (PMA, *Dauphin et al. 2006*); La Chorrera distrito, Barro Colorado Island, Laboratory area, 2003, *Dauphin 3231* (CR, PMA, *Dauphin et al. 2022*). **VERAGUAS:** Santa Fe distrito, between the village and Alto de Piedra, 8°31'N, 81°06'W, 635–600 m, 27 Mar 2009, *Schäfer-Verwimp & Verwimp 34325* (JE, *Schäfer-Verwimp 2014*).

Also reported from Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Cheilolejeunea filiformis (Sw.) W.Ye, R.L.Zhu et Gradst., *Cryptogamie, Bryologie* 36(4): 325, 2015 (Ye et al. 2015) var. *filiformis*.

≡ *Jungermannia filiformis* Sw., *Prodr. (Swartz)*: 144, 1788 (Swartz 1788). Type: Jamaica.

≡ *Omphalanthus filiformis* (Sw.) Nees, *Syn. Hepat.* 2: 304, 1845 (Gottsche et al. 1845b).

≡ *Omphalolejeunea filiformis* (Sw.) Steph., *Hedwigia* 27(11/12): 285, 1888 (Stephani 1888a), nom. inval. (ICN2018 Art. 35.1; genus not valid).

= *Omphalanthus filiformis* γ *fuscus* Gottsche, *Lindenb. et Nees, Syn. Hepat.* 2: 304 (Gottsche et al. 1845b) “*fusca*.” Type: St. Vincent.

≡ *Omphalanthus filiformis* var. *fuscus* (Gottsche, *Lindenb. et Nees*) Hampe, *Linnaea* 24(3): 303, 1851 (Hampe 1851b) “*fusca*.”

= *Omphalanthus grandistipulus* Steph., *Biblioth. Bot.* 21(87): 248, 1916 (Stephani 1916b). Type: Bolivia.

= *Omphalanthus filiformis* f. *ramis-veneris-elongatis* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 130, 1951 (Herzog 1951), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Costa Rica: Prov. San Jose, Las Nubes, 1,500–1,900 m, *Standley 38403* (JE?, US-04544582 <http://n2t.net/ark:/65665/3fa4b04bf-2bf0-47c9-9f19-0194c053bbaf>).

GUATEMALA. **ALTA VERAPAZ:** Cobán, Las Victorias National Park, 1,100–1,300 m, 2002 (*Andersohn 2004* as *Omphalanthus filiformis*). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al. 157* (USCG, *Freire et al. 2013* as *Omphalanthus filiformis*); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al. 2005* as *Omphalanthus filiformis*).

BELIZE. **CAYO:** Southern Maya Mountains, summit of Doyle’s Delight, 16°48'45"N, 88°37'13"W, 1,140 m, 9 Dec 1993, *Allen 15317*, det. Dauphin May 2017 (MO-4421607! <https://tropicos.org/specimen/90019444>, *Whittemore and Allen 1996* as *Omphalanthus filiformis*). **TOLEDO:** S. loc., *Meadows 6* (MO, *Whittemore and Allen 1996* as *Omphalanthus filiformis*); S. loc., Dec 1993, *Allen 15318* (BRH, MO, *Whittemore and Allen 1996* as *Omphalanthus filiformis*).

***HONDURAS.** ***COMAYAGUA:** San Juanillo, Cordillera de Montecillos Biological Reserve Forest, 14°30'N, 87°53'W, 1,700–2,000 m, 3 Jun 1993, *Liesner 26780 p.p.*, det.

Dauphin May 2017 (MO-6699916! <http://tropicos.org/specimen/90100338>, [this publication](#)).

EL SALVADOR. S. loc. (Lücking 1995 as *Omphalanthus filiformis*). **CHALATENANGO:** San Ignacio municipio, Cantón Río Chiquito, Cerro Pital, Finca de los Señores Portillo, Cima del Cerro Pital, 14°23'N, 89°08'W, 2,730 m, 21 Nov 1993, *Sipman et al.* 37650 (NY, [Bastos 2017](#)). **SANTA ANA:** Calle a Miramundo #20, 21 Sep 2016, *Búcaro H71* (CR!, L, [this publication](#)); Metapán municipio, SE-hang des Cerro Miramundo bei der Hacienda Montecristo, *Winkler A/11/2, A/2/4, A/25/3, A/26/3, A/29/6* (*Winkler 1967* as *Omphalanthus filiformis*).

***NICARAGUA.** ***ESTELÍ:** Estelí municipio, Cerro Quiabú (Cerro Las Brisas), 13°06'N, 86°25'W, 24 Nov 1979, *Stevens & Grijalva 16299 p.p.*, det. Dauphin May 2017 (MO-6699901! <http://tropicos.org/specimen/100988686>, [this publication](#)). ***JINOTEGA:** Ridge between Cerro Bravo and Cerro Picacho, 26 May 1985, *Davidse et al.* 30513, det. Dauphin May 2013 (MO-5274417! <http://tropicos.org/specimen/90132440>, [this publication](#)). ***MATAGALPA:** Cordillera Dariense, 20 km N of Matagalpa, 17 Sep 1981, *Balázs 81/12/G*, det. Dauphin Jan 2017 (EGR, CR!, [this publication](#)).

COSTA RICA. Cordillera de Talamanca (*Holz and Gradstein 2005b* as *Omphalanthus filiformis*; *Holz 2006* as *Omphalanthus filiformis*); Cordillera de Talamanca, *Kappelle 699* (CR, *Kappelle 1996* as *Omphalanthus filiformis*); S. loc. (Cole 1982, 1983, both as *Omphalanthus filiformis*; *Gradstein 1999a* as *Omphalanthus filiformis*; *Dauphin 2005* as *Omphalanthus filiformis*; *Gradstein and Holz 2005* as *Omphalanthus filiformis*); S. loc., 5,000–8,000 ft (1,524–2,438 m), *Oersted 1169* (*Müller 1851*); S. loc., 8,000 ft (2,438 m), *Oersted* (S, NY, *Hampe 1851b* as *Omphalanthus filiformis* var. *fuscus*; *Polakowsky 1879*). **ALAJUELA:** Poás, 1,950 m, *Eggers* (hb. *Eggers, Eggers 2001* as *Omphalanthus filiformis*); San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 5 Jul 2007, *Norris 110486* (UC, *Norris et al. 2017* as *Omphalanthus filiformis*). **CARTAGO:** Cartago cantón, El Muñeco, Río Navarro, 1,400–1,500 m, *Standley 51009* (*Herzog 1951* as *Omphalanthus filiformis*; *Morales 1991* as *Omphalanthus filiformis*; *Dauphin 2005* as *Omphalanthus filiformis*); Cartago cantón, El Muñeco, Río Navarro, 1,400–1,500 m, *Standley 51522* (*Herzog 1951* as *Omphalanthus grandistipulus*; *Morales 1991* as *Omphalanthus grandistipulus*; *Dauphin 2005* as *Omphalanthus grandistipulus*); El Guarco cantón, Cerro Buenavista, 9°36'00"N, 83°50'00"W, 27 Feb 1996, *Dauphin 2661*, det. G. Dauphin Nov 2020 (CR!, [this publication](#)); La Estrella, *Standley 39315* (*Herzog 1951* as *Omphalanthus filiformis*; *Dauphin 2005* as *Omphalanthus filiformis*); Paraíso cantón, Orosi, Tapantí National Park, *Griffin & Eakin 173, 272, 275*, det. *Gradstein* (FLAS, *Morales 1991* as *Omphalanthus filiformis*; *Dauphin 2005* as *Omphalanthus filiformis*); Turrialba cantón, Angostura, *Oersted 305* (*Morales 1991* as *Omphalanthus filiformis*; *Dauphin 2005* as *Omphalanthus filiformis*); Turrialba cantón, Angostura, *Polakowsky* (*Polakowsky 1879* as *Omphalanthus filiformis*). **GUANACASTE:** Liberia cantón, Guanacaste National Park,

Sector Pitilla, *Dauphin 1895* (CR, *Dauphin 2005* as *Omphalanthus filiformis*). **HEREDIA:** Rancho Flores forest, *Pittier 6028* (*Stephani 1893c* as *Omphalolejeunea filiformis*; *Morales 1991* as *Omphalanthus filiformis*; *Dauphin 2005* as *Omphalanthus filiformis*); S. loc., *Pittier 6061* (*Stephani 1893c* as *Omphalolejeunea filiformis*; *Morales 1991* as *Omphalanthus filiformis*); S. loc., *Standley & Valerio 51414* (NY, *Thiers 1986* as *Omphalanthus filiformis*); San Isidro cantón, Cerro Caricias, 2,000–2,400 m, *Standley 49872, 50109, 52251* (*Herzog 1951* as *Omphalanthus filiformis*; *Morales 1991* as *Omphalanthus filiformis*; *Dauphin 2005* as *Omphalanthus filiformis*); San Rafael cantón, vicinity of Las Lajas, 2,000–2,400 m, *Standley* (*Herzog 1951* as *Omphalanthus filiformis*; *Morales 1991* as *Omphalanthus filiformis*; *Dauphin 2005* as *Omphalanthus filiformis*); Sarapiquí cantón, Salto La Paz, *Woodruff* (FLAS, *Morales 1991* as *Omphalanthus filiformis*; *Dauphin 2005* as *Omphalanthus filiformis*). **LIMÓN:** Braulio Carrillo National Park, 400–500 m (*Eggers 2001* as *Omphalanthus filiformis*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking 92-193, 92-381, 92-485, 92-548, 94-28* (hb. *Lücking, Lücking 1995* as *Omphalanthus filiformis*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (*Lücking 1997* as *Omphalanthus filiformis*). **PUNTARENAS:** Monteverde, <1,500 m (*Morales 1991* as *Omphalanthus filiformis*; *Dauphin 2005* as *Omphalanthus filiformis* and *Omphalanthus grandistipulus*); Monteverde cantón, along South Line, 16 Mar 1969, *James, W. 1969-67, 1969-73* (R, *Reed and Robinson 1971* as *Omphalanthus filiformis*; *Dauphin 2005* as *Omphalanthus filiformis*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al. 2001a* as *Omphalanthus filiformis*); Monteverde cantón, road to Monteverde Biological Station, 5 Aug 1993, *Timme 11432*, det. *Dauphin May 2000* (MO-66900001!, [this publication](#)); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, *Gradstein et al.* (U, *Sillett et al. 1995* as *Omphalanthus grandistipulus* and *Omphalanthus filiformis*); Monteverde, 1,600 m, *Eggers* (hb. *Eggers, Eggers 2001* as *Omphalanthus filiformis*); Monteverde, Oct 1963, *James, W. 9* (R, *Reed and Robinson 1971* as *Omphalanthus filiformis*; *Dauphin 2005* as *Omphalanthus filiformis*); Monteverde, 29 Dec 1964, *James, J. 30* (R, *Reed and Robinson 1971* as *Omphalanthus filiformis*; *Dauphin 2005* as *Omphalanthus filiformis*); S. loc. (*Merwin et al. 2001* as *Omphalanthus filiformis* and *Omphalanthus grandistipulus*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al. 2001a*). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, *Holz et al. 2002* as *Omphalanthus filiformis*); Dota cantón, San Gerardo (Dauphin 2005 as *Omphalanthus filiformis*); Dota cantón, San Gerardo, *Holz* (*Holz 2003* as *Omphalanthus filiformis*); Los

Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a as *Omphalanthus filiformis*); Moravia cantón, La Hondura, Griffin et al. 330, det. Gradstein (FLAS, Morales 1991 as *Omphalanthus filiformis*; Dauphin 2005 as *Omphalanthus filiformis*); Moravia cantón, La Hondura, 1,200–1,500 m, Standley 51808, 51815, 51817, 51818, 51851 (Herzog 1951 as *Omphalanthus filiformis*; Morales 1991 as *Omphalanthus filiformis*; Dauphin 2005 as *Omphalanthus filiformis*); Moravia cantón, La Palma, Morales 388, 390 (FLAS, Morales 1991 as *Omphalanthus filiformis*; Dauphin 2005 as *Omphalanthus filiformis*); Moravia cantón, La Palma, 1,600 m, Standley 32894 (Herzog 1951 as *Omphalanthus filiformis*; Morales 1991 as *Omphalanthus filiformis*; Dauphin 2005 as *Omphalanthus filiformis*); Vázquez de Coronado cantón, Las Nubes, Griffin & Morales A54 (USJ, FLAS, Morales 1991 as *Omphalanthus filiformis*; Dauphin 2005 as *Omphalanthus filiformis*); Vázquez de Coronado cantón, Las Nubes, Morales 367 (Morales 1991 as *Omphalanthus filiformis*; Dauphin 2005 as *Omphalanthus filiformis*); Vázquez de Coronado cantón, Las Nubes, 1,500–1,900 m, Standley 38403 (TYPE of *Omphalanthus filiformis* f. *ramis-veneris-elongatis*, Herzog 1951 as *Omphalanthus filiformis* f. *ramis-veneris-elongatis*; Morales 1991 as *Omphalanthus filiformis*; Dauphin 2005 as *Omphalanthus filiformis*).

PANAMA. **CHIRIQUÍ:** Boquete distrito, Bajo Mono, along Rio Caldera, 8°50.5'N, 82°28.9'W, 1,670–1,745 m, 5 Apr 2006, Schäfer-Verwimp & Verwimp 30957 (JE, Schäfer-Verwimp 2014 as *Omphalanthus filiformis*); Gualaca distrito, Fortuna Forest Reserve, foothills of Cerro Pinola, 1,280–2,000 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, NW of camping site, 1,000–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Arena, 920–1,100 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, SW of camping site, from Finca Pittí to foothills of Cerro Fortuna, 1,000–1,270 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna on route to Soledad, 1,100 m, Salazar Allen et al. 2104 (PMA, Stotler et al. 1998 as *Omphalanthus filiformis*); Gualaca distrito, Fortuna, 1,000 m, Salazar Allen et al. 522, 525 (PMA, Stotler et al. 1998 as *Omphalanthus filiformis*); Gualaca distrito, Hornito, Fortuna, 1,000–1,200 m, Salazar Allen 2445 (PMA, Stotler et al. 1998 as *Omphalanthus filiformis*); San Felix, Croat 33064 (MO, Stotler et al. 1998 as *Omphalanthus filiformis*); Tierras Altas distrito, Parque Internacional La Amistad, Las Nubes, sendero Panamá Verde, 8°53'37.4"N, 82°38'52.5"W, 2,218 m, Sep 2015–Jul 2016, Guerra-Batista et al. (Guerra-Batista et al. 2020); Tierras Altas distrito, Parque Nacional Volcán Barú, Paso Ancho, 8°48'55.13"N, 82°34'33.50"W, 2,047 m, Guerra Batista et al. (UCH, Guerra et al. 2020); Barú Volcano National Park (Rodríguez-Quiel et al. 2022). **COCLÉ:** Antón distrito, El Valle de Antón, Alto de La Mesa, 8°38.3'N, 82°07.6'W, 850–870 m, 3 Apr 2009, Schäfer-Verwimp & Verwimp 34724 (JE, Schäfer-Verwimp 2014 as *Omphalanthus filiformis*); Antón distrito, El

Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8'N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, Schäfer-Verwimp & Verwimp 34263/F (JE, Schäfer-Verwimp 2014 as *Omphalanthus filiformis*).

COCOS I. Cerro Yglesias, 5°32'57"N, 87°03'56"W, Apr 1992, Lücking 92-281, 92-282, 92-283 (hb. Lücking, Lücking 1995 as *Omphalanthus filiformis*); S. loc. (Dauphin 1995, 1999, both as *Omphalanthus filiformis*); Yglesias E, 500–634 m, Apr 1992, Lücking 282 (hb. Bernecker, Bernecker-Lücking 2000 as *Omphalanthus filiformis*); Yglesias E, 500–634 m, Apr 1992, Lücking 283 (USJ, Bernecker-Lücking 2000 as *Omphalanthus filiformis*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Cheilolejeunea filiformis var. *platycoleus* (Herzog) W.Ye, R.L.Zhu et Gradst., *Cryptogamie Bryologie* 36(4): 325, 2015 (Ye et al. 2015).

≡ *Omphalanthus platycoleus* Herzog, *Feddes Repert. Spec. Nov. Regni Veg.* 57(1/2): 171, 1955 (Herzog 1955a). Type: Colombia.

≡ *Omphalanthus filiformis* var. *platycoleus* (Herzog) Gradst., *Phytotaxa* 76(3): 46, 2013 (Gradstein 2013a).

COSTA RICA. S. loc. (Schäfer-Verwimp et al. 2013 as *Omphalanthus platycoleus*; Bastos and Gradstein 2020a, 2020b; Fuertes and Prada 2020 as *Omphalanthus filiformis* var. *platycoleus*; Gradstein 2021). **HEREDIA:** San Isidro cantón, Yerba Buena, 2,000 m, Standley 50014 p.p. (Herzog 1951 as *Omphalanthus platycoleus*; Morales 1991 as *Omphalanthus platycoleus*).

Also reported from Northern South America, Western South America, Southern South America.

Cheilolejeunea holostipa (Spruce) Grolle et R.L.Zhu, *Taxon* 50(4): 1071, 2001 (Grolle et al. 2001).

≡ *Lejeunea holostipa* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 171, 1884 (Spruce 1884). Type: Brazil.

≡ *Cyrtolejeunea holostipa* (Spruce) A.Evans, *Bull. Torrey Bot. Club* 30(10): 553, 1903 (Evans 1903c).

GUATEMALA. **ALTA VERAPAZ:** Panzós municipio, Cahabón and/or Senahú, 2012, Pérez & López-Medina, det. M. Pérez (Pérez and López-Medina 2012); Tucurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, 2,300–2,500 m, Pérez 308 (USCG, Pérez 2009); Tucurú municipio, Reserva Privada Chelemhá (Pérez 2006). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 46 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 also as *Cyrtolejeunea holostipa*).

BELIZE. S. loc. (Fulford 1938 as *Cyrtolejeunea holostipa*; Whittemore and Allen 1996 as *Cyrtolejeunea holostipa*).

HONDURAS. S. loc. (Fulford and Sharp 1990 as *Cyrtolejeunea holostipa*; Lücking 1995 as *Cyrtolejeunea holostipa*; Schäfer-Verwimp 1999 as *Cyrtolejeunea holostipa*; Ilkiu-Borges

2000 as *Cyrtolejeunea holostipa*; Ilkiu-Borges and Lisbôa 2002a, 2002b, both as *Cyrtolejeunea holostipa*; Bastos 2004; Schäfer-Verwimp and Pócs 2009). Note: We are not aware of any firsthand report of *Cheilolejeunea holostipa* from Honduras, although it probably occurs there. The current reports are possibly all based on “British Honduras,” that is, Belize.

COSTA RICA. S. loc. (Schäfer-Verwimp 1999 as *Cyrtolejeunea holostipa*; Ilkiu-Borges 2000 as *Cyrtolejeunea holostipa*; Ilkiu-Borges and Lisbôa 2002b as *Cyrtolejeunea holostipa*; Bastos 2004; Schäfer-Verwimp and Pócs 2009). **ALAJUELA:** San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 23 Mar 2009, Norris 111067 (UC, Norris et al. 2017 as *Lejeunea holostipa*). **GUANACASTE:** La Cruz cantón, Guanacaste National Park, Cerros Santa Elena, 10°53'24"N, 85°50'55"W, 650–700 m, 27 Aug 2003, Dauphin et al. 3322, 3331, 3342 (CR, Dauphin 2005; Dauphin and Grayum 2005); Liberia cantón, Rincón de La Vieja National Park, 750–800 m, 1 Jan 2000, Schäfer-Verwimp & Holz SV/H-0402b (hb. Schäfer-Verwimp, Holz et al. 2001; Dauphin 2005). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Lücking 92-182 (USJ, Gradstein et al. 1994 as *Cyrtolejeunea holostipa*; Dauphin 2005); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, Lücking 92-9, 92-182, 92-376, 92-419, 92-455, 92-487, 92-557, 92-575, 92-596 (hb. Lücking, Lücking 1995 as *Cyrtolejeunea holostipa*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, Lücking (Lücking 1997 as *Cyrtolejeunea holostipa*). **PUNTARENAS:** Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, Gradstein et al. (U, Sillett et al. 1995 as *Cyrtolejeunea holostipa*); Monteverde, Sillett 42586 (Dauphin 2005); Monteverde, 1,550 m, Sillett 8-5 (U, Gradstein et al. 1994 as *Cyrtolejeunea holostipa*); Osa cantón, Península de Osa, Cerro Helado, 250–300 m, Dauphin 551 (Gradstein et al. 1994 as *Cyrtolejeunea holostipa*; Dauphin 2005); S. loc. (Merwin et al. 2001 as *Cyrtolejeunea holostipa*). **SAN JOSÉ:** Dota cantón, Los Quetzales National Park (Amengual et al. 2007 as *Cyrtolejeunea holostipa*); Dota cantón, San Gerardo, Río Savegre Valley between holiday camp Chacón and waterfall, 2,000 m, 24 Dec 1999, Holz & Schäfer-Verwimp CR 99-1088, SV/H-0002b, SV/H-0061 (CR, GOET, hb. Schäfer-Verwimp, Holz et al. 2001 as *Cyrtolejeunea holostipa*); Dota cantón, San Gerardo, Río Savegre, Schäfer-Verwimp & Holz SV/H-0002b (Dauphin 2005); Dota cantón, San Gerardo, Río Savegre, Schäfer-Verwimp & Holz SV/H-0061 (Hb. Schäfer-Verwimp, Dauphin 2005; Ye et al. 2015).

PANAMA. S. loc. (Campos et al. 2022); S. loc., Schäfer-Verwimp & Verwimp 34526/A (M, Schäfer-Verwimp et al. 2014; Ye and Wei 2021); S. loc., Schäfer-Verwimp & Verwimp 34526 (M, Heinrichs et al. 2014b as *Cyrtolejeunea holostipa*; Schäfer-Verwimp et al. 2014; Bechteler et al. 2016a, 2016c; Zhu et al. 2017, 2018a, 2018b, 2019; Ye and Zhu 2018; Zhu and Shu 2018; Shu et al. 2022). ***BOCAS DEL TORO:** Bocas del Toro distrito, Bastimentos, Salt Creek, Sendero a Long Beach, 9.29456°N,

82.10303°W, 70 m, 16 Aug 2017, Dauphin 4641, det. Dauphin Aug 2017 (PMA, this publication). **CHIRIQUÍ:** Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 1,980 m, 4 Apr 2006, Schäfer-Verwimp & Verwimp 30866 (JE, Schäfer-Verwimp 2014); Gualaca distrito, entrance to Escuela Los Planes (along road from Chiriquí to Chiriquí Grande), 8°37.8'N, 82°12.8'W, 980 m, 30 Mar 2009, Schäfer-Verwimp & Verwimp 34526 (JE, Schäfer-Verwimp 2014); Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,400 m, Schäfer-Verwimp & Verwimp 34353/B, 34366/B (JE, Schäfer-Verwimp 2014); Cordillera Talamanca, road from El Volcán, 8°49.67'N, 82°42.85'W, 3 Apr 2013, Schäfer-Verwimp & Verwimp 34702 (ALCB, Bastos 2017); Tierras Altas distrito, El Volcán, 8°46.9'N, 82°38.8'W, 1,410 m, 1 Apr 2009, Schäfer-Verwimp & Verwimp 34661 (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Paraso Ancho, 8°48'55.13"N, 82°34'33.50"W, 2,047 m, Guerra Batista et al. (UCH, Guerra et al. 2020); Tierras Altas distrito, Volcán, road to Río Sereno, 8°49.5'N, 82°41.5'W, 1,580 m, 2 Apr 2009, Schäfer-Verwimp & Verwimp 34674 (JE, Schäfer-Verwimp 2014); Barú Volcano National Park (Rodríguez-Quiel et al. 2022). **COCLÉ:** Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, Schäfer-Verwimp & Verwimp 34123/B, 34164/A, det. A. Schäfer-Verwimp (JE, Schäfer-Verwimp 2014). **PANAMA WEST:** Capira distrito, Altos de Campana National Park, Sendero de Interpretación, 850–1,000 m, Salazar Allen et al. 9447 (PMA, Stotler et al. 1998 as *Cyrtolejeunea holostipa*). **?PANAMA:** S. loc. (Schäfer-Verwimp 2014). Note: This probably refers to Panama West. **VERAGUAS:** Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, Schäfer-Verwimp & Verwimp 30846 (JE, Schäfer-Verwimp 2014).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Cheilolejeunea inflexa (Hampe) Grolle, *J. Hattori Bot. Lab.* 45: 174, 1979 (Grolle 1979a).

≡ *Lejeunea inflexa* Hampe, *Nov. Stirp. Pug.* 7: 22, 1838 (Lehmann 1838).

Type: “Indiae occidentalis.”

≡ *Trachylejeunea inflexa* (Hampe) Steph., *Sp. Hepat. (Stephani)* 5: 303, 1913 (Stephani 1913).

GUATEMALA. S. loc. (Fulford and Sharp 1990; Ye and Zhu 2009); S. loc., *Friedrichstahl 18016* (Grolle 1979a).

ALTA VERAPAZ: Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, Pérez 234 (USCG, Pérez 2009). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 92, 156 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

COSTA RICA. Cordillera de Talamanca (Holz and Gradstein 2005b; Holz 2006); S. loc. (Cole 1982, 1983, both as *Trachylejeunea inflexa*; Fulford 1987; Fulford and Sharp 1990; Graham et al. 2016). **HEREDIA:** San Isidro cantón, Cerro de

Las Lajas, 2,000–2,400 m, *Standley 51573a* (JE, Herzog 1951 as *Trachylejeunea inflexa*; Grolle 1979a; Morales 1991; Dauphin 2005); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley 50509* (Herzog 1951 as *Trachylejeunea inflexa*; Morales 1991; Dauphin 2005). **PUNTARENAS**: Monteverde, <1,500 m (Morales 1991; Dauphin 2005); Monteverde cantón, forest near Motas, 4 Apr 1969, *James, W. 1969-100* (R, Reed and Robinson 1971 as *Trachylejeunea inflexa*; Dauphin 2005); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995); S. loc. (Merwin et al. 2001). **SAN JOSÉ**: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, Holz (Holz 2003).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, NE of camping site, 900–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna, NE of camping site, 1,000–1,200 m, *Salazar Allen 700 p.p.* (PMA, Stotler et al. 1998); S. loc. (Schäfer-Verwimp 2014). **COCLÉ**: Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 985 m, 31 Mar 2006, *Schäfer-Verwimp & Verwimp 30792* (JE, Schäfer-Verwimp 2014).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Cheilolejeunea intertexta (Lindenb.) Steph., *Bull. Herb. Boissier* 5(2): 79, 1897 (Stephani 1897b).

≡ *Lejeunea intertexta* Lindenb., *Syn. Hepat.* 3: 379, 1845 (Gottsche et al. 1845a). Type: Caroline Islands.

≡ *Cheilolejeunea inflata* Steph., *Sp. Hepat. (Stephani)* 5: 645, 1914 (Stephani 1914), syn. fide Grolle (1979b). Type: Cameroon.

PANAMA. PANAMA: Panamá distrito, Avenida Franjipani, near Smithsonian Tropical Research Institute, 50 m, 22 Apr 1991, *Gradstein 7886* (MO, EGR, Bastos 2017).

Also reported from West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, China, Eastern Asia, Indian Subcontinent, Indo-China, Malaysia, Papuasia, Australia, New Zealand(?), Southwestern Pacific, Southeastern Pacific, Northwestern Pacific, Northeastern Pacific, the Caribbean, Northern South America, Western South America, Brazil.

Cheilolejeunea jackii (Prantl) W.Ye, R.L.Zhu et Gradst., *Cryptogamie, Bryologie* 36(4): 325, 2015 (Ye et al. 2015).

≡ *Lejeunea jackii* Prantl, *Hedwigia* 31: xvii, 1892 (Prantl 1892). Type: Peru.

≡ *Peltolejeunea jackii* (Prantl) Schiffn., *Hepat. (Engl.-Prantl)*: 131, 1893 (Schiffner 1893a).

NICARAGUA. S. loc. (Stephani 1911b as *Peltolejeunea jackii*; Bastos and Gradstein 2020b; Gradstein 2021); S. loc., Baker (G, Bischler 1965 as *Peltolejeunea jackii*). ***GRANADA**: Granada municipio, Volcán Mombacho, 750–1,150 m, 31 Aug

1983, Miller et al. 1428, det. Dauphin May 2017 (MO-5238380! <http://tropicos.org/specimen/90108659>, this publication).

Also reported from Western South America.

Cheilolejeunea laevicalyx (J.B.Jack et Steph.) Grolle, *J. Hattori Bot. Lab.* 65: 403, 1988 (Grolle 1988).

≡ *Strepsilejeunea laevicalyx* J.B.Jack et Steph., *Sp. Hepat. (Stephani)* 5: 283, 1913 (Stephani 1913). Type: Colombia.

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Gradstein and Bastos 2021). **SAN JOSÉ**: Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a).

Also reported from Mexico, Northern South America, Western South America.

***Cheilolejeunea larsenii* Mizut., *Dansk Bot. Ark.* 27(1): 95, 1969 (Hattori and Mizutani 1969). Type: Thailand.

≡ *Cheilolejeunea adnata* var. *autoica* Gradst. et Ilk.-Borg., *Mem. New York Bot. Gard.* 76(4): 64, 2009 (Gradstein and Ilk.-Borges 2009), syn. fide Shu et al. (2015). Type: French Guiana.

***COCOS I.** Río Genio, 5°32'57"N, 87°03'56"W, 0–10 m, 20–26 Jan 1994, *Dauphin 1069*, det. G. Dauphin Nov 2020 (CR-4468335!, this publication); Río Genio, 5°32'57"N, 87°03'56"W, 0–10 m, 20–26 Jan 1994, *Dauphin 924*, det. G. Dauphin Nov 2020 (CR-4468334!, this publication).

Also reported from West Tropical Africa, East Tropical Africa, South Tropical Africa, Western Indian Ocean, China, Indian Subcontinent, Indo-China, Malaysia, Northern South America, Brazil.

Cheilolejeunea lineata (Lehm. et Lindenb.) Schiffn., *Hepat. (Engl.-Prantl)*: 124, 1893 (Schiffner 1893a).

≡ *Jungermannia lineata* Lehm. et Lindenb., *Nov. Stirp. Pug.* 4: 53, 1832 (Lehmann 1832). Type: Réunion (but type locality is rejected as mislabeled).

≡ *Cystolejeunea lineata* (Lehm. et Lindenb.) A.Evans, *Bull. Torrey Bot. Club* 33(1): 17, 1906 (Evans 1906b).

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 21 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as *Cystolejeunea lineata*).

***HONDURAS. *LEMPIRA**: Gracias municipio, Montaña de Celaque, Río Naranjo, ~10 km SW of Gracias, 14°32'N, 88°39'W, 2,100–2,370 m, 12 May 1992, *Allen 11997B p.p.*, det. Dauphin May 2017 (MO-6699927! <http://tropicos.org/specimen/100986367>, this publication).

COSTA RICA. S. loc. (Gradstein et al. 2001b as *Cystolejeunea lineata*). **ALAJUELA**: San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 3 Nov 2010, *Nonkulolu 36* (UC, Norris et al. 2017 as *Cystolejeunea lineata*). **PUNTARENAS**: Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, 1,500 m, 7 Mar 1992, *Lyon 180*, det. Dauphin 2017 (MO-4411438! <https://tropicos.org/specimen/90029071>, this publication); Osa cantón, Los Mogos, Cerro Helado, 250–300 m,

31 Aug 1993, *Gradstein & Dauphin* 9355 (U, USJ, SP, MO-4428379!, *Gradstein et al.* 1994 as *Cystolejeunea lineata*; *Dauphin* 2005 as *Cystolejeunea lineata*; *Bastos* 2017); Osa cantón, trail Boscosa-Cerro Chocuaco, 350 m, *Gradstein & Dauphin* 9323 (U, USJ, *Gradstein et al.* 1994 as *Cystolejeunea lineata*; *Dauphin* 2005 as *Cystolejeunea lineata*).

PANAMA. S. loc. (*Gradstein et al.* 2001b as *Cystolejeunea lineata*). **BOCAS DEL TORO:** Bocas del Toro distrito, Bastimentos, Salt Creek, Sendero a Long Beach, 9.29456°N, 82.10303°W, 70 m, 16 Aug 2017, *Gudiño & Salazar Allen* 3403, det. Gudiño Aug 2017 (PMA, *this publication*). **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (*Salazar Allen et al.* 2021). **COCLÉ:** Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 945 m, 31 Mar 2006, *Schäfer-Verwimp & Verwimp* 30785 (JE, *Schäfer-Verwimp* 2014); Antón distrito, El Valle de Antón, Cerro Gaital, 8°37'N, 80°07'W, 1 Apr 2010, *Schäfer-Verwimp & Verwimp* 30785 (M, *Heinrichs et al.* 2014b as *Cystolejeunea lineata*; *Schäfer-Verwimp et al.* 2014); Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8'N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34232 (JE, *Schäfer-Verwimp* 2014). **DARIÉN:** Cerro Pirre (Stotler et al. 1998 as *Cystolejeunea lineata*); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992 as *Cystolejeunea lineata*); S. loc. (*Schäfer-Verwimp* 2014). **PANAMA:** Panamá distrito, Cerro Jefe, along unpaved road. 9°13.4–5'N, 79°22.7–9'W, 900–1,000 m, *Salazar Allen et al.* 4031 (PMA, *Stotler et al.* 1998 as *Cystolejeunea lineata*); Panamá distrito, Cerro Jefe, along unpaved road. 9°13.4–5'N, 79°22.7–9'W, 750–1,000 m, 28 Mar 1906, *Schäfer-Verwimp & Verwimp* 30728 (JE, *Schäfer-Verwimp* 2014); Panamá distrito, Cerro Jefe, NE of the INTEL tower, 900–1,000 m, *Salazar Allen et al.* 4027, 4030, *Valdespino & Aranda* 160a (PMA, *Stotler et al.* 1998 as *Cystolejeunea lineata*).

COCOS I. Cerro Pelón, 5°32'57"N, 87°03'56"W, 400 m, 9 Feb 1994, *Dauphin* 1146 p.p., det. G. Dauphin Nov 2020 (CR!, *this publication*); Cerro Yglesias, 5°32'57"N, 87°03'56"W, *Lücking* 92-284 (*Dauphin* 1995, 2005, both as *Cystolejeunea lineata*); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 550 m, *Lücking* 92-303 (USJ, *Gradstein et al.* 1994 as *Cystolejeunea lineata*; *Dauphin* 2005 as *Cystolejeunea lineata*); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 21 Jan 1990, *Dauphin* 972, det. G. Dauphin Mar 2021 (USJ-47642!, CR-4468341!, W-0207409! <https://w.jacq.org/W0207409>, *this publication*); Cerro Yglesias, 5°32'57"N, 87°03'36"W, 600 m, 22 Jan 1994, *Dauphin* 979, det. G. Dauphin Apr 2021 (USJ-47195!, CR-4468405!, W!, *this publication*); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 15 Feb 1994, *Dauphin* 972 (USJ, *Dauphin* 1995, 1999, 2005, all as *Cystolejeunea lineata*); last part of trail to summit of Cerro Yglesias, 5°31'N, 87°04–05'W, 500–634 m, 31 Mar 1988, *Lücking* 92-303, det. G. Dauphin Mar 2021 (USJ-47370!, *this publication*); Yglesias E, 500–634 m, Apr 1992, *Lücking* 283 (USJ, *Bernecker-Lücking* 2000 as *Cystolejeunea lineata*); Yglesias E,

500–634 m, Apr 1992, *Lücking* 363 (hb. Bernecker, *Bernecker-Lücking* 2000 as *Cystolejeunea lineata*); Yglesias E, 500–634 m, Apr 1992, *Lücking* 708 (hb. Bernecker, *Bernecker-Lücking* 2000 as *Cystolejeunea lineata*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Cheilolejeunea lobulata (Lindenb.) Gradst. et C.J.Bastos, *Nova Hedwigia* 111(3/4): 315, 2020 (Bastos and Gradstein 2020b). =*Lejeunea lobulata* Lindenb., *Syn. Hepat.* 3: 363, 1845 (Gottsche et al. 1845a). Type: St. Kitts.

=*Lejeunea oncophylla* Ångstr., *Öfvers. Kongl. Vetensk.-Akad. Förh.* 33(7): 86, 1876 (Ångström 1876), syn. fide Bastos and Gradstein (2020b). Type: Brazil.

=*Cheilolejeunea oncophylla* (Ångstr.) Grolle et M.E.Reiner, *J. Bryol.* 19(4): 781, 1997 (Grolle and Reiner-Drehwald 1997).

GUATEMALA. QUICHÉ: S. loc., Pérez 2365 (USCG, Pérez 2009 as *Cheilolejeunea oncophylla*).

COSTA RICA. S. loc. (*Schäfer-Verwimp* 2014 as *Cheilolejeunea oncophylla*; Lavocat Bernard 2018 as *Cheilolejeunea oncophylla*). **GUANACASTE:** La Cruz cantón, Guanacaste National Park, Sector Pitilla, 700–1,200 m, *Dauphin et al.* 1868 (CR, *Dauphin* 2005 as *Cheilolejeunea oncophylla*). **SAN JOSÉ:** Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,350–3,400 m, *Schäfer-Verwimp & Holz* SV/H-0154/B p.p. (M, *Gradstein and Bastos* 2021); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), *Schäfer-Verwimp & Holz* SV/H-0161/A (M, *Gradstein and Bastos* 2021); Pérez Zeledón cantón, Cordillera de Talamanca, Cerro Buenavista (Cerro de la Muerte), 3,350 m, 26 Dec 1992, *Schäfer-Verwimp & Holz* SV/H-0160 (hb. *Schäfer-Verwimp*, ALCB, *Bastos* 2017 as *Cheilolejeunea oncophylla*).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (*Salazar Allen et al.* 2021 as *Cheilolejeunea oncophylla*); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,510 m, *Schäfer-Verwimp & Verwimp* 34391 (JE, *Schäfer-Verwimp* 2014 as *Cheilolejeunea oncophylla*); Tier-ras Altas distrito, Parque Internacional La Amistad, Las Nubes, sendero Panamá Verde, 8°53'37.4"N, 82°38'52.5"W, 2,218 m, Sep 2015–Jul 2016, *Guerra-Batista et al.* (*Guerra-Batista et al.* 2020 as *Cheilolejeunea oncophylla*); Barú Volcano National Park (*Rodríguez-Quiel et al.* 2022 as *Cheilolejeunea oncophylla*). **COCLÉ:** Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 700–1,000 m, 31 Mar 2006, *Schäfer-Verwimp & Verwimp* 30780 (JE, *Schäfer-Verwimp* 2014 as *Cheilolejeunea oncophylla*). ***NASO TJEËR DI COMARCA:** Cerro Fábrega, 9°05'45"N, 82°53'10"W, 12 Feb 1995, *Dauphin* 1553A, det. G. Dauphin 2020 (CR!, *this publication*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Cheilelejeunea norisiae G.Dauphin et Gradst., *J. Bryol.* 25(4): 259, 2003 (Dauphin and Gradstein 2003). Holotype: Panama prov., Panama, Cerro Azul, Sendero El Cantar, 9°12'57"N, 79°24'32"W, *Dauphin* 96-23 (PMA-10120; isotypes, GOET, NY).

PANAMA. S. loc. (Bastos and Gradstein 2006, 2020a, 2020b; Mustelier 2012; Peralta and Reiner-Drehwald 2013; Schäfer-Verwimp 2014); S. loc., *Schäfer-Verwimp & Verwimp* 30821 (M, Heinrichs et al. 2014b; Schäfer-Verwimp et al. 2014; Bechteler et al. 2016a, 2016c; Zhu et al. 2017, 2018b; Zhu and Shu 2018). *BOCAS DEL TORO: Bocas del Toro distrito, Bastimentos, Salt Creek, Sendero a Long Beach, 9.29456°N, 82.10303°W, 70 m, 16 Aug 2017, *Gudiño* 3371, det. Dauphin Aug 2017 (PMA, *this publication*). COCLÉ: Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 945 m, 31 Mar 2006, *Schäfer-Verwimp & Verwimp* 30781 (JE, Schäfer-Verwimp 2014). PANAMA: Panamá distrito, Cerro Azul, Sendero el Cantar, 9°12'57"N, 79°24'32"W, *Dauphin* (PMA, Dauphin et al. 2006); Panamá distrito, Cerro Azul, Sendero el Cantar, 9°12'57"N, 79°24'32"W, 800–900 m, 20 Mar 1996, *Chung* 2007 (PMA, Dauphin and Gradstein 2003; Bastos 2017); Panamá distrito, Cerro Azul, Sendero el Cantar, 9°12'57"N, 79°24'32"W, 800–900 m, 20 Mar 1996, *Dauphin* 96-23 (PMA, GOET, NY, TYPE; Dauphin and Gradstein 2003, Bastos 2017). VERAGUAS: Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, *Schäfer-Verwimp & Verwimp* 30821 (JE, Schäfer-Verwimp 2014).

Also reported from the Caribbean.

Cheilelejeunea ovalis (Lindenb. et Gottsche) W.Ye, R.L. Zhu et Gradst., *Cryptog., Bryol.* 36(4): 326, 2015 (Ye et al. 2015).

≡*Lejeunea ovalis* Lindenb. et Gottsche, *Syn. Hepat.* 5: 754, 1847 (Gottsche et al. 1847). Type: Venezuela.

≡*Peltolejeunea ovalis* (Lindenb. et Gottsche) Schiffn., *Hepat. (Engl.-Prantl)*: 131, 1893 (Schiffner 1893a).

≡*Omphalanthus ovalis* (Lindenb. et Gottsche) Gradst., *Proc. Kon. Ned. Akad. Wetensch. C* 80: 411, 1977 (Gradstein et al. 1977).

≡*Odontolejeunea ovalis* (Lindenb. et Gottsche) Gradst., *Caldasia* 23(1): 209, 2001 (Gradstein et al. 2001a), nom. inval. (ICN2018 Art. 41.5; basionym not cited).

?GUATEMALA. S. loc. (Stephani 1911b as *Peltolejeunea ovalis*; Schäfer-Verwimp 2014 as *Omphalanthus ovalis*; Ellis et al. 2016b; Schäfer-Verwimp and Van Melick 2016). Note: We are not aware of any firsthand report from Guatemala.

*HONDURAS. *FRANCISCO MORAZÁN: Distrito Central municipio, La Tigra National Park, Sendero de la Cascada on the Jutiapa side, Montana de San Juancito, 14°12'N, 87°06'W, 1,800–2,050 m, 7 May 1991, *Davidse* 3425A, det. Dauphin May 2017 (MO-5141514! <http://tropicos.org/specimen/90080428>, *this publication*).

*NICARAGUA. *MATAGALPA: La Dalia municipio, Macizos de Peñas Blancas, SE side, drainage of Quebrada el Quebradon, slopes N and W of Hacienda San Sebastian,

13°14'–15°00"N, 85°38'00"W, 930 m, 20–21 Jan 1982, *Stevens et al.* 21413, det. Dauphin May 2017 (MO-6236076! <http://tropicos.org/specimen/100366237>, *this publication*); La Dalia municipio, Macizos de Peñas Blancas, SE side, drainage of Quebrada el Quebradon, slopes N and W of Hacienda San Sebastian, 13°14'–15°00"N, 85°38'00"W, 930 m, 20–21 Jan 1982, *Stevens et al.* 21413A, det. Dauphin May 2017 (MO-6236075! <http://tropicos.org/specimen/100366238>, *this publication*); La Dalia municipio, Macizos de Peñas Blancas, SE side, drainage of Quebrada el Quebradon, slopes N and W of Hacienda San Sebastian, 13°14'–15°00"N, 85°38'00"W, 930 m, 20–21 Jan 1982, *Stevens et al.* 21417, det. Dauphin May 2017 (MO-6236087! <http://tropicos.org/specimen/100366212>, *this publication*).

COSTA RICA. Cordillera de Talamanca, *Kappelle* 3434 (U, *Kappelle* 1996 as *Omphalanthus ovalis*); S. loc. (Gradstein et al. 1977 as *Omphalanthus ovalis*; Schäfer-Verwimp 2014 as *Omphalanthus ovalis*; Ellis et al. 2016b; Schäfer-Verwimp and Van Melick 2016). ALAJUELA: Alajuela cantón, Fraijanes, 1,500–1,700 m, *Standley* 47501 (*Herzog* 1951 as *Peltolejeunea ovalis*; Morales 1991 as *Omphalanthus ovalis*; Dauphin 2005 as *Omphalanthus ovalis*). CARTAGO: Turrialba cantón, Volcán Turrialba, S slope, near Finca, 2,000–2,400 m, *Standley* 34964 (*Herzog* 1951 as *Peltolejeunea ovalis*; Morales 1991 as *Omphalanthus ovalis*; Dauphin 2005 as *Omphalanthus ovalis*). PUNTARENAS: Coto Brus cantón, Fila Cruces, Laguna Gamboa, 8°57'00"N, 83°04'20"W, *Dauphin* 1736 (CR, Dauphin 2005 as *Omphalanthus ovalis*); Coto Brus cantón, Las Cruces, Jardín Botánico Wilson, *Picado* 245 (CR, Dauphin 2005 as *Omphalanthus ovalis*); Monteverde, <1,500 m (Dauphin 2005 as *Omphalanthus ovalis*; Morales 1991 as *Omphalanthus ovalis*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a as *Odontolejeunea ovalis*); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995 as *Omphalanthus ovalis*); Monteverde, 15 Jan 1965, *James*, W. 40d (R, Dauphin 2005 as *Omphalanthus ovalis*; Reed and Robinson 1971 as *Peltolejeunea ovalis*); S. loc. (Merwin et al. 2001 as *Omphalanthus ovalis*). SAN JOSÉ: Vásquez de Coronado cantón, Las Nubes, 1,500–1,900 m, *Standley* 38420 (*Herzog* 1951 as *Peltolejeunea ovalis*; Morales 1991 as *Omphalanthus ovalis*; Dauphin 2005 as *Omphalanthus ovalis*).

PANAMA. S. loc. (Verdoorn 1932 as *Peltolejeunea ovalis*; Ellis et al. 2016b). CHIRIQUÍ: Boquete distrito, Bajo Mono, along Rio Caldera, 8°50.5'N, 82°28.9'W, 1,670–1,745 m, 5 Apr 2006, *Schäfer-Verwimp & Verwimp* 30945/A (JE, Schäfer-Verwimp 2014 as *Omphalanthus ovalis*). COCLÉ: Antón distrito, El Valle de Antón, Alto de La Mesa, 8°38.3'N, 82°07.6'W, 850–870 m, 3 Apr 2009, *Schäfer-Verwimp & Verwimp* 34729 (JE, Schäfer-Verwimp 2014 as *Omphalanthus ovalis*). LOS SANTOS: Las Tablas distrito, Cerro Canajagua, ~950 m, *Troll* 157 (F, PMA, Stotler et al. 1998 as *Omphalanthus ovalis*); S. loc. (Schäfer-Verwimp 2014 as *Omphalanthus ovalis*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Cheilolejeunea piriflora Schiffn., *Bot. Jahrb. Syst.* 23(5): 592, 1897 (Schiffner 1897).

≡*Lejeunea piriflora* Gottsche ex Pol., *J. Bot.* 15: 227, 1877 (Polakowsky 1877), nom. inval. (ICN2018 Art. 38.1(a); no description). Type: Costa Rica, Alajuela, Jun 1875, *Polakowsky 120* (not localized).

COSTA RICA. S. loc. (Bonner 1963b; Reiner-Drehwald 1999); S. loc., *Polakowsky* (Schiffner 1897). **ALAJUELA:** S. loc., *Polakowsky* (*Polakowsky 1879* as *Lejeunea piriflora*); S. loc., Jun 1875, *Polakowsky 120* (**TYPE** of *Lejeunea piriflora*, *Polakowsky 1877* as *Lejeunea piriflora*; Geissler and Bischler 1987 as *Lejeunea piriflora*).

Not found outside Central America.

Cheilolejeunea quinquecarinata (R.M.Schust.) W.Ye, R.L.Zhu et Gradst., *Cryptog., Bryol.* 36(4): 326, 2015 (Ye et al. 2015).

≡*Aureolejeunea quinquecarinata* R.M.Schust., *Phytologia* 39(6): 429, 1978 (Schuster 1978b). Type: Venezuela.

COSTA RICA. S. loc., *Schäfer-Verwimp & Holz SV/H-0457/a* (JE, Ye et al. 2015 as *Aureolejeunea quinquecarinata*).

Also reported from the Caribbean, Northern South America, Western South America.

Cheilolejeunea revoluta (Herzog) Gradst. et Grolle, *J. Hattori Bot. Lab.* 74: 59, 1993 (Gradstein et al. 1993).

≡*Pycnolejeunea revoluta* Herzog, *Feddes Repert. Spec. Nov. Regni Veg.* 57(1/2): 193, 1955 (Herzog 1955a). Type: Colombia.

COSTA RICA. S. loc. (Gradstein and Costa 2003; Yano and Peralta 2009; Campos 2016; Bastos 2017; Bastos and Gradstein 2020a, 2020b; Gradstein 2021); S. loc., *Dauphin 1990* (GOET, Wilson et al. 2007; Heinrichs et al. 2012c, 2014a, 2014b; Czumay et al. 2013; Dong et al. 2013; Ye et al. 2013; Schäfer-Verwimp et al. 2014; Ye and Zhu 2018; Shu and Zhu 2019). **PUNTARENAS:** Coto Brus cantón, Fila Tigra, Palmira de Gutiérrez Braun, 8°56'40"N, 82°05'30"W, 1,100–1,200 m, *Dauphin & Chacón 1990* (CR, GOET [https://gwdu64.gwdg.de/pls/herbar/moos\\$moos.QueryViewByKey?P_ID=22350&Z_CHK=64326](https://gwdu64.gwdg.de/pls/herbar/moos$moos.QueryViewByKey?P_ID=22350&Z_CHK=64326), *Dauphin et al. 1998*; *Dauphin 2005*).

Also reported from the Caribbean(?), Northern South America, Western South America, Brazil.

Cheilolejeunea rigidula (Nees ex Mont.) R.M.Schust., *Castanea* 36(2): 102, 1971 (Schuster 1971a).

≡*Lejeunea rigidula* Nees ex Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 14: 336, 1840 (Montagne 1840). Type: French Guiana.

≡*Eusmolejeunea rigidula* (Nees ex Mont.) Steph., *Sp. Hepat. (Stephani)* 5: 682, 1915 (Stephani 1915).

=*Lejeunea duriuscula* Nees, *Syn. Hepat.* 3: 364, 1845 (Gottsche et al. 1845a), syn. fide Schuster (1980d). Type: Suriname.

≡*Eusmolejeunea duriuscula* (Nees) Steph., *Hedwigia* 29(2): 80, 135, 1890 (Stephani 1890c).

=*Cheilolejeunea polyantha* A.Evans, *Mem. Torrey Bot. Club* 8(2): 141, 1902 (Evans 1902b). Type: USA.

GUATEMALA. S. loc. (Fulford 1987; Reiner-Drehwald 1995b). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al. 14, 45, 47, 140* (USCG, *Freire et al. 2013*); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al. 2005*). **EL PETÉN:** San José municipio, El Zotz, *Can et al.* (USCG, *Morales 2011*).

BELIZE. S. loc. (Schuster 1980d; Fulford 1987 as *Eusmolejeunea rigidula*; Fulford and Sharp 1990 as *Eusmolejeunea rigidula*; Lücking 1995; Whittemore and Allen 1996; Ilkiu-Borges 2000; Bastos 2004; Campos 2016). ***BELIZE:** Crooked Tree village, 17°47'N, 88°32'W, 60 m, 22 Mar 1987, *Davidse & Brant 33147*, det. Dauphin Jun 2017 (MO-5227860! <https://tropicos.org/specimen/90100665>, **this publication**). ***TOLEDO:** Bladen Nature Reserve, Richardson Creek, 16°33'N, 88°48'W, 2–3 Mar 1987, *Davidse 31929 p.p.*, det. Dauphin May 2017 (MO-6699907!, **this publication**); Punta Gorda, Oct 1932, *White 17*, det. Dauphin Jun 2017 (MO-5375190!, **this publication**); Punta Gorda, Feb 1963, *White 91*, det. Dauphin Jun 2017 (MO-5247604!, **this publication**); Punta Gorda, Feb 1933, det. Dauphin Jun 2017 (MO-5223868! <https://tropicos.org/specimen/90093864>, **this publication**).

***HONDURAS.** S. loc. (Fulford 1987 as *Eusmolejeunea rigidula*; Fulford and Sharp 1990; Lücking 1995; Ilkiu-Borges 2000; Bastos 2004). ***COMAYAGUA:** Rio Selguapa, ~4 km SE of Siguatepeque, 14°34'N, 87°48'W, 8 May 1992, *Allen 11806*, det. Whittemore 1992 (MO-3965013! <http://tropicos.org/specimen/101212842>, **this publication**). ***CORTÉS:** San Francisco de Yojoa municipio, Pena Blanca, 19 Feb 1983, *Tag 1983-7*, det. Dauphin Jun 2017 (MO-5378717!, **this publication**). ***OLANCHO:** Catacamas municipio, Sierra de Algalta, Montana Babilonia, trail from La Chorrera to lower gate, 12 km E of Gualaco, 15°10'N, 85°58'W, 4 Jun 1992, *Allen 12810B*, det. Dauphin Jun 2017 (MO-3964984! <http://tropicos.org/specimen/101213059>, **this publication**). Note: Here confirmed for Honduras.

***EL SALVADOR.** ***AHUACHAPÁN:** San Ramón, 9 Dec 2008, *Búcaro H120*, det. Dauphin (MHES!, **this publication**). ***SANTA ANA:** Metapán municipio, Montecristo, calle a Los Planes, *Búcaro H328*, det. Dauphin (MHES!, **this publication**).

***NICARAGUA.** ***ATLÁNTICO NORTE:** Waspán municipio, ~13 km above Kururia, 14°42'N, 84°11'W, 2 Mar 1979, *Pipoly 3762 p.p.*, det. Dauphin May 2017 (MO-6699912! <http://tropicos.org/specimen/100988658>, **this publication**). ***ESTELÍ:** Estelí municipio, Estelí-Laguna Miraflores road, 7 km W of Laguna entrance, 7 May 2010, *Magill 14009 p.p.*, det. Dauphin May 2017 (MO-6699943! <http://tropicos.org/specimen/100988181>, **this publication**). ***MANAGUA:** Managua municipio, ~5.4 km NE of El Crucero, ridge of Sierra de Managua near Hacienda Palmira, 12°01'N, 86°16'W, 25 Aug 1977, *Stevens 3527*, det. Whittemore May 1989 (MO-2846409! <http://tropicos.org/specimen/100200743>, **this publication**).

COSTA RICA. Cordillera de Talamanca, *Van Dunné* 126 (AMD, Kappelle 1996); S. loc. (Ilkiu-Borges 2000; Bastos 2004). **GUANACASTE:** La Cruz cantón, Guanacaste National Park, Cerros Santa Elena, 10°53'24"N, 85°50'55"W, 650–700 m, 27 Aug 2003, *Dauphin et al.* 3319 (CR, Dauphin and Grayum 2005); Tilarán cantón, NE of Tilarán, 20 Feb 1930, *Dodge & Thomas* 6580, det. Dauphin Jun 1970 (MO-5243767!, **this publication**). **HEREDIA:** San Isidro cantón, Yerba Buena, 2,000 m, *Standley* 50014 p.p. (Herzog 1951 as *Euosmolejeunea rigidula*; Morales 1991); San Isidro cantón, Yerba Buena, *Standley* 50049 p.p. (Herzog 1951 as *Euosmolejeunea rigidula*; Morales 1991; Dauphin 2005); San Isidro cantón, Yerba Buena, NE of San Isidro, 2,000 m, *Standley* 49061, 50010 p.p. (Herzog 1951 as *Euosmolejeunea rigidula*, Morales 1991; Dauphin 2005). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 92-151, 92-187, 92-188, 92-379, 92-486, 92-546, 92-778 (hb. Lücking, Lücking 1995); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (Lücking 1997); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 92-558 (hb. Lücking, Lücking 1995; Bastos 2012); Pococí cantón, Braulio Carrillo National Park, Quebrada González, 10°12'N, 83°55'W, 460–480 m, 1 Jun 1992, *Lücking* 92-558 (EGR, Bastos 2017 also as *Cheilolejeunea polyantha*). **PUNTARENAS:** Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009); Monteverde, <1,500 m (Dauphin 2005; Morales 1991); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995); Monteverde, *James*, W. 105 (Dauphin 2005); Monteverde, 16 Mar 1969, *James*, W. 1969-102, det. Dauphin Jun 2017 (MO-4426389!, **this publication**); Osa cantón, Osa Peninsula, Rincón, Centro Boscosa, 150 m, Oct 1993, *Gradstein* (Gradstein 1999b); S. loc. (Merwin et al. 2001). **SAN JOSÉ:** Dota cantón, San Gerardo, 9°35'40"N, 83°44'30"W, 3,000 m, Aug 1992, *Van Dunné* (Van Dunné and Kappelle 1998).

PANAMA. Canal Zone (Schäfer-Verwimp 2014); S. loc. (Gradstein 1993; Lücking 1995; Stotler et al. 1998; Ilkiu-Borges 2000; Bastos 2004). **BOCAS DEL TORO:** Bocas del Toro distrito, Dolphin Bay, 9°13'16.9"N, 82°13'03.0"W, 16 m, 15 Aug 2017, *Dauphin* 4609 (PMA, **this publication**); Bocas del Toro distrito, Dolphin Bay, 9°13'16.9"N, 82°13'03.0"W, 16 m, 15 Aug 2017, *Dauphin* 4611 (PMA, **this publication**); Dolphin Bay (9°13'14.7"N, 82°13'02.9"W), Aug 2017 (Salazar Allen et al. 2022); Tranquilo Bay Eco Adventure Lodge (9°15'23.1"N, 82°08'41.4"W) in Isla Bastimento (Salazar Allen et al. 2022). **CHIRIQUÍ:** S. loc. (Schäfer-Verwimp 2014); Tierras Altas distrito, Volcán, 9 Aug 1950, *Chickering* (MICH, Stotler et al. 1998). **COCLÉ:** Antón distrito, El Valle de Antón, ascent to

"India Dormida," 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, *Schäfer-Verwimp & Verwimp* 34112, 34153/B, 34175/C (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8'N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34262/F (JE, Schäfer-Verwimp 2014); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Río Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López* 661, 672, 674, 738, 740, 741, 747.2, 803, 819 p.p., 821, 822, 824 p.p., 837 (PMA, Sierra et al. 2019a). ***COLÓN:** Colón distrito, Quebrada Bonita, 70–80 m, 27 Dec 1934, *Steyermark* 17161, det. Dauphin Jun 2017 (MO-5243733! <https://tropicos.org/specimen/90119102>, **this publication**); Colón distrito, trail to triangulation station on top of Tumba Vieja, 90–200 m, 12 Dec 1934, *Dodge* 16951, det. Dauphin Jun 1970 (MO-5243728! <https://tropicos.org/specimen/90119097>, **this publication**); Portobelo, 28 Nov 1977, *Balázs* B/77/11/B, det. Dauphin Jan 2017 (EGR, CR!, **this publication**). **DARIÉN:** Cerro Pirre (Stotler et al. 1998); Cerro Pirre, Trail El Real–Pirre, along Río Pirre, ~50 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992); Cerro Pirre, trail to Pirre 2, 50 m, *Salazar Allen & Gradstein* 9200 (PMA, Stotler et al. 1998); S. loc. (Schäfer-Verwimp 2014). **PANAMA WEST:** La Chorrera distrito, Barro Colorado Island (Salazar Allen and Chung 2003); La Chorrera distrito, Barro Colorado Island, *Gradstein & Salazar Allen* 15072, 15093a, 15115 (Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, *Shattuck* 4CH (F, Stotler et al. 1998); La Chorrera distrito, Barro Colorado Island, Barbour Point, 2003, *Dauphin* 3157 (CR, PMA, Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Camino F. Miller, 9°09'N, 79°51'W, *Salazar Allen & Chung* 4538 (PMA, Stotler et al. 1998; Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Camino Fairchild 1 and 17–18, *Salazar Allen et al.* 6035, 6079 (PMA, Stotler et al. 1998; Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Camino J. van Tyne–Big Trees, *Salazar Allen & Chung* 4627b (PMA, Stotler et al. 1998; Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Camino Lutz, *Shattuck* 568 p.p. (F, PMA, Stotler et al. 1998); La Chorrera distrito, Barro Colorado Island, Gross 10, 2003, *Dauphin* 3171 (CR, PMA, Dauphin et al. 2022); La Chorrera distrito, Gatún, 1 Jan 1910, *Howe* 15330, det. Dauphin Jun 2017 (MO-5226626!, **this publication**). **PANAMA:** Panamá City, 18 Apr 1972, *Richards* 2043 (EGR, Bastos 2017 as *Cheilolejeunea duriuscula*); Panamá distrito, Avenida Franji-Pani, near Smithsonian Tropical Research Institute, 50 m, 22 Apr 1991, *Gradstein* 7886 (MO, EGR, Stotler et al. 1998); Road between Arraijan and La Chorrera, 18 Apr 1974, *Richards* 2043 (EGR, Bastos 2012). **VERAGUAS:** Isla Canales de Tierra, Sendero de los tanques de reserva de agua, 7°45'N, 81°35'W, Jan 2002, *Salazar Allen et al.* 19761 (PMA, Salazar Allen and Chung 2003, 2006); Santa Fe distrito, base of Cerro Tute, 8°30'N, 81°06'W, 710–890 m, 26 Mar 2009, *Schäfer-Verwimp & Verwimp* 34274 (JE, Schäfer-Verwimp 2014).

COCOS I. Boca Río Yglesias, 5°32'57"N, 87°03'56"W, 0 m, *Dauphin* 1143, det. G. Dauphin Apr 2021 (CR-4468159!, **this publication**); NE de la Isla, 200 m, 14 Feb 1994, *Dauphin* (USJ, **Dauphin 1995**); Río Genio, 5°32'57"N, 87°03'36"W, 10 m, 26 Jan 1994, *Dauphin* 1057, det. G. Dauphin Mar 2021 (USJ-47227!, CR-4468336!, W-0207412! <https://w.jacq.org/W0207412>, **this publication**); Río Genio, 5°32'57"N, 87°03'56"W, 0–50 m, Apr 1992, *Lücking* 510 (USJ, Bernecker-Lücking 2000 as *Cheilelejeunea* cf. *rigidula*); Río Genio, 5°32'57"N, 87°03'56"W, 0–50 m, Apr 1992, *Lücking* 545 (hb. Bernecker, Bernecker-Lücking 2000 as *Cheilelejeunea* cf. *rigidula*); Río Genio, 5°32'57"N, 87°03'56"W, 10 m, 14 Feb 1994, *Dauphin* 1057 (USJ, **Dauphin 1995, 1999**); S. loc. (Dauphin 1995, 2005; Salazar Allen and Chung 2003); Yglesias B, 150–250 m, Apr 1992, *Lücking* 571 (hb. Bernecker, Bernecker-Lücking 2000 as *Cheilelejeunea* cf. *rigidula*).

Also reported from Macaronesia, West Tropical Africa, West-Central Tropical Africa, East Tropical Africa, Western Indian Ocean, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasias, Southwestern Pacific(?), Northwestern Pacific(?), Northeastern USA(?), South-Central USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Cheilelejeunea schaefer-verwimp Gradst. et C.J.Bastos., *Nova Hedwigia* 113(1/2): 82, 2021 (Gradstein and Bastos 2021). Holotype: Costa Rica, Cartago: Cordillera de Talamanca, Panamericano km 67, Reserva 3 de Junio, “in Quellmoor epiphytisch an Sträuchern,” 2,460 m, 3 Jan 2000, A. Schäfer-Verwimp & I. Holz 0452/B as *C. choachina* (JE, isotypes GOET, CR).

COSTA RICA. **CARTAGO:** El Guarco cantón, 3 de Junio, 2,460 m, 3 Jan 2000, *Schäfer-Verwimp* & Holz SV/H-0452/B (JE, GOET, CR, **TYPE**, Gradstein and Bastos 2021).

Not found outside Central America.

Cheilelejeunea tonduziana (Steph.) W.Ye, R.L.Zhu et Gradst., *Cryptog., Bryol.* 36(4): 326, 2015 (Ye et al. 2015).

≡ *Archilejeunea tonduziana* Steph., *Sp. Hepat. (Stephani)* 4: 721, 1911 (Stephani 1911b). Lectotype (Bonner 1962a): Costa Rica, Cartago, Turrialba, Forêts du Río Naranjo, 200–250 m, 1893, *Tonduz*, hb. Vetter 3016 (G-00046867 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=119795&lang=en>).

≡ *Aureolejeunea tonduziana* (Steph.) Gradst., *Phytotaxa* 76(3): 46, 2013 (Gradstein 2013a).

≡ *Aureolejeunea fulva* R.M.Schust., *Phytologia* 39(4): 429, 1978 (Schuster 1978b), syn. fide Gradstein (2013a). Type: Venezuela.

≡ *Cheilelejeunea fulva* (R.M.Schust.) W.Ye et R.L.Zhu ex M.Wigginton, *J. Bryol.* 34(4): 275 (Wigginton 2012).

GUATEMALA. **ALTA VERAPAZ:** Panzós municipio, Cahabón and/or Senahú, 2012, Pérez & López-Medina, det. M. Pérez (Pérez and López-Medina 2012 as *Aureolejeunea fulva*); Tucurú, Pérez 111 (USCG, Pérez 2006, 2009, both as *Aureolejeunea fulva*). **BAJA VERAPAZ:** S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008 as *Aureolejeunea fulva*).

HUEHUETENANGO: S. loc., Pérez 1424 (USCG, Pérez 2009 as *Aureolejeunea fulva*). **QUICHÉ:** S. loc. Pérez 2353 (USCG, Pérez 2009 as *Aureolejeunea fulva*).

***EL SALVADOR.** ***SANTA ANA:** Metapán municipio, Montecristo, calle Los Planes, 12 Nov 2014, Búcaro H326, det. Dauphin (MHES!, **this publication**).

COSTA RICA. Cordillera de Talamanca (**Holz and Gradstein 2005b** as *Aureolejeunea fulva*; Holz 2006 as *Aureolejeunea fulva*); S. loc. (**Stephani 1911b** as *Archilejeunea tonduziana*; Nöske et al. 2003 as *Aureolejeunea fulva*; Gradstein and Holz 2005 as *Aureolejeunea fulva*; Mandl 2007 as *Aureolejeunea fulva*; Ellis et al. 2013 as *Aureolejeunea tonduziana*; Lavocat Bernard 2018); S. loc., 25 Nov 1994, *Gradstein & Mues* 9695 (GOET, **Wigginton 2012** as *Cheilelejeunea fulva*). **CARTAGO:** El Guarco cantón, 3 de Junio, 2,600 m, *Gradstein & Morales* 9390 (U, USJ, **Gradstein et al. 1994** as *Aureolejeunea fulva*; **Kappelle 1996** as *Aureolejeunea fulva*; **Dauphin 2005** as *Aureolejeunea fulva*); Jiménez cantón, Río Naranjo, 200–250 m, 1893, *Tonduz*, hb. Vetter 3016 (G-00046867 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=119795&lang=en>, **TYPE**, **Bastos 2017**); Jiménez cantón, Río Naranjo, 200–250 m, Mar 1893, *Tonduz* (hb. Levier 15653 in G, **Bonner 1962a** as *Archilejeunea tonduziana*). **SAN JOSÉ:** Cordillera de Talamanca, Holz CR 00-823 (**Groth-Malonek et al. 2004** as *Aureolejeunea fulva*); Dota cantón, Cerro Sákira, Pan-American Highway km 87, 9°35'N, 83°46'W, 22 Mar 2003, Holz CR 00-696, det. Holz (GOET, MO-5282862, **Czumay et al. 2013** as *Aureolejeunea fulva*); Dota cantón, San Gerardo, Holz (Holz 2003 as *Aureolejeunea fulva*); Los Santos Forest Reserve, ~2,900 m (**Holz and Gradstein 2005a** as *Aureolejeunea fulva*).

?PANAMA. **?CHIRIQUÍ:** Tierras Altas distrito, Parque Internacional La Amistad, Las Nubes, sendero Panamá Verde, 8°53'37.4"N, 82°38'52.5"W, 2,218 m, Sep 2015–Jul 2016, *Guerra-Batista et al.* (Guerra-Batista et al. 2020 as *Cheilelejeunea* cf. *tonduziana*). Note: We are not aware of any positively identified specimen from Panama.

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Cheilelejeunea trifaria var. *clausa* (Nees et Mont.) C.J.Bastos et Gradst., *Nova Hedwigia* 111(3/4): 327, 2020 (Bastos and Gradstein 2020b).

≡ *Lejeunea clausa* Nees et Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 14: 337, 1840 (Montagne 1840). Type: French Guiana.

≡ *Euosmolejeunea clausa* (Nees et Mont.) A.Evans, *Bryologist* 11(4): 69, 1908 (Evans 1908b).

≡ *Cheilelejeunea clausa* (Nees et Mont.) R.M.Schust., *Hepat. Anthocer. N. Amer.* 4: 863, 1980 (Schuster 1980d).

≡ *Lejeunea opaca* Gottsche, *Syn. Hepat.* 3: 362, 1845 (Gottsche et al. 1845a), syn. fide Evans (1908b). Type: Suriname.

≡ *Euosmolejeunea opaca* (Gottsche) Steph., *Hedwigia* 29(2): 79, 1890 (Stephani 1890c).

GUATEMALA. S. loc., Norris (Robinson 2019 as *Cheilelejeunea clausa*). ***EL PETÉN:** Flores municipio, SW side of Laguna

Yaxhá, Reserva Privada Yaxhá, 17°03.295'N, 89°23.236'W, 25 Jan 2006, *Quedensley* 4226, det. Dauphin Sep 2017 (MO-W-008958!, [this publication](#)). *IZABAL*: El Junquillo, 259 m, 1 Jun 1893, *Wurr* (HBG, JE, *Bastos* 2017 as *Cheilolejeunea clausa*).

BELIZE. ***BELIZE**: Tropical Education Center Mile 28–29 on Western Highway, 17°21'N, 88°32'W, 10 m, 5 Dec 1996, *Allen* 17992, det. Dauphin Jun 2017 (MO-5228041! [https://tropicos.org/specimen/90102217](#), [this publication](#)). ***CAYO**: Caracol Ruins, ~14 km W of Las Cuevas Field Station, 16°45'35"N, 89°06'07"W, 520 m, 9 Dec 1996, *Allen* 18181, det. Dauphin Jun 2017 (MO-4417035! [https://tropicos.org/specimen/90046795](#), [this publication](#)); Las Cuevas Field Station, 16°44'N, 88°59'W, 550 m, 8 Dec 1996, *Allen* 18121, det. Dauphin Jun 2017 (MO-4417036! [https://tropicos.org/specimen/90046794](#), [this publication](#)); Mountain Pine Ridge Area along Mahogany Creek, ~5 km S of Augustine, 16°55'N, 89°00'W, 480 m, 9 Dec 1996, *Allen* 18235, det. Dauphin Jun 2017 (MO-4417034! [https://tropicos.org/specimen/90046796](#), [this publication](#)); Mountain Pine Ridge, Blancaneaux Lodge, 17 mi (27 km) S of Georgeville, 600 m, 24 Jan 1974, *Liesner & Dwyer* 1617, det. Dauphin Jun 2017 (MO-2173605! [https://tropicos.org/specimen/2075506](#), [this publication](#)); Raspaculo Branch below the confluence with the Monkey Tail Branch, 16°49'N, 88°56'W, 370 m, 14 Dec 1996, *Allen* 18439, det. Dauphin Jun 2017 (MO-4417033! [https://tropicos.org/specimen/90046797](#), [this publication](#)). **TOLEDO**: Edwards Road beyond Columbia, Sulphur Hill, 7 Dec 1950, *Gentle* 7193 (EGR, *Bastos* 2017 as *Cheilolejeunea clausa*).

COSTA RICA. S. loc. (Cole 1982 as *Euosmolejeunea clausa*, 1983 as *Euosmolejeunea clausa*). ***LIMÓN**: Pococí cantón, Tortuguero, 10°31'N, 83°32'W, 2 Aug 1993, *Timme* 11249, det. Dauphin Jun 2017 (MO-6690018! [https://tropicos.org/specimen/100860881](#), [this publication](#)). **PUNTARENAS**: Buenos Aires cantón, Boruca (*Tonduz* 1895a as *Euosmolejeunea opaca*); Buenos Aires cantón, Boruca, *Pittier* 6065, 6071 (*Stephani* 1893c as *Euosmolejeunea opaca*; *Morales* 1991 as *Cheilolejeunea clausa*; *Dauphin* 2005 as *Cheilolejeunea clausa*); Monteverde (*Morales* 1991 as *Cheilolejeunea clausa*); Monteverde, 15 Jan 1965, *James*, W. 41d, 1969–102 (R, *Reed and Robinson* 1971 as *Euosmolejeunea clausa*; *Dauphin* 2005 as *Cheilolejeunea clausa*).

PANAMA. **BOCAS DEL TORO**: Bocas del Toro distrito, Bastimentos, Salt Creek, Sendero a Long Beach, 9.29456°N, 82.10303°W, 70 m, 16 Aug 2017, *Caswell-Levy* 1042, 1043 (PMA, [this publication](#)); Salt Creek (9°17'39.7"N, 82°06'11.2"W) on Isla Bastimento, Aug 2017 (*Salazar Allen et al.* 2022). **CHIRIQUÍ**: S. loc. (*Schäfer-Verwimp* 2014 as *Cheilolejeunea clausa*); Tierras Altas distrito, Volcán, 9 Aug 1950, *Chickering* (MICH, *Crum and Arzeni* 1953 as *Euosmolejeunea clausa*; *Stotler et al.* 1998 as *Cheilolejeunea clausa*). **COCLÉ**: Antón distrito, El Valle de Antón, roadside in crater of extinct volcano, 8°36.3'N, 80°07.8'W, 600 m, 24 Mar 2009, *Schäfer-Verwimp & Verwimp* 34180/B (JE, *Schäfer-Verwimp* 2014 as *Cheilolejeunea clausa*). ***COLÓN**: Colón distrito, Tumba Vieja, 70 m, 3 Dec 1934, *Dodge* 16762, det. Dauphin Jun 2017 (MO-5243724! [https://](#)

[tropicos.org/specimen/90119093](#), [this publication](#)). ***DARIÉN**: Pinogana distrito, trail to Cana ~2 km from Cruces de Mono field station, ~20 km SSW of Boca de Cupé, 7°24'N, 77°37'W, 160–200 m, 1 May 1990, *Allen* 8782, det. Dauphin Jun 2017 (MO-3677048! [https://tropicos.org/specimen/101210634](#), [this publication](#)). ***PANAMA WEST**: Between junction with Río Pequení and Río Indio, 5 Dec 1934, *Steyermark* 16796, det. Dauphin Jun 2017 (MO-5243725! [https://tropicos.org/specimen/90119094](#), [this publication](#)).

Also reported from Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Cheilolejeunea trifaria (Reinw., Blume et Nees) Mizut., *J. Hattori Bot. Lab.* 27: 132, 1964 (Mizutani 1964) var. *trifaria*.

≡ *Jungermannia trifaria* Reinw., Blume et Nees, *Nova Acta Phys.-Med. Acad. Caes. Leop.-Carol. Nat. Cur.* 12(1): 226, 1825 (Reinwardt et al. 1824a).

Type: Java.

≡ *Euosmolejeunea trifaria* (Reinw., Blume et Nees) Steph., *Hedwigia* 29(2): 78, 137, 1890 (Stephani 1890c).

GUATEMALA. **ALTA VERAPAZ**: Cobán, Las Victorias National Park, 600 m, 2002 (*Andersohn* 2004); Panzós municipio, Cahabón and/or Senahú, 2012, *Pérez & López-Medina*, det. M. Pérez (*Pérez and López-Medina* 2012); Tucurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, *Pérez* 234 (USCG, *Pérez* 2006). **EL PETÉN**: S. loc., *Morgan* 47 (MO [https://tropicos.org/specimen/90205559](#), *Pérez* 2009).

BELIZE. S. loc. (*Fulford* 1938 as *Euosmolejeunea trifaria*; *Whittemore and Allen* 1996). **CAYO**: Mountain Pine Ridge, Blancaneaux Lodge, 17 mi (27 km) S of Georgeville, 600 m, 24 Jan 1974, *Liesner & Dwyer* 1617, det. Dauphin Jun 2017 (MO-2173605! [https://tropicos.org/specimen/2075506](#), *Whittemore and Allen* 1996). ***TOLEDO**: Columbia River Forest Reserve, Union Camp, 16°23'54"N, 89°08'29"W, 600–700 m, 10 Feb 1997, *Allen* 18507, det. *Whittemore* 2000 (MO-5215165! [https://tropicos.org/specimen/90088074](#), [this publication](#)); Punta Gorda, Oct 1932, *White* 22, det. *Fulford* 1937 (MO-5375139!, [this publication](#)).

HONDURAS. S. loc. (*Miller et al.* 1983). **COMAYAGUA**: Río Selguapa, ~4 km SE of Siguatepeque, 14°34'N, 87°48'W, 1,600 m, 2 Mar 1993, *Allen* 13441, det. *Whittemore* 1999 (MO-5211112! [https://tropicos.org/specimen/90081980](#), [this publication](#)); Siguatepeque, 1,080–1,400 m, *Standley* (*Herzog* 1951 as *Euosmolejeunea trifaria*).

***NICARAGUA.** ***BOACO**: Camoapa municipio, 5 km N of El Zancudo empalme road from Cuapa to Camoapa, 12°20'02"N, 85°23'57"W, 535 m, 10 Dec 2012, *Stevens* 33360 p.p., det. Dauphin May 2017 (MO-6699940! [http://tropicos.org/specimen/100988178](#), [this publication](#)).

COSTA RICA. **CARTAGO**: El Muñeco, Río Reventazón, 1,400–1,500 m, *Standley* 51002 (*Herzog* 1951 as *Euosmolejeunea trifaria*; *Morales* 1991; *Dauphin* 2005). **GUANACASTE**: Tilarán, 500–650 m, *Standley* 44347 (*Herzog* 1951 as *Euosmolejeunea trifaria*; *Morales* 1991; *Dauphin* 2005). ***LIMÓN**: Pococí

cantón, Tortuguero, 10°31'N, 83°32'W, 2 Aug 1993, *Timme 11211*, det. Dauphin Jun 2017 (MO-6690022! <https://tropicos.org/specimen/100860408>, [this publication](#)); Pococí cantón, Tortuguero, 10°31'N, 83°32'W, 2 Aug 1993, *Timme 11252*, det. Dauphin Jun 2017 (MO-6690021! <https://tropicos.org/specimen/100861255>, [this publication](#)). **PUNTARENAS:** Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, *Gradstein et al.* (U, *Sillett et al. 1995*); Osa cantón, Osa Peninsula, Rincón, Centro Boscosa, 150 m, Oct 1993, *Gradstein (Gradstein 1999b)*; S. loc. (*Merwin et al. 2001*).

PANAMA. BOCAS DEL TORO: Bocas del Toro distrito, Bastimentos, Salt Creek, Sendero a Long Beach, 9.29456°N, 82.10303°W, 70 m, 16 Aug 2017, *Cox 116*, det. Cox Aug 2017 (PMA, [this publication](#)); Dolphin Bay (9°13'14.7"N, 82°13'02.9"W), Aug 2017 (*Salazar Allen et al. 2022*); Punta Donato (9°22'45.5"N, 82°22'07.8"W; *Salazar Allen et al. 2022*); Salt Creek (9°17'39.7"N, 82°06'11.2"W) on Isla Bastimento, Aug 2017 (*Salazar Allen et al. 2022*); Tranquilo Bay Eco Adventure Lodge (9°15'23.1"N, 82°08'41.4"W) in Isla Bastimento (*Salazar Allen et al. 2022*). **CHIRIQUÍ:** Gualaca distrito, entrance to Escuela Los Planes (along road from Chiriquí to Chiriquí Grande), 8°37.8'N, 82°12.8'W, 980 m, 30 Mar 2009, *Schäfer-Verwimp & Verwimp 34528* (JE, *Schäfer-Verwimp 2014*); Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (*Salazar Allen et al. 2021*); Gualaca distrito, Fortuna Forest Reserve, Cerro Hornito, 1,670–2,300 m (*Salazar Allen et al. 2021*); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, near southern edge of storage lake, 8°44.0'N, 82°14.5'W, 1,215 m, 30 Mar 2009, *Schäfer-Verwimp & Verwimp 34483/B* (JE, *Schäfer-Verwimp 2014*); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,350 m, *Schäfer-Verwimp & Verwimp 34344* (JE, *Schäfer-Verwimp 2014*); Gualaca distrito, Reserva Forestal Fortuna, an der Strasse von Chiriquí nach Chiriquí Grande, oberhalb de Finca La Suiza, 8°39'N, 82°12'W, 1,400 m, 29 Mar 2013, *Schäfer-Verwimp 34366/A* (hb. Schäfer-Verwimp, ALCB, *Bastos 2017*); Tierras Altas distrito, Volcán, road to Río Sereno, 8°49.5'N, 82°41.5'W, 1,580 m, 2 Apr 2009, *Schäfer-Verwimp & Verwimp 34683*, det. A. Schäfer-Verwimp (JE, *Schäfer-Verwimp 2014*). **COCLÉ:** Antón distrito, El Valle de Antón, along road to Mato Ahogado, 8°37.05'N, 82°06.60'W, 670 m, 4 Apr 2009, *Schäfer-Verwimp & Verwimp 34746* (JE, *Schäfer-Verwimp 2014*); Antón distrito, El Valle de Antón, Alto de La Mesa, 8°38.3'N, 82°07.6'W, 850–870 m, 3 Apr 2009, *Schäfer-Verwimp & Verwimp 34725* (JE, *Schäfer-Verwimp 2014*); Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, *Schäfer-Verwimp & Verwimp 34159/A* (JE, *Schäfer-Verwimp 2014*); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Río Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López 695, 697 p.p., 698, etc.* (PMA, *Sierra et al. 2019a*). **DARIÉN:** Pinogana distrito, Parque

Nacional de Darién, Cruce de Mono field station, 20 km SSW of Boca de Cupe, ridge trail from Cana Road, 200 m, 29 Apr 1990, *Allen 8651* (MO <https://tropicos.org/specimen/101210275>, *Stotler et al. 1998*); Pinogana distrito, trail to Cana ~2 km from Cruces de Mono field station, ~20 km SSW of Boca de Cupé, 7°58'N, 77°40'W, 160–200 m, 1 May 1990, *Allen 8782*, det. Dauphin Jun 2017 (MO-3677048! <https://tropicos.org/specimen/101210634>, *Stotler et al. 1998*); S. loc. (*Schäfer-Verwimp 2014*). **PANAMA WEST:** Capiira distrito, Altos de Campana National Park, Sendero de Interpretación, *Salazar Allen & Gradstein 9454* (PMA, U, *Stotler et al. 1998*). **PANAMA:** S. loc. (*Schäfer-Verwimp 2014*, probably including and referring to Panama West).

Also reported from the West Tropical Africa, West-Central Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Australia, New Zealand, Southwestern Pacific, Southeastern Pacific, Northwestern Pacific, Northeastern Pacific, Southeastern USA, Mexico, Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Cheilolejeunea uncioloba (Lindenb.) Malombe, *Acta Bot. Hung.* 51(3/4): 325, 2009 (Malombe 2009).

≡ *Lejeunea uncioloba* Lindenb., *Syn. Hepat.* 3: 331, 1845 (Gottsche et al. 1845a). Type: Brazil.

≡ *Leucolejeunea uncioloba* (Lindenb.) A. Evans, *Torreyia* 7(12): 22, 1907 (Evans 1907a).

BELIZE. CAYO: Mountain Pine Ridge, Cave Rio Frio, 650 m, 1996, *Eggers BEZ 2/35* (hb. Eggers, *Eggers et al. 1998* as *Leucolejeunea uncioloba*).

Also reported from East Tropical Africa, Southern Africa, Western Indian Ocean(?), North-Central USA, Northeastern USA, South-Central USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands.

Cheilolejeunea valenciae (Steph.) Xiao L. He, *Ann. Bot. Fenn.* 33(1): 55, 1996 (He 1996).

≡ *Pycnolejeunea valenciae* Steph., *Sp. Hepat. (Stephani)* 5: 605, 1914 (Stephani 1914). Type: “America Tropica.”

HONDURAS. S. loc. (Dauphin et al. 2008; *Bastos 2017*; *Bastos and Gradstein 2020a*). Note: We are not aware of any firsthand report from Honduras.

NICARAGUA. S. loc. (*Bastos and Gradstein 2020b*); S. loc., *Reap* (G, *He 1996*). **GRANADA:** Granada municipio, N Granada, Küsten Cordillera, *Reap* (G, *He 1996*).

Also reported from Northern South America.

Cheilolejeunea xanthocarpa (Lehm. et Lindenb.) Malombe, *Acta Bot. Hung.* 51(3/4): 326, 2009 (Malombe 2009).

≡ *Jungermannia xanthocarpa* Lehm. et Lindenb., *Nov. Stirp. Pug.* 5: 8, 1833 (Lehmann 1833). Type: Brazil.

≡ *Archilejeunea xanthocarpa* (Lehm. et Lindenb.) Steph., *Hedwigia* 29(3): 134, 1890 (Stephani 1890a).

≡*Leucolejeunea xanthocarpa* (Lehm. et Lindenb.) A.Evans, *Torreyia* 7(12): 229, 1907 (Evans 1907a).

GUATEMALA. **ALTA VERAPAZ:** Panzós municipio, Cahabón and/or Senahú, 2012, Pérez & López-Medina, det. M. Pérez (Pérez and López-Medina 2012 as *Leucolejeunea xanthocarpa*); S. loc., Pérez 255 (USCG, Pérez 2009 as *Leucolejeunea xanthocarpa*); Tukurú, Pérez 255 (USCG, Pérez 2006 as *Leucolejeunea xanthocarpa*).

BELIZE. **CAYO:** Mountain Pine Ridge, Cave Rio Frio, 650 m, 1996, Eggers BEZ 2/35 (hb. Eggers, Eggers et al. 1998 as *Leucolejeunea xanthocarpa*). ***TOLEDO:** Columbia River Forest Reserve, Little Quartz Ridge, 16°23'58"N, 89°06'41"W, 940 m, 19 Feb 1997, Allen 18953 p.p., det. Dauphin Jun 2017 (MO-6699925! <https://tropicos.org/specimen/100988596>, this publication).

HONDURAS. S. loc. (Fulford and Sharp 1990 as *Leucolejeunea xanthocarpa*). **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, 20–600 m, Standley 65209 (Herzog 1951 as *Leucolejeunea xanthocarpa*). ***OCOTEPEQUE:** Belén Gualcho municipio, Cordillera de Celaque, 5.5 mi (8.8 km) N of Belén Gualcho, road to Cucuyagua, 14°31'12"N, 88°48'26"W, 1,810 m, 24 Jun 1994, Davidse et al. 35372A, det. Dauphin May 2017 (MO-5280923! <https://tropicos.org/specimen/90028858>, this publication).

EL SALVADOR. S. loc. (Fulford and Sharp 1990 as *Leucolejeunea xanthocarpa*). **SANTA ANA:** Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, Winkler A/23/2 (Winkler 1967 as *Leucolejeunea xanthocarpa*).

COSTA RICA. Cordillera de Talamanca (Holz and Gradstein 2005b as *Leucolejeunea xanthocarpa*; Holz 2006 as *Leucolejeunea xanthocarpa*); S. loc. (Cole 1982, 1983, both as *Leucolejeunea xanthocarpa*; Fulford and Sharp 1990 as *Leucolejeunea xanthocarpa*; Gradstein and Holz 2005 as *Leucolejeunea xanthocarpa*; Mandl 2007 as *Leucolejeunea xanthocarpa*); S. loc., Pittier 1769 (BM, Wigginton 2012). **ALAJUELA:** Poás Volcano, Morales 6026 (Morales 1991 as *Leucolejeunea xanthocarpa*); Upala cantón, Guanacaste National Park, Sector Santa María, Dauphin 1874 (CR, Dauphin 2005 as *Leucolejeunea xanthocarpa*). **GUANACASTE:** Liberia cantón, Guanacaste National Park, Sector Pitilla, Dauphin 2590 (CR, Dauphin 2005 as *Leucolejeunea xanthocarpa*). **HEREDIA:** Barva cantón, Laguna Volcán Barva-Carrizal, Pittier 6026 (Stephani 1893c as *Archilejeunea xanthocarpa*; Dauphin 2005 as *Leucolejeunea xanthocarpa*). **PUNTARENAS:** Monteverde (Morales 1991 as *Leucolejeunea xanthocarpa*); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, Gradstein et al. (U, Sillett et al. 1995 as *Leucolejeunea xanthocarpa*); Monteverde, Oct 1963, James, W. 13 (R, Reed and Robinson 1971 as *Leucolejeunea xanthocarpa*; Dauphin 2005 as *Leucolejeunea xanthocarpa*); S. loc. (Merwin et al. 2001 as *Leucolejeunea xanthocarpa*; Dauphin 2005 as *Leucolejeunea xanthocarpa*). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002 as *Leucolejeunea xanthocarpa*);

Dota cantón, San Gerardo (Dauphin 2005 as *Leucolejeunea xanthocarpa*); Dota cantón, San Gerardo, Holz (Holz 2003 as *Leucolejeunea xanthocarpa*); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a as *Leucolejeunea xanthocarpa*).

PANAMA. †**BOCAS DEL TORO:** S. loc. (Schäfer-Verwimp 2014, must refer to Naso Tjër Di). **CHIRIQUÍ:** Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,600 m, 4 Apr 2006, Schäfer-Verwimp & Verwimp 30918 p.p. (JE, Schäfer-Verwimp 2014); Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°44.3'N, 82°14.7'W, 1,100 m, 30 Mar 2009, Schäfer-Verwimp & Verwimp 34513/B (JE, Schäfer-Verwimp 2014). **NASO TJËR DI COMARCA:** Cerro Fábrega, De Gracia 319 (PMA, Dauphin 2007 as *Leucolejeunea xanthocarpa*).

Also reported from Macaronesia, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Middle Atlantic Ocean, Western Indian Ocean, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasia, Australia, Southwestern Pacific, Northwestern Pacific(?), Northeastern Pacific, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

***Clasmatocolea* Spruce, Trans & Proc. Bot. Soc. Edinburgh 15: 440, 1885 (Spruce 1885).**

Clasmatocolea vermicularis (Lehm.) Grolle, *Rev. Bryol. Lichénol.* 29(1/2): 78, 1960 (Grolle 1960a).

≡*Jungermannia vermicularis* Lehm., *Linnaea* 4(3): 361, 1829 (Lehmann 1829). Type: South Africa.

≡*Chiloscyphus vermicularis* (Lehm.) Hässel, *Nova Hedwigia* 63(3/4): 513, 1996 (Hässel 1996).

=*Chiloscyphus nigrescens* Lindenb. et Hampe, *Linnaea* 24(3): 640, 1851 (Hampe 1851b), syn. fide Grolle (1960a). Lectotype (Grolle 1960a): Costa Rica, Cartago, ad crateris Reventado aguas stagnantes, *Oersted s.n.* (S-B22184 <https://herbarium.nrm.se/specimens/B22184>, isoelectotypes S, JE-04002254 <https://je.jacq.org/JE04002254>).

≡*Leioscyphus nigrescens* (Lindenb. et Hampe) Steph., *Bull. Herb. Boissier*, sér. 2, 6(3): 224 (=Sp. *Hepat. [Stephani]* 3: 24), 1906 (Stephani 1906a).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Arnell 1963; Grolle 1969a, 1971b, 1972d; Bizot and Pócs 1974; Gradstein et al. 1977, 2001b; Engel 1990; Gradstein 1999a, 2021; Gradstein and Costa 2003; Dauphin 2005 as *Chiloscyphus vermicularis*; Gradstein and Holz 2005; Santos 2008; Schäfer-Verwimp 2014; Schuster 2021); S. loc., *Oersted* (YU, G, S, Hampe 1851a as *Chiloscyphus nigrescens*). **CARTAGO:** Im Kratersee Reventado, oja de Pascado, 3,300 m, *Oersted* (S, Müller 1851 as *Chiloscyphus nigrescens*; Grolle 1960a as *Chiloscyphus nigrescens*, 1962a as *Leioscyphus nigrescens*); Oreamuno cantón, Reventado (Stephani 1908e as *Chiloscyphus nigrescens*); Oreamuno cantón, Reventado prope Irazu, *Oersted* (S, ex hb. Lehmann, TYPE of *Chiloscyphus*

nigrescens, Polakowsky 1879 as *Chiloscyphus nigrescens*; Stephani 1906a as *Leioscyphus nigrescens*; Bonner 1963b as *Chiloscyphus nigrescens*; Engel 1978; Morales 1991; Dauphin 2005 as *Chiloscyphus vermicularis*; Oreamuno cantón, Río Reventado, 3,050 m (S, Engel 1980); Paraíso cantón, Orosi, 10 km SSE of Tapantí, 1,500–1,550 m, Engel 8343 (F, Engel 1980; Morales 1991; Dauphin 2005 as *Chiloscyphus vermicularis*); Paraíso cantón, Tapantí, ~10 km SSE de, 1,500–1,550 m, Engel 8397 (F, Engel 1980; Morales 1991). SAN JOSÉ: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, San Gerardo (Dauphin 2005 as *Chiloscyphus vermicularis*); Moravia cantón, La Palma (Dauphin 2005 as *Chiloscyphus vermicularis*); Moravia cantón, La Palma, ~1,575 m, Engel 8815, 8819 (F, Engel 1980; Morales 1991; Dauphin 2005 as *Chiloscyphus vermicularis*); Pérez Zeledón cantón, Cerro Buenavista, Dauphin 2234 (CR, Dauphin 2005 as *Chiloscyphus vermicularis*).

PANAMA. CHIRIQUÍ: Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,900 m, 6 Apr 2006, Schäfer-Verwimp & Verwimp 30976 (JE, Schäfer-Verwimp 2014); Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,480 m, 4 Apr 2006, Schäfer-Verwimp & Verwimp 30896 (JE, Schäfer-Verwimp 2014); Boquete distrito, Bajo Mono, along Río Caldera, 8°50.5'N, 82°28.9'W, 1,670–1,745 m, 5 Apr 2006, Schäfer-Verwimp & Verwimp 30946 (JE, Schäfer-Verwimp 2014).

Also reported from West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, Papuasias, Australia, New Zealand, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands.

***Cololejeunea* (Spruce) Steph., Hedwigia
30(5): 208, 1891 (Stephani 1891a).**

Cololejeunea antillana Pócs, *Polish Bot. J.* 54(1): 3, 2009 (Pócs and Bernecker 2009).

≡ *Aphanolejeunea longifolia* Jovet-Ast, *Rev. Bryol. Lichénol.* 16(1/2): 23, 1948 (Jovet-Ast 1947). Type: Guadeloupe.

EL SALVADOR. S. loc. (Pócs 1984c as *Aphanolejeunea longifolia*; Lücking 1995 as *Aphanolejeunea longifolia*; Dauphin et al. 1998 as *Aphanolejeunea longifolia*; Fischer and Vanderpoorten 2010). SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, Winkler A/29/1, B/1/c/1, B/5/c/4 (Winkler 1967 as *Aphanolejeunea longifolia*).

COSTA RICA. S. loc. (Eggers et al. 1998 as *Aphanolejeunea longifolia*; Fischer and Vanderpoorten 2010). CARTAGO: Rancho Naturalista, 900 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea longifolia*); Turrialba cantón, Tuis Valley, Rancho Naturalista, 900 m, 30 Jan 2001, Eggers CR 17/28 (Eggers et al. 2001 as *Aphanolejeunea longifolia*). GUANACASTE:

Caribbean slope N of Tenorio, 500 m, 3 Feb 1985, Eggers CR 3/49 (Eggers et al. 2001 as *Aphanolejeunea longifolia*); Tenorio, 500 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea longifolia*). HEREDIA: Heredia cantón, Vara Blanca, 1,380 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea longifolia*); San Miguel de Sarapiquí, 850 m, 30 Jan 1985, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea longifolia*). LIMÓN: Braulio Carrillo National Park, 400–500 m (Eggers 2001 as *Aphanolejeunea longifolia*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Lücking 92-498 (Dauphin 2005 as *Aphanolejeunea longifolia*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, Lücking 92-386 (hb. Lücking, Lücking 1995 as *Aphanolejeunea longifolia*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, Lücking 92-498 (hb. Lücking, Lücking 1995 as *Aphanolejeunea longifolia*; Dauphin et al. 1998 as *Aphanolejeunea longifolia*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, Lücking (Lücking 1997 as *Aphanolejeunea longifolia*). PUNTARENAS: Monteverde, 1,600 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea longifolia*).

PANAMA. S. loc. (Fischer and Vanderpoorten 2010). COCLÉ: La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Río Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, Sierra & López 668, 691 p.p. (PMA, Sierra et al. 2019a). PANAMA WEST: La Chorrera distrito, Barro Colorado Island, Armour 25–26, 9°09'N, 79°51'W, 20–170 m, Dauphin 3215 (PMA, Dauphin et al. 2006 as *Aphanolejeunea longifolia*, 2022).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Cololejeunea appressa (A.Evans) Benedix, *Feddes Repert. Spec. Nov. Regni Veg. Beih.* 134: 31, 1953 (Benedix 1953).

≡ *Leptocolea appressa* A.Evans, *Bull. Torrey Bot. Club* 39(12): 606, 1913 (Evans 1912c). Type: Jamaica.

COSTA RICA. CARTAGO: Turrialba cantón, Tuis Valley, Rancho Naturalista, 900 m, 30 Jan 2001, Eggers CR 17/5 (Eggers et al. 2001).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,580 m, Schäfer-Verwimp & Verwimp 34399/B (JE, Schäfer-Verwimp 2014).

Also reported from West Tropical Africa, West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Western Indian Ocean, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasias, Australia, New Zealand, Southwestern Pacific, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Cololejeunea azorica V.Allorge et Jovet-Ast, *Mitt. Thüring. Bot. Ges.* 1(2/3): 17, 1955 (Allorge and Jovet-Ast 1955). Type: Azores.

≡*Aphanolejeunea azorica* (V.Allorge et Jovet-Ast) Bern.-Lück. et Pócs, *Mem. New York Bot. Gard.* 87: 109, 2003 (Gradstein and Costa 2003).

GUATEMALA. ALTA VERAPAZ: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008 as *Aphanolejeunea azorica*); Tucurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Aphanolejeunea azorica*). **HUEHUETENANGO:** Nentón municipio, La Bendición de Dios, Montaña La Virgen, 16°01'18"N, 91°32'21"W, Pérez 1689 (USCG, Pérez 2009 as *Aphanolejeunea azorica*).

PANAMA. CHIRIQUÍ: Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,600 m, 4 Apr 2006, Schäfer-Verwimp & Verwimp 30920, 31914 p.p. (JE, Schäfer-Verwimp 2014).

Also reported from Macaronesia, Mexico, Northern South America, Western South America, Brazil.

Cololejeunea berneckerae Pócs, *Polish Bot. J.* 54(1): 4, 2009 (Pócs and Bernecker 2009).

≡*Aphanolejeunea pocsii* Bern.-Lück., *Diversit. Mikroh. Epiphyll* Moose: 51, 1995 (Lücking 1995), nom. inval. (ICN2018 Art. 30.9; published in a thesis).

≡*Aphanolejeunea pocsii* Bern.-Lück., *Nova Hedwigia* 66(1/2): 168, 1998 (Bernecker-Lücking 1998a). Holotype: Costa Rica, Limón, Pococí, P. N. Braulio Carrillo, Quebrada González along the Botarrama trail, 10°12'N, 83°55'W, 460–480 m, Jun 1992, Bernecker-Lücking 92-439 (G-00120477 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=242693&lang=en>, EGR isotype).

COSTA RICA. S. loc. (Holz et al. 2001 as *Aphanolejeunea pocsii*; Pócs and Bernecker 2009). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, Lücking (Lücking 1997 as *Aphanolejeunea pocsii*); Pococí cantón, Braulio Carrillo National Park, Quebrada González, 10°12'N, 83°55'W, 480 m, Jun 1992, Lücking 92-233 (ULM, hb. Lücking, Lücking 1995 as *Aphanolejeunea pocsii*; Bernecker-Lücking 1998a as *Aphanolejeunea pocsii*; Dauphin 2005 as *Aphanolejeunea pocsii*); Pococí cantón, Braulio Carrillo National Park, Quebrada González, 10°12'N, 83°55'W, 480 m, Jun 1992, Lücking 92-439 (G, EGR, hb. Lücking, TYPE of *Aphanolejeunea pocsii*, Lücking 1995 as *Aphanolejeunea pocsii*; Bernecker-Lücking 1998a as *Aphanolejeunea pocsii*; Kis 2004 as *Aphanolejeunea pocsii*; Crosby and Engel 2006 as *Aphanolejeunea pocsii*); Pococí cantón, Braulio Carrillo National Park, Quebrada González, 10°12'N, 83°55'W, 480 m, Jun 1992, Lücking 92-463 (hb. Lücking, Dauphin 2005 as *Aphanolejeunea pocsii*); Pococí cantón, Braulio Carrillo National Park, Quebrada González, 10°12'N, 83°55'W, 480 m, Jun 1992, Lücking 92-467 (GOET, hb. Lücking, Lücking 1995 as *Aphanolejeunea pocsii*; Bernecker-Lücking 1998a as *Aphanolejeunea pocsii*; Dauphin 2005 as *Aphanolejeunea pocsii*; Pócs et al. 2014); Pococí cantón, Braulio Carrillo National Park, Quebrada González, 10°12'N, 83°55'W, 480 m, Jun 1992, Lücking 92-468, 92-542 (hb. Lücking, Lücking 1995 as *Aphanolejeunea pocsii*; Bernecker-Lücking 1998a as *Aphanolejeunea pocsii*).

Not found outside Central America.

Cololejeunea bischleriana Tixier, *Bradea* 3(6): 36, 1980 (Tixier 1980). Type: Colombia.

COSTA RICA. SAN JOSÉ: Dota cantón, San Gerardo, “Los Robles,” 2,200 m, 28 Dec 1999, Schäfer-Verwimp & Holz SV/H-0273/C (EGR, Lüth and Schäfer-Verwimp 2004); Dota cantón, San Gerardo, 10 Nov 1993, Carranza, det. Pócs 2013 (EGR!, this publication); Dota cantón, San Gerardo, Los Robles, 2,200 m, Schäfer-Verwimp & Holz SV/H-0273c (Dauphin 2005).

Also reported from Western South America, Brazil.

Cololejeunea camillii (Lehm.) A.Evans, *Bryologist* 15(4): 59, 1912 (Evans 1912b).

≡*Lejeunea camillii* Lehm., *Nov. Stirp. Pug.* 10: 15, 1857 (Lehmann 1857). Type: Cuba.

≡*Aphanolejeunea camillii* (Lehm.) R.M.Schust., *Hepat. Anthoc. N. Amer.* 4: 1297, 1980 (Schuster 1980d).

≡*Physocolea elliptica* Steph., *Sp. Hepat. (Stephani)* 5: 876, 1916 (Stephani 1916a), syn. fide Pócs et al. (2014). Lectotype (Söderström and Hentschel 2023: 15): Guatemala, Alta Verapaz, Cobán, 1,600 m, Türckheim 5826 (G-00069375 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=115764&lang=en>, isoelectotype JE-04002248 <https://je.jacq.org/JE04002248>).

≡*Cololejeunea elliptica* (Steph.) S.W.Arnell, *Svensk Bot. Tidskrift* 53(4): 503, 1959 (Arnell 1959), nom. inval. (ICN2018 Art. 41.1; basionym not cited).

≡*Cololejeunea aloba* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 171, 1951 (Herzog 1951), syn. fide Dauphin (2005). Type: Costa Rica, Prov. Guanacaste, Naranjos Agrios, 600–700 m, on fern leaf, Standley 46.490/a (JE).

GUATEMALA. S. loc. (Stephani 1916a as *Physocolea elliptica*; Arnell 1959 as *Cololejeunea elliptica*; Geissler and Bischler 1989 as *Physocolea elliptica*; Fulford and Sharp 1990 as *Physocolea elliptica*; Eggers et al. 2004 as *Aphanolejeunea camillii*); S. loc., 1908, Türckheim (Pócs et al. 2014 as *Physocolea elliptica*). **ALTA VERAPAZ:** Cobán, 1,600 m, Türckheim 5826 (G-00069375 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=115764&lang=en>, TYPE of *Physocolea elliptica*).

COSTA RICA. S. loc. (Lücking et al. 2010 as *Aphanolejeunea camillii*). **GUANACASTE:** Tilarán cantón, Arenal, Naranjos Agrios, 600–700 m, Standley & Valerio 46490a (JE, TYPE of *Cololejeunea aloba*, Herzog 1951 as *Cololejeunea aloba*; Morales 1991 as *Cololejeunea aloba*; Dauphin 2005 as *Aphanolejeunea camillii*). **HEREDIA:** Barva cantón, between Montana and Volcán Barva, 2,000 m, 2 Jan 1985, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea camillii*); Barva cantón, between Montana and Volcán Barva, 2,000 m, 1 Feb 1982, Eggers CR 1/208, det. Pócs (EGR, Eggers et al. 2001 as *Aphanolejeunea camillii*); Barva cantón, Montana de la Barva, 2,000 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea camillii*). ?**SAN JOSÉ:** Dota cantón, Los Quetzales National Park (Amengual et al. 2007 as *Aphanolejeunea camillii*). Note: A specimen possibly corresponding to this report (CR-3747147) has only been identified as *Aphanolejeunea* cf. *camillii*.

PANAMA. Canal Zone (Schäfer-Verwimp 2014). **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito,

1,300–1,700 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, surroundings of Finca La Suiza, 8°39'N, 82°12'W, 1,570 m, Schäfer-Verwimp & Verwimp 34398/A, det. Pócs (JE, EGR, MO-6690269, Schäfer-Verwimp 2014); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,571 m, Schäfer-Verwimp & Verwimp 34398/B (JE, Schäfer-Verwimp 2014). PANAMA WEST: La Chorrera distrito, Barro Colorado Island, Mežaka et al. (PMA, Mežaka et al. 2020); La Chorrera distrito, Barro Colorado Island, ~Torre Lutz, 20–170 m, Dauphin 3087 (PMA, Dauphin et al. 2006 as *Aphanolejeunea camillii*); La Chorrera distrito, Barro Colorado Island, 9°09'N, 79°51'W, Dauphin 3070 p.p. (PMA!, this publication); La Chorrera distrito, Barro Colorado Island, 9°09'N, 79°51'W, 20–170 m, Dauphin 3080 (PMA!, Dauphin et al. 2006 as *Aphanolejeunea camillii*); La Chorrera distrito, Barro Colorado Island, Escaleras Antiguo Comedor, 20–170 m, Dauphin 3210 (PMA, Dauphin et al. 2006 as *Aphanolejeunea camillii*); La Chorrera distrito, Barro Colorado Island, Pearson 12, 20–170 m, Dauphin 3111 (PMA, Dauphin et al. 2006 as *Aphanolejeunea camillii*); La Chorrera distrito, Barro Colorado Island, Shannon 0–2, 2003, Dauphin 3080, 3087, 3210, 3222 (Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Shannon 0–5, 20–170 m, Dauphin & Moser 3126 (PMA, Dauphin et al. 2006 as *Aphanolejeunea camillii*); La Chorrera distrito, Barro Colorado Island, Shannon 0–5, 20–170 m, Dauphin 3070 p.p. (PMA, Dauphin et al. 2006 as *Aphanolejeunea camillii*); La Chorrera distrito, Barro Colorado Island, Zetek 15, 20–170 m, Dauphin 3224 (PMA, Dauphin et al. 2006 as *Aphanolejeunea camillii*); La Chorrera distrito, Barro Colorado, Standley, 2003, Dauphin 3126 (PMA, Dauphin et al. 2022). *PANAMA: Panamá distrito, Parque Nacional Soberanía, sendero Camino de Cruces, 9°06'08"N, 79°36'56"W, 12 Mar 1996, Reiner-Drehwald 960006, det. Pócs 1996 (EGR!, this publication). VERAGUAS: Santa Fe distrito, Rio Santa María, 8°32'N, 81°06'W, 400–450 m, 1 Apr 2006, Schäfer-Verwimp & Verwimp 30793, det. Pócs (JE, EGR, Schäfer-Verwimp 2014).

COCOS I. Bahía Yglesias, 0–20 m, Apr 1992, Lücking 615 (hb. Bernecker, Bernecker-Lücking 2000 as *Aphanolejeunea camillii*); S. loc. (Dauphin 1999 as *Aphanolejeunea camillii*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Cololejeunea cardiocarpa (Mont.) A. Evans, *Mem. Torrey Bot. Club* 8(2): 172, 1902 (Evans 1902b).

≡ *Lejeunea cardiocarpa* Mont., *Hist. Phys. Cuba, Bot., Pl. Cell.*: 476, 1842 (Montagne 1842b). Type: Cuba.

≡ *Leptocolea cardiocarpa* (Mont.) A. Evans, *Bull. Torrey Bot. Club* 38(6): 268, 1911 (Evans 1911b).

BELIZE. CAYO: Blue Hole National Park, 100–200 m, 1996, Eggers BEZ 3/9, BEZ 4/9 (O'Shea et al. 1997). STANN CREEK: Cockscombe Reserve, 1996, Eggers BEZ 5/7 (hb. Eggers, O'Shea et al. 1997).

HONDURAS. S. loc. (Bastos 2004). ATLÁNTIDA: Tela municipio, Lancetilla Valley, Standley (Standley 1931 as *Leptocolea cardiocarpa*); Tela municipio, Lancetilla Valley, 20–600 m, 6 Jul 1927–20 Mar 1928, Standley 54590, 55590, 56556 (JE, F, US, Herzog 1951).

EL SALVADOR. CHALATENANGO: San Ignacio municipio, Cerro el Pittal, Winkler C/2 (Winkler 1967 as *Leptocolea cardiocarpa*).

COSTA RICA. S. loc. (Schäfer-Verwimp and Pócs 2009). *ALAJUELA: Los Chiles cantón, Refugio de Vida Silvestre Caño Negro, Sep 1991, Ruiz, det. Pócs 2000 (USJ, EGR!, this publication). CARTAGO: Rio Turrialba (Eggers 2001); Turrialba cantón, CATIE, Bayer 2220 p.p. (Dauphin 2005); Turrialba cantón, Guayabo, 1,100 m, Eggers (hb. Eggers, Eggers 2001). HEREDIA: San Miguel de Sarapiquí, 850 m, 30 Jan 1985, Eggers (hb. Eggers, Eggers 2001). LIMÓN: Pococí cantón, Tortuguero, 1–5 m, Eggers (hb. Eggers, Eggers 2001). PUNTARENAS: Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009); Osa cantón, Dominical, 20 m, Eggers (hb. Eggers, Eggers 2001). SAN JOSÉ: Pérez Zeledón cantón, Cordillera de Talamanca, Quizarra east of San Isidro El General, ~700 m, 12 Jul 1985, Eggers CR 7/12 (Eggers et al. 2001); Pérez Zeledón cantón, Quizarrá near San Isidro, 700 m, Eggers (hb. Eggers, Eggers 2001).

PANAMA. Canal Zone (Schäfer-Verwimp 2014). PANAMA WEST: La Chorrera distrito, Barro Colorado Island, Mežaka et al. (PMA, Mežaka et al. 2020); La Chorrera distrito, Barro Colorado Island, Poachers Peninsula, irrigation plot 1, Salazar Allen & Chung 7279 (PMA, Stotler et al. 1998); La Chorrera distrito, Barro Colorado Island, Quebrada R. Shannon, Marino 7, 29 p.p. (PMA, Stotler et al. 1998; Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Shannon Creek and ridge top, 1 Dec 1990, Marino & Salazar Allen (STRI, Marino and Salazar Allen 1992). VERAGUAS: Montijo distrito, Isla de Coiba (Parque Nacional Coiba), Playa Hermosa, subiendo a la falla y tomando hacia playa Santa Clara, 7°30'03.0"N, 81°52'26.9"W, 1995–1996, Aranda 2516 (MA, PMA, Salazar Allen and Chung 1997a); Santa Fe distrito, Rio Santa María, 8°32'N, 81°06'W, 400–450 m, 1 Apr 2006, Schäfer-Verwimp & Verwimp 30796 (JE, Schäfer-Verwimp 2014).

COCOS I. S. loc. (Dauphin 1995, 1999); Wafer Bay, 0 m, Apr 1992, Lücking 491 (USJ, Bernecker-Lücking 2000); Wafer Bay, 0 m, Apr 1992, Lücking 494 (ULM, Bernecker-Lücking 2000); Wafer Bay, 0 m, Apr 1992, Lücking 647 (hb. Bernecker, Bernecker-Lücking 2000).

Also reported from West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Middle Atlantic Ocean, Western Indian Ocean, Indian Subcontinent, Papuasia, Australia, New Zealand, South-Central USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Cololejeunea cingens (Herzog) Bernecker et Pócs, *Polish Bot. J.* 54(1): 4, 2009 (Pócs and Bernecker 2009).

≡*Aphanolejeunea cingens* Herzog, *Svensk Bot. Tidskr.* 46(1): 104, 1952 (Herzog 1952). Type: Ecuador.

*BELIZE. S. loc., 22 Jun 1974, Dwyer, det. Reyes (EGR!, this publication).

COSTA RICA. S. loc. (Schäfer-Verwimp 1999 as *Aphanolejeunea cingens*; Eggers et al. 2004 as *Aphanolejeunea cingens*; Pócs and Bernecker 2009; Gradstein and León-Yáñez 2011 as *Aphanolejeunea cingens*). CARTAGO: Rancho Naturalista, 900 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea cingens*). LIMÓN: Braulio Carrillo National Park, 400–500 m (Eggers 2001 as *Aphanolejeunea cingens*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Lücking 92-270 (USJ, Gradstein et al. 1994 as *Aphanolejeunea cingens*; Dauphin 2005 as *Aphanolejeunea cingens*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, Lücking 92-169, 92-170, 92-237, 92-370, 92-454 (hb. Lücking, Lücking 1995 as *Aphanolejeunea cingens*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, Lücking (Lücking 1997 as *Aphanolejeunea cingens*). PUNTARENAS: Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009 as *Aphanolejeunea cingens*). SAN JOSÉ: Pérez Zeledón cantón, Quizarrá near San Isidro, 700 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea cingens*).

PANAMA. COCLÉ: La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Río Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, Sierra & López 700, 700 p.p., etc. (PMA, Sierra and Dauphin 2016; Sierra et al. 2019a).

Also reported from Mexico, the Caribbean, Western South America, Brazil.

***Cololejeunea contractiloba* A.Evans, *Amer. J. Bot.* 5(3): 131, 1918 (Evans 1918). Type: USA, Florida.

*BELIZE. *CAYO: Las Cuevas Field Station, 16°44'N, 88°59'W, 550 m, 6 Dec 1996, Allen 18024 p.p., det. Dauphin May 2017 (MO-6699952! <https://tropicos.org/specimen/100986396>, this publication).

*NICARAGUA. *ATLÁNTICO NORTE: Siuna municipio, Cerro Waylawás (Peñas Blancas), 13°39'N, 84°48'W, 28 Oct 1982, Grijalva 1714 p.p., det. Dauphin May 2017 (MO-6699953! <http://tropicos.org/specimen/100986393>, this publication).

Also reported from Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America(?), Brazil.

Cololejeunea costaricensis (Bern.-Lück.) Bernecker et Pócs, *Polish Bot. J.* 54(1): 5, 2009 (Pócs and Bernecker 2009).

≡*Aphanolejeunea costaricensis* Bern.-Lück., *Diversit. Mikrohab. Epiphyll* Moose: 51, 1995 (Lücking 1995), nom. inval. (ICN2018 Art. 30.9; published in a thesis).

≡*Aphanolejeunea costaricensis* Bern.-Lück., *Nova Hedwigia* 66(1/2): 164, 1998 (Bernecker-Lücking 1998a). Holotype: Costa Rica, Limón,

Pococí, P. N. Braulio Carrillo, Quebrada González, 10°12'N, 83°55'W, 460–480 m, transition between tropical lowland and premontane rain-forest zone, primary forest along the Botarrama trail, on leaves of *Ctenitis subincisa*, Jun 1992, Bernecker-Lücking 92-471 (G-00120475 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=243727&lang=en>, isotype USJ).

COSTA RICA. S. loc. (Schäfer-Verwimp 1999 as *Aphanolejeunea costaricensis*; Holz et al. 2001 as *Aphanolejeunea costaricensis*; Eggers et al. 2004 as *Aphanolejeunea costaricensis*; Lavocat Bernard et al. 2009 as *Aphanolejeunea costaricensis*; Pócs and Bernecker 2009; Schäfer-Verwimp and Reiner-Drehwald 2009 as *Aphanolejeunea costaricensis*). CARTAGO: Rancho Naturalista, 900 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea costaricensis*). GUANACASTE: Tenorio, 500 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea costaricensis*). HEREDIA: San Miguel de Sarapiquí, 850 m, 30 Jan 1985, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea costaricensis*); Sarapiquí cantón, La Selva, 100 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea costaricensis*); Sarapiquí cantón, Puerto Viejo, 100 m, Eggers, det. Pócs (hb. Eggers, Eggers 2001 as *Aphanolejeunea costaricensis*). LIMÓN: Braulio Carrillo National Park, 400–500 m (Eggers 2001 as *Aphanolejeunea costaricensis*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, Lücking 92-158 (hb. Lücking, Lücking 1995 as *Aphanolejeunea costaricensis*; Dauphin 2005 as *Aphanolejeunea costaricensis*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, Lücking (Lücking 1997 as *Aphanolejeunea costaricensis*); Pococí cantón, Braulio Carrillo National Park, Quebrada González, 10°12'N, 83°55'W, 460–480 m, Jun 1992, Lücking 92-159, 92-160 (hb. Lücking, Bernecker-Lücking 1998a as *Aphanolejeunea costaricensis*); Pococí cantón, Braulio Carrillo National Park, Quebrada González, 10°12'N, 83°55'W, 480 m, Jun 1992, Lücking 92-269, 92-368, 92-458 (EGR, hb. Lücking, Lücking 1995 as *Aphanolejeunea costaricensis*; Bernecker-Lücking 1998a as *Aphanolejeunea costaricensis*; Dauphin 2005 as *Aphanolejeunea costaricensis*); Pococí cantón, Braulio Carrillo National Park, Quebrada González, 10°12'N, 83°55'W, 460–480 m, Jun 1992, Lücking 92-471 (G-00120475 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=243727&lang=en>, USJ, TYPE of *Aphanolejeunea costaricensis*, Lücking 1995 as *Aphanolejeunea costaricensis*; Bernecker-Lücking 1998a as *Aphanolejeunea costaricensis*; Dauphin 2005 as *Aphanolejeunea costaricensis*; Crosby and Engel 2006 as *Aphanolejeunea costaricensis*; Pócs et al. 2014); Pococí cantón, Tortuguero, 1–5 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea costaricensis*). PUNTARENAS: Golfito cantón, Esquinas, <100 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea costaricensis*); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009 as *Aphanolejeunea costaricensis*); Monteverde, 1,600 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea costaricensis*). SAN JOSÉ: Dota cantón, San Gerardo, Chacón Holiday Camp to waterfall, 9°32'13.81440"N, 83°49'27.2480"W,

25 Dec 1999, *Schäfer-Verwimp* & Holz SV/H-0087, det. Pócs 2003 (EGR!, this publication); Pérez Zeledón cantón, Cordillera de Talamanca, Quizarra east of San Isidro El General, ~700 m, 12 Jul 1985, Eggers CR 7/12 (Eggers et al. 2001 as *Aphanolejeunea costaricensis*); Pérez Zeledón cantón, Quizarra near San Isidro, 700 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea costaricensis*).

COCOS I. Bahía Yglesias, 0–20 m, Apr 1992, Lücking 457 (hb. Bernecker, Bernecker-Lücking 2000 as *Aphanolejeunea costaricensis*); Bahía Yglesias, 0–20 m, Apr 1992, Lücking 614 (ULM, Bernecker-Lücking 2000 as *Aphanolejeunea costaricensis*); Bahía Yglesias, 0–20 m, Apr 1992, Lücking 618 (USJ, Bernecker-Lücking 2000 as *Aphanolejeunea costaricensis*); Río Genio, 5°32'57"N, 87°03'56"W, 0–50 m, Apr 1992, Lücking 502 (hb. Bernecker, Bernecker-Lücking 2000 as *Aphanolejeunea costaricensis*); S. loc. (Dauphin 1999 as *Aphanolejeunea costaricensis*).

Also reported from the Caribbean.

Cololejeunea cremersii Tixier, *Cryptog. Bryol. Lichénol.* 16(3): 229, 1995 (Tixier 1995).

≡*Cololejeunea cremersii* Tixier, *Candollea* 46(2): 271, 1991 (Tixier 1991), nom. inval. (ICN2018 Art. 40.2; based on more than one gathering). Type: French Guiana.

≡*Cololejeunea fefeana* Tixier, *Cryptog. Bryol. Lichénol.* 16(3): 229, 1995 (Tixier 1995), syn. fide Pócs in Gradstein and Ilkui-Borges (2009). Type: Guadeloupe.

COSTA RICA. S. loc. (Gradstein 2021). ***ALAJUELA:** Los Chiles cantón, Refugio de Vida Silvestre Caño Negro, Sep 1991, Ruiz, det. Pócs 2000 (USJ, EGR!, this publication). **HEREDIA:** Barva cantón, between Montana and Volcán Barva, 2,000 m, 1 Feb 1982, Eggers CR 1/208, det. Pócs (EGR, Eggers et al. 2001 as *Cololejeunea fefeana*).

Also reported from the Caribbean, Northern South America, Western South America(?).

Cololejeunea crenata (A.Evans) Pócs, *Polish Bot. J.* 54(1): 5, 2009 (Pócs and Bernecker 2009).

≡*Aphanolejeunea crenata* A.Evans, *Bull. Torrey Bot. Club* 38(6): 276, 1911 (Evans 1911b). Type: Puerto Rico.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 28 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as *Aphanolejeunea crenata*).

EL SALVADOR. S. loc. (Pócs 1984c as *Aphanolejeunea crenata*; Fulford and Sharp 1990 as *Aphanolejeunea crenata*; Lücking 1995 as *Aphanolejeunea crenata*; Lavocat Bernard et al. 2009 as *Aphanolejeunea crenata*). **SANTA ANA:** Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, Winkler A/23/7 (Winkler 1967 as *Aphanolejeunea crenata*).

COSTA RICA. Cordillera de Talamanca (Holz 2003 as *Aphanolejeunea crenata*; Holz and Gradstein 2005b as *Aphanolejeunea crenata*). **ALAJUELA:** Poás, 1,950 m, Eggers (hb.

Eggers, Eggers 2001 as *Aphanolejeunea crenata*). **HEREDIA:** Barva cantón, Volcán Barva, 1,950 m (Eggers 2001 as *Aphanolejeunea crenata*); Barva cantón, Volcán Barva, Morales 2245 (USJ, Morales 1991 as *Aphanolejeunea crenata*; Dauphin 2005 as *Aphanolejeunea crenata*); San Isidro cantón, Cerro Caricias, ~2,000 m (Eggers 2001 as *Aphanolejeunea crenata*); San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, Standley 51988 p.p. (JE-04002124, Herzog 1951 as *Aphanolejeunea crenata*; Morales 1991 as *Aphanolejeunea crenata*; Dauphin 2005 as *Aphanolejeunea crenata*). **LIMÓN:** Braulio Carrillo National Park, 400–500 m (Eggers 2001 as *Aphanolejeunea crenata*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, Lücking 92-495 (Dauphin 2005 as *Aphanolejeunea crenata*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, Lücking 92-495 (hb. Lücking, Lücking 1995 as *Aphanolejeunea crenata*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, Lücking (Lücking 1997 as *Aphanolejeunea crenata*). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002 as *Aphanolejeunea crenata*); Dota cantón, San Gerardo (Dauphin 2005 as *Aphanolejeunea crenata*).

Also reported from Mexico, the Caribbean, Western South America, Brazil.

Cololejeunea diaphana A.Evans, *Bull. Torrey Bot. Club* 32(4): 184, 1905 (Evans 1905b). Type: USA, Florida.

≡*Lejeunea ensifolia* Spruce var. *pygmaea* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15(1): 298, 1884 (Spruce 1884), syn. fide Dauphin et al. (2008). Type: Brazil.

≡*Cololejeunea ensifolia* (Spruce) Steph. var. *pygmaea* (Spruce) Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 174, 1951 (Herzog 1951).

≡*Aphanolejeunea truncatifolia* Horik., *J. Sci. Hiroshima Univ., Ser. B, Div. 2, Bot.* 2: 284, 1934 (Horikawa 1934). Type: Taiwan.

≡*Cololejeunea ensifolia* (Spruce) Steph. f. *genuina* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 174, 1951 (Herzog 1951), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Honduras: Lancetilla Valley, near Tela, 20–600 m, Standley 55577 (JE-04010816 <https://je.jacq.org/JE04010816>).

≡*Cololejeunea ensifolia* (Spruce) Steph. f. *angustifolia* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 174, 1951 (Herzog 1951), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Honduras: Lancetilla Valley, near Tela, 20–600 m, Standley 54846 p.p. (JE-04010815 <https://je.jacq.org/JE04010815>).

≡*Cololejeunea diaphana* var. *cristulata* R.M.Schust., *J. Elisha Mitchell Sci. Soc.* 72(1): 112, 1956 (Schuster 1956b), syn. fide Pócs and Lücking (1997). Type: USA, Florida.

≡*Aphanolejeunea diaphana* var. *cristulata* (R.M.Schust.), R.M.Schust., *Hepat. Anthocer. N. Amer.* 4: 1298, 1980 (Schuster 1980d).

≡*Aphanolejeunea subdiaphana* (Jovet-Ast) Pócs var. *cristulata* (R.M.Schust.) Pócs, *J. Hattori Bot. Lab.* 55: 311, 1984 (Pócs 1984c).

GUATEMALA. ALTA VERAPAZ: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008 as *Aphanolejeunea truncatifolia*). **BAJA VERAPAZ:** Purhulhá municipio,

Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 526 (USCG, *Freire et al.* 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al.* 2005 as *Aphanolejeunea truncatifolia*). **HUEHUETENANGO**: S. loc., 2007, *Pérez*, det. *Pérez* (USCG, *Barillas de Klee et al.* 2008 as *Aphanolejeunea truncatifolia*).

BELIZE. **CAYO**: Blue Hole National Park, 100–200 m, 1996, *Eggers & Timm* BEZ 3/10, det. *Eggers* (*Eggers et al.* 2004 as *Aphanolejeunea truncatifolia*); Mountain Pine Ridge, Cave Rio Frio, ~600 m, 1996, *Eggers & Timm* BEZ 2/40, det. *Eggers* (*Eggers et al.* 2004 as *Aphanolejeunea truncatifolia*). **ORANGE WALK**: Rio Bravo Reserve, 1996, *Eggers & Timm* BEZ 4/12, det. *Eggers* (*Eggers et al.* 2004 as *Aphanolejeunea truncatifolia*). **STANN CREEK**: Cockscombe Reserve, 1996, *Eggers & Timm* BEZ 5/4, det. *Eggers* (*Eggers et al.* 2004 as *Aphanolejeunea truncatifolia*). **TOLEDO**: Monkey River, 1–5 m, 1996, *Eggers & Timm* BEZ 7/2, det. *Eggers* (*Eggers et al.* 2004 as *Aphanolejeunea truncatifolia*).

HONDURAS. S. loc. (Winkler 1967). **ATLÁNTIDA**: Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 54846 p.p. (JE-04010816, *Herzog* 1951 as *Cololejeunea ensifolia* f. *angustifolia*); Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 55577 p.p. (JE-04010815, *Herzog* 1951 as *Cololejeunea ensifolia* f. *genuina*).

EL SALVADOR. **SANTA ANA**: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler* A/24/3 (*Winkler* 1967).

COSTA RICA. **CARTAGO**: Paraíso cantón, Orosi, Tapantí National Park, *Morales* 2252 p.p., det. *Morales* (USJ, *Morales* 1991 as *Aphanolejeunea diaphana* var. *crustulata*); Paraíso cantón, Tapantí National Park, *Morales* 2052 (USJ, *Morales* 1991 as *Aphanolejeunea diaphana* var. *crustulata*; *Dauphin* 2005 as *Aphanolejeunea truncatifolia*). ***HEREDIA**: Barva cantón, Volcán Barva, 1 Feb 1985, *Eggers* CR 1/277, det. *Pócs* 2003 (EGR!, this publication). **PUNTARENAS**: Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a as *Aphanolejeunea subdiaphana* var. *crustulata*). ***SAN JOSÉ**: Genesis II Forest Reserve, Cordillera de Talamanca, Apr 1997, *Lücking* 97-1, det. *Pócs* 2013 (EGR!, this publication).

PANAMA. **CHIRIQUÍ**: Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,600 m, 4 Apr 2006, *Schäfer-Verwimp & Verwimp* 30907, det. *Pócs* (JE, EGR!, *Schäfer-Verwimp* 2014); Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (*Salazar Allen et al.* 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,640–1,650 m, *Schäfer-Verwimp & Verwimp* 34417/D, 34418/E (JE, *Schäfer-Verwimp* 2014). **COCLÉ**: Antón distrito, El Valle de Antón, Alto de La Mesa, 8°38'N, 80°07'W, 800–850 m, 30 Mar 2006, *Schäfer-Verwimp & Verwimp* 30743, det. *Pócs* (JE, EGR, *Schäfer-Verwimp* 2014).

Also reported from West-Central Tropical Africa, North-east Tropical Africa, East Tropical Africa, South Tropical Africa,

China, Eastern Asia, Indian Subcontinent, Indo-China, Malaysia, Papuaia, Australia, Southwestern Pacific, Southeastern USA, the Caribbean, Northern South America, Western South America, Brazil, Southern South America(?).

Cololejeunea ecuadoriensis *Pócs*, *Acta Bot. Hung.* 44(3/4): 372, 2002 (*Pócs* 2002). Type: Ecuador.

PANAMA. S. loc. (*Gradstein* 2021). **VERAGUAS**: Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, *Schäfer-Verwimp & Verwimp* 30802/C, conf. *Pócs* (JE, *Schäfer-Verwimp* 2014).

Also reported from Western South America.

Cololejeunea gracilis (*Jovet-Ast*) *Pócs*, *Cryptog. Bryol.* 29(3): 233, 2008 (*Dauphin et al.* 2008) var. *gracilis*.

≡ *Aphanolejeunea gracilis* *Jovet-Ast*, *Rev. Bryol. Lichénol.* 16(1/2): 21, 1948 (*Jovet-Ast* 1947). Type: Guadeloupe.

≡ *Lejeunea heterophylla* K.I. *Goebel*, *Pflanzenbiol. Schilderungen* 1: 178, 179, 1889 (*Goebel* 1889), nom. illeg. (ICN2018 Art. 53.1; hom. illeg. non *Sande Lac.* 1856), syn. fide *Pócs* and *Bernecker* (2009). Type: Puerto Rico.

≡ *Aphanolejeunea heterophylla* R.M. *Schust.*, *J. Elisha Mitchell Sci. Soc.* 71: 128, 1955 (*Schuster* 1955a).

GUATEMALA. S. loc., 2007, *Pérez*, det. *Pérez* (USCG, *Barillas de Klee et al.* 2008 as *Aphanolejeunea gracilis*).

EL SALVADOR. S. loc. (*Pócs* 1984c as *Aphanolejeunea gracilis*; *Lücking* 1995 as *Aphanolejeunea gracilis*; *Eggers et al.* 1998 as *Aphanolejeunea gracilis*; *Ilkiu-Borges* 2000 as *Aphanolejeunea gracilis*; *Linares and Uribe* 2002 as *Aphanolejeunea gracilis*; *Schäfer-Verwimp and Pócs* 2009). **SANTA ANA**: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler* A/4/3, A/31/4, B/1/b/7, etc. (*Winkler* 1967 as *Aphanolejeunea gracilis*).

COSTA RICA. Cordillera de Talamanca (*Holz* 2003 as *Aphanolejeunea gracilis*; *Holz and Gradstein* 2005b as *Aphanolejeunea gracilis*); S. loc. (*Eggers et al.* 1998 as *Aphanolejeunea gracilis*; *Ilkiu-Borges* 2000 as *Aphanolejeunea gracilis*; *Linares and Uribe* 2002 as *Aphanolejeunea gracilis*; *Schäfer-Verwimp and Pócs* 2009; *Lücking et al.* 2010 as *Aphanolejeunea gracilis*); S. loc., 22–24 Sep 2000, *Piippo* (H, *Ahonen* 2004 as *Aphanolejeunea gracilis*; *He-Nygrén et al.* 2004 as *Aphanolejeunea gracilis*, 2006 as *Aphanolejeunea gracilis*; *Gradstein et al.* 2006b as *Aphanolejeunea gracilis*, 2011). **ALAJUELA**: San Ramón cantón, San Ramón, Reserva Biológica Alberto Brenes, *Morales* 2054 (*Morales* 1992 as *Aphanolejeunea heterophylla*). **CARTAGO**: Paraíso cantón, Orosi, Tapantí National Park, *Morales* 2180 (USJ, *Morales* 1991 as *Aphanolejeunea gracilis*; *Dauphin* 2005 as *Aphanolejeunea gracilis*). **LIMÓN**: Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 91-76, 91-77, 92-154, 92-232, 92-267, 92-413, 92-440, 92-472, 92-489, 92-496, 92-606 (hb. *Lücking*, *Lücking* 1995 as *Aphanolejeunea gracilis*); Pococí cantón, Braulio Carrillo National Park, Botarrama, *Dauphin* 2967 p.p., det. *Ilkiu-Borges* (NY, *Dauphin* 2005 as *Aphanolejeunea gracilis*); Pococí

cantón, Braulio Carrillo National Park, Botarrama, *Lücking* 92-472 (Dauphin 2005 as *Aphanolejeunea gracilis*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (*Lücking* 1997 as *Aphanolejeunea gracilis*). PUNTARENAS: Coto Brus cantón, San Vito, Fila Cruces, 1 Jan 1979, *Kalb* 70, det. Pócs 1995 (EGR!, **this publication**); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009 as *Aphanolejeunea gracilis*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, 1,500 m, 8 Mar 1992, *Lyon* 219E, det. Whittemore 1995 (MO-4411481! <https://tropicos.org/specimen/90050854>, **this publication**); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a as *Aphanolejeunea gracilis*). SAN JOSÉ: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, *Holz et al.* 2002 as *Aphanolejeunea gracilis*); Dota cantón, San Gerardo (Dauphin 2005 as *Aphanolejeunea gracilis*); Pérez Zeledón cantón, Rivas, San Gerardo, 27 Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0239/B, det. Pócs (EGR!, **this publication**).

PANAMA. Canal Zone (*Schäfer-Verwimp* 2014); S. loc. (*Schäfer-Verwimp* and Pócs 2009). CHIRIQUÍ: Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,870–2,260 m, 6 Apr 2006, *Schäfer-Verwimp & Verwimp* 30987, conf. Pócs (JE, EGR, *Schäfer-Verwimp* 2014); Boquete distrito, Bajo Mono, along Rio Caldera, 8°50.5'N, 82°28.9'W, 1,670–1,745 m, 5 Apr 2006, *Schäfer-Verwimp & Verwimp* 30938 (JE, *Schäfer-Verwimp* 2014); Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (*Salazar Allen et al.* 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,560–1,650 m, *Schäfer-Verwimp & Verwimp* 34395/B, 34418/C (JE, *Schäfer-Verwimp* 2014); Tierras Altas distrito, Laguna de El Volcán, 8°46.1'N, 82°40.4'W, 1,370 m, 1 Apr 2009, *Schäfer-Verwimp & Verwimp* 34640/B (JE, *Schäfer-Verwimp* 2014). COCLÉ: Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 700–1,000 m, 31 Mar 2006, *Schäfer-Verwimp & Verwimp* 30781, det. A. *Schäfer-Verwimp* (JE, *Schäfer-Verwimp* 2014); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Rio Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López* 663, 664, etc. (PMA, *Sierra et al.* 2019a). PANAMA WEST: La Chorrera distrito, Barro Colorado Island, Shannon 0–2, 9°09'N, 79°51'W, 20–170 m, 3 Feb 2003, *Dauphin* 3070 p.p. (EGR, PMA, *Dauphin et al.* 2006 as *Aphanolejeunea gracilis*); La Chorrera distrito, Barro Colorado, Shannon, 2003, *Dauphin* 3070 (PMA, *Dauphin et al.* 2022).

*COCOS I. S. loc. (Dauphin 1995 as *Aphanolejeunea heterophylla*); Llanos de Palo de Hierro, 1 Jul 2016, *Sánchez, Estrada & Acosta* 2759, det. Dauphin 2016 (CR-283711!, **this publication**).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Cololejeunea guadelupensis Tixier, *Cryptog. Bryol. Lichénol.* 16(3): 229, 1995 (Tixier 1995).

≡*Cololejeunea guadelupensis* Tixier, *Candollea* 46(2): 276, 1991 (Tixier 1991), nom. inval. (ICN2018 Art. 40.6; type not explicitly indicated). Type: Guadeloupe.

BELIZE. S. loc. (Eggers et al. 2004). STANN CREEK: Cockscombe Reserve, 17 Mar 1996, *Eggers* BEZ 5/24 (Eggers et al. 2001).

COSTA RICA. S. loc. (Eggers et al. 2004 as *Cololejeunea guadelupensis*). CARTAGO: Turrialba cantón, Tuis Valley, Rancho Naturalista, 900 m, 30 Jan 2001, *Eggers* CR 17/28 (Eggers 2001; Eggers et al. 2001 as *Cololejeunea guadelupensis*). GUANACASTE: Caribbean slope N of Tenorio, 500 m, 3 Feb 1985, *Eggers* CR 3/49 (Eggers et al. 2001 as *Cololejeunea guadelupensis*); Tenorio, 500 m, *Eggers* (hb. Eggers, *Eggers* 2001). HEREDIA: San Miguel de Sarapiquí, 850 m, 30 Jan 1985, *Eggers* (hb. Eggers, *Eggers* 2001); Sarapiquí cantón, Caribbean slope 5 km above San Miguel, 850 m, 30 Jan 1985, *Eggers* CR 2/70, det. Pócs (EGR, *Eggers et al.* 2001). LIMÓN: Guácimo cantón, Jalova, southern border of the Tortuguero National Park, 2 m, 19 Feb 1985, *Eggers* CR 12/7 (Eggers et al. 2001); Pococí cantón, Tortuga Lodge near Tortuguero, 21 Feb 1985, *Eggers* CR 12/82 (Eggers 2001; Eggers et al. 2001).

Also reported from the Caribbean.

Cololejeunea jamesii (Austin) M.E.Reiner et Pócs, *Phytotaxa* 208(1): 98, 2015 (Pócs et al. 2015b).

≡*Lejeunea jamesii* Austin, *Bull. Torrey Bot. Club* 6(30): 158, 1877 (Austin 1877). Type: Mexico.

≡*Cololejeunea clavatopapillata* Steph., *Hedwigia* 34(5): 246, 1895 (Stephani 1895c), syn. fide Pócs et al. (2015b). Type: Brazil.

≡*Aphanolejeunea clavatopapillata* (Steph.) M.E.Reiner, *Trop. Bryol.* 10: 35, 1995 (Reiner-Drehwald 1995a).

GUATEMALA. EL PETÉN: San José municipio, El Zotz, *Can et al.* (USCG, *Morales* 2011 as *Aphanolejeunea clavatopapillata*).

COSTA RICA. S. loc. (*Schäfer-Verwimp* and Pócs 2009 as *Cololejeunea clavatopapillata*; Cañiza et al. 2017). SAN JOSÉ: Mora, Tabarcia, 850 m, *Alfaro* 14 (USJ, *Dauphin et al.* 1998 as *Aphanolejeunea clavatopapillata*; *Dauphin* 2005 as *Aphanolejeunea clavatopapillata*); Pérez Zeledón cantón, Cordillera de Talamanca, valley of the Rio Chirripo Pacifico above San Gerardo de Rivas, 1,600 m, 27 Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0239/D (*Lüth and Schäfer-Verwimp* 2004 as *Aphanolejeunea clavatopapillata*); Pérez Zeledón cantón, Rivas, San Gerardo, *Schäfer-Verwimp & Holz* SV/H-0239/d (*Dauphin* 2005 as *Aphanolejeunea clavatopapillata*).

PANAMA. S. loc. (Cañiza et al. 2017). CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (*Salazar Allen et al.* 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,340 m, *Schäfer-Verwimp & Verwimp* 34337/A (JE, *Schäfer-Verwimp* 2014 as *Cololejeunea clavatopapillata*).

Also reported from West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa,

Indian Subcontinent, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Cololejeunea linopteroides H. Rob., *Bryologist* 67(4): 457, 1964 (Robinson 1964). Holotype: Costa Rica, Alajuela, San Antonio de Zarcero, *Smith* 48/312 (US-00070839 <http://n2t.net/ark:/65665/369b8910b-28f8-4b98-8dcb-ae789e42fe16>).

=*Cololejeunea gradsteinii* A. Lücking, *Diversit. Mikrohab. Epiphyll* Moose: 66, 1995 (Lücking 1995), nom. inval. (ICN2018 Art. 30.9; published in thesis), syn. fide Bernecker-Lücking and Morales (1999). Original material: Costa Rica, Limón, Pococí, Sendero Botarrama, *Bernecker-Lücking* 91-121, 91-122, 92-482, 92-512, etc.

GUATEMALA. S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008).

COSTA RICA. S. loc. (Schäfer-Verwimp 2014); S. loc., Carranza (GOET, Yu et al. 2013; Renner and de Lange 2020). ALAJUELA: San Carlos cantón, Arenal Volcano, Pérez 8 (USJ, Bernecker-Lücking and Morales 1999); San Lorenzo cantón, Bajo Jamaical de Miramar, Moya 13 (USJ, Bernecker-Lücking and Morales 1999); San Ramón cantón, San Ramón, Reserva Biológica Alberto Brenes, *Dauphin* 439 (USJ, Bernecker-Lücking and Morales 1999; Dauphin 2005); Zarcero cantón, San Antonio, 5 Mar 1948, *Smith* 48/312 (US-00070839, TYPE, Robinson 1964; Bernecker-Lücking and Morales 1999; Pócs et al. 2014). CARTAGO: Paraíso cantón, Orosi, Tapantí National Park (Dauphin 2005); Paraíso cantón, Tapanti National Park, Morales & Moya 47954 (USJ, Bernecker-Lücking and Morales 1999). GUANACASTE: Tenorio Volcano, 6 Jun 1998, Sánchez (USJ, Bernecker-Lücking and Morales 1999); Tilarán cantón, Arenal, ~500 m (Eggers 2001); Tilarán cantón, Arenal, Naranjos Agrios, ~650 m (Eggers 2001); Tilarán cantón, Arenal, Naranjos Agrios, 600–700 m, *Standley & Valerio* 46490a (JE, Bernecker-Lücking and Morales 1999). HEREDIA: San Miguel de Sarapiquí, 850 m, 30 Jan 1985, Eggers (hb. Eggers, Eggers 2001); Sarapiquí cantón, Caribbean slope 5 km above San Miguel, 850 m, 30 Jan 1985, Eggers CR 2/70, det. Pócs (EGR, Eggers et al. 2001); Sarapiquí cantón, La Selva Biological Station, *Dauphin* (USJ, Bernecker-Lücking and Morales 1999); Sarapiquí cantón, Puerto Vieje, Lago Hule, 27 Sep 1991, *Dauphin* (USJ, Bernecker-Lücking and Morales 1999); Sarapiquí cantón, Rara Avis, 700 m, 11–13 Jan 1994, *Cascante* (USJ, Bernecker-Lücking and Morales 1999). LIMÓN: Braulio Carrillo National Park, 400–500 m (Eggers 2001); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 91-121, 91-122, 92-118 (hb. Lücking, Lücking 1995 as *Cololejeunea gradsteinii*; Bernecker-Lücking and Morales 1999); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 92-15, 92-406, 92-407, 92-482, 92-512, 92-515 (hb. Lücking, Lücking 1995 as *Cololejeunea gradsteinii*; Bernecker-Lücking and Morales 1999); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (Lücking 1997); Sarapiquí cantón, La Selva, 100 m (Eggers 2001). PUNTARENAS: Golfito cantón,

Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009); Monteverde cantón, Experimental Station of the University of California, 17 Apr 1993, Carranza 46100 (hb. Lücking ex USJ-46100, EGR, GOET, MO-5135685, Lücking 1995 as *Cololejeunea gradsteinii*; Bernecker-Lücking and Morales 1999); Monteverde cantón, Monteverde Cloud Forest Preserve, Sep 1988, *Kjeldberg* (USJ, hb. Bernecker, Bernecker-Lücking and Morales 1999); Monteverde, 1,600 m, Eggers (hb. Eggers, Eggers 2001). SAN JOSÉ: Tarrazú cantón, Cerro Diamante, Apr 1997, *Guitérrez* (USJ, Bernecker-Lücking and Morales 1999).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,650 m, *Schäfer-Verwimp & Verwimp* 34418/A, 34418/B, 34418/E (JE, EGR, MO-6690268, Schäfer-Verwimp 2014).

Also reported from Northern South America, Western South America.

Cololejeunea microscopica var. *africana* (Pócs) Pócs et Bernecker, *Cryptog. Bryol.* 29(3): 234, 2008 (Dauphin et al. 2008).

=*Aphanolejeunea exigua* A. Evans var. *africana* Pócs, *Cryptog. Bryol. Lichénol.* 5(3): 247, 1984 (Pócs 1984b). Type: Tanzania.

=*Aphanolejeunea microscopica* var. *africana* (Pócs) Pócs et Lücking, *Haussknechtia*, *Beih.* 7: 27, 1997 (Pócs and Lücking 1997).

=*Aphanolejeunea verrucosa* Jovet-Ast, *Rev. Bryol. Lichénol.* 16(1/2): 25, 1947 (Jovet-Ast 1947), syn. fide Pócs and Bernecker (2009). Type: Guadeloupe.

GUATEMALA. HUEHUETENANGO: S. loc., Pérez 1677 (USCG, Pérez 2009 as *Aphanolejeunea microscopica* var. *africana*).

EL SALVADOR. S. loc. (Schäfer-Verwimp 1999 as *Aphanolejeunea verrucosa*; Lavocat Bernard et al. 2009 as *Aphanolejeunea verrucosa*). SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hacienda Montecristo, *Winkler* A/12/6, B/6/b/4 (Winkler 1967 as *Aphanolejeunea verrucosa*).

COSTA RICA. CARTAGO: El Guarco cantón, 3 de junio, 2,460 m, 3 Jan 2000, *Schäfer-Verwimp & Holz* SV/H-0448/C (Lüth and Schäfer-Verwimp 2004 as *Aphanolejeunea microscopica* var. *africana*; Dauphin 2005 as *Aphanolejeunea microscopica* var. *africana*). SAN JOSÉ: División, Monte Carmelo, Jan 1986, *Kappelle et al.* 718a, det. Pócs 1996 (EGR!, this publication); Dota cantón, San Gerardo, along Río Savegre, 1,900 m, 25 Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0110 (Lüth and Schäfer-Verwimp 2004 as *Aphanolejeunea microscopica* var. *africana*); Dota cantón, San Gerardo, Chacón Holiday Camp to waterfall, 9°32'13.81440"N, 83°49'27.2480"W, 1,950–2,000 m, 25 Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0059, det. G. Dauphin Oct 2020 (CR!, this publication); Dota cantón, San Gerardo, Chacón Holiday Camp to waterfall, 9°32'13.81440"N, 83°49'27.2480"W, 1,950–2,000 m, 25 Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0087, det. G. Dauphin Oct 2020 (CR!, this publication); Dota cantón, San Gerardo, Río Savegre,

Schäfer-Verwimp & Holz SV/H-0110 (Dauphin 2005 as *Aphanolejeunea microscopica* var. *africana*); Pérez Zeledón cantón, Cerro de La Muerte km 84 of Pan-American Highway, 26 Dec 1999, *Schäfer-Verwimp & Holz SV/H-0190/B*, det. Pócs (EGR!, Lüth and Schäfer-Verwimp 2004 as *Aphanolejeunea microscopica* var. *africana*; this publication).

PANAMA. *NASO TIËR DI COMARCA: Parque Internacional La Amistad, Cerro Fábrega, 9°05'45"N, 82°53'10"W, 12 Feb 1995, *Dauphin et al. 1583A*, det. G. Dauphin Oct 2020 (CR!, this publication). **PANAMA WEST:** La Chorrera distrito, Barro Colorado Island, Shannon 0–2, 9°09'N, 79°51'W, 20–170 m, *Dauphin 3066, 3193* (PMA, Dauphin et al. 2006 as *Aphanolejeunea microscopica* var. *africana*); La Chorrera distrito, Barro Colorado Island, T. Barbour 26–27, 9°09'N, 79°51'W, 20–170 m, *Dauphin 3199* (PMA, Dauphin et al. 2006 as *Aphanolejeunea microscopica* var. *africana*).

Also reported from West Tropical Africa, West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Western Indian Ocean, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Cololejeunea microscopica var. *exigua* (A.Evans) Pócs, *Mem. New York Bot. Gard.* 76(4): 73, 2009 (Gradstein and Ilkui-Borges 2009).

≡*Aphanolejeunea exigua* A.Evans, *Bull. Torrey Bot. Club* 38(6): 273, 1911 (Evans 1911b). Type: Puerto Rico.

≡*Aphanolejeunea microscopica* (Taylor) A.Evans var. *exigua* (A.Evans) A.Lücking and Pócs, *Haussknechtia Beih.* 7: 27, 1997 (Pócs and Lücking 1997).

GUATEMALA. **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al. 233* (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as *Aphanolejeunea exigua*). **HUEHUETENANGO:** S. loc., Pérez 1690 (USCG, Pérez 2009 as *Aphanolejeunea microscopica* var. *exigua*).

EL SALVADOR. S. loc. (Pócs 1984c as *Aphanolejeunea exigua*; Fulford and Sharp 1990 as *Aphanolejeunea exigua*). **SANTA ANA:** Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler A/12/6, B/6/a/5, B/6/d/6* (Winkler 1967 as *Aphanolejeunea exigua*).

COSTA RICA. Cordillera de Talamanca (Holz 2003 as *Aphanolejeunea exigua*; Holz and Gradstein 2005b as *Aphanolejeunea exigua*). **CARTAGO:** Paraíso cantón, Orosi, Tapantí National Park, Morales 2244, 2251, 2264 (USJ, Morales 1991 as *Aphanolejeunea exigua* var. *exigua*; Dauphin 2005 as *Aphanolejeunea microscopica* var. *exigua*). **PUNTARENAS:** Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a as *Aphanolejeunea exigua*). **SAN JOSÉ:** Dota cantón, San Gerardo, 1,905 m, *Schäfer-Verwimp & Holz SV/H-0049/F*, det. Pócs (EGR!, hb. Schäfer-Verwimp, this publication); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a as *Aphanolejeunea exigua*).

?COCOS I. S. loc. (Dauphin 1995 as *Aphanolejeunea exigua*). Note: We are not aware of any firsthand report from Cocos I.

Also reported from Northern Europe, West Tropical Africa, West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Western Indian Ocean, Indian Subcontinent, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Cololejeunea microscopica (Taylor) Schiffn., *Hepat. (Engl.-Prantl)*: 122, 1893 (Schiffner 1893a) var. *microscopica*.

≡*Jungermannia microscopica* Taylor, *Fl. Hibern.* 2: 59, 1836 (Mackay 1836).

Type: Ireland.

≡*Aphanolejeunea microscopica* (Taylor) A.Evans, *Bull. Torrey Bot. Club* 38(6): 273, 1911 (Evans 1911b).

GUATEMALA. **EL PETÉN:** S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008 as *Aphanolejeunea microscopica* var. *microscopica*).

***COSTA RICA.** ***CARTAGO:** El Guarco cantón, 3 de Junio, Pan-American Highway km 67, 2,460 m, 3 Jan 2000, *Schäfer-Verwimp & Holz SV/H-0467/A*, det. Pócs (MO!, EGR!, this publication). ***SAN JOSÉ:** Dota cantón, San Gerardo, Chacón Holiday Camp to waterfall, 9°32'13.81440"N, 83°49'27.2480"W, 1,950–2,000 m, 25 Dec 1999, *Schäfer-Verwimp & Holz SV/H-0034*, det. G. Dauphin Oct 2020 (CR-000377003!, this publication).

PANAMA. **CHIRIQUÍ:** Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,600 m, 4 Apr 2006, *Schäfer-Verwimp & Verwimp 30911*, det. Pócs (JE, EGR, Schäfer-Verwimp 2014). **PANAMA WEST:** La Chorrera distrito, Barro Colorado Island, *Gradstein & Salazar Allen 15103* (PMA, Dauphin et al. 2022).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, West Tropical Africa, West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Western Indian Ocean, Indian Subcontinent, Northern South America, Brazil. The species sensu lato is reported also from other areas, and some of those reports may belong to this variety.

Cololejeunea minuscula Pócs, *Polish Bot. J.* 54(1): 7, 2009 (Pócs and Bernecker 2009).

≡*Aphanolejeunea minuta* R.M.Schust., *Hepat. Anthocer. N. Amer.* 4: 1310, 1980 (Schuster 1980d). Type: USA, Florida.

COSTA RICA. S. loc. (Schäfer-Verwimp and Pócs 2009). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, 500 m, *Schäfer-Verwimp & Holz SV/H-0300/B* (EGR, GOET, CR, STU, Lüth and Schäfer-Verwimp 2004 as *Aphanolejeunea minuta*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 500 m, *Schäfer-Verwimp & Holz SV/H-0300b* (Dauphin 2005 as *Aphanolejeunea minuta*).

?**PANAMA.** S. loc. (Schäfer-Verwimp and Pócs 2009). Note: We are not aware of any firsthand report from Panama.

?**COCOS I.** S. loc. (Dauphin 1995 as *Aphanolejeunea minuta*). Note: We are not aware of any firsthand report from Cocos I.

Also reported from West-Central Tropical Africa, Southeastern USA, the Caribbean(?), Western South America, Brazil.

Cololejeunea minutilobula Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 171, 1951 (Herzog 1951). Lectotype (Söderström and Hentschel 2023: 6): Panama, Río Tapia, 7 Dec 1923–11 Jan 1924, *Standley* 26176 (JE-04004064 <https://je.jacq.org/JE04004064>, isoelectotypes JE-04000973 <https://je.jacq.org/JE04000973> [microslide], US-00070983 <http://n2t.net/ark:/65665/34d6b9a3a-a59d-455b-af8e-4a9e611388d8>). Note: Herzog mistakenly placed the locality in Costa Rica (“ohne Fundortznotiz”), although the specimens in both JE and US clearly state they are from Panama.

≡ *Cololejeunea papillifera* R.M.Schust., *Beih. Nova Hedwigia* 9: 177, 1963 (Schuster 1963b), nom. illeg. (ICN2018 Art. 52.1; earlier name included).

≡ *Physocolea microloba* Herzog ex Standl., *Field Mus. Nat. Hist., Bot. Ser.* 10: 62, 1931 (Standley 1931), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Honduras, Atlántida, Lancetilla Valley near Tela, *Standley s.n.*

HONDURAS. ATLÁNTIDA: Tela municipio, Lancetilla Valley, 20–600 m, 1928, *Standley* (*Standley* 1931 as *Physocolea microloba*).

COSTA RICA. S. loc. (Bonner 1977 as *Cololejeunea papillifera*; Cole 1982, 1983; Schäfer-Verwimp 1996; Gradstein and Costa 2003). **HEREDIA:** San Miguel de Sarapiquí, 850 m, 30 Jan 1985, Eggers (hb. Eggers, Eggers 2001 as *Cololejeunea papillifera*); Sarapiquí cantón, La Selva, 100 m, Eggers (hb. Eggers, Eggers 2001 as *Cololejeunea papillifera*); Sarapiquí cantón, Puerto Viejo, 100 m, Eggers, det. Pócs (hb. Eggers, Eggers 2001 as *Cololejeunea papillifera*).

PANAMA. PANAMA WEST: La Chorrera distrito, Barro Colorado Island, *Mežaka et al.* (PMA, *Mežaka et al.* 2020 as *Cololejeunea minutiloba*); La Chorrera distrito, Barro Colorado Island, 9°09'N, 79°51'W, 20–170 m, *Gradstein & Salazar Allen* 15141 p.p. (PMA, *Dauphin et al.* 2022); La Chorrera distrito, Barro Colorado Island, Barbour Point, 9°09'N, 79°51'W, 20–170 m, *Dauphin* 3153 p.p. (PMA, *Dauphin et al.* 2006); La Chorrera distrito, Barro Colorado Island, Fuertes Cove, 9°09'N, 79°51'W, 20–170 m, *Dauphin* 3113 (PMA, *Dauphin et al.* 2006); La Chorrera distrito, Barro Colorado Island, Shannon 4, 9°09'N, 79°51'W, 20–170 m, 2003, *Dauphin & Moser* 3129 (PMA, *Dauphin et al.* 2006, 2022); La Chorrera distrito, Barro Colorado, Fuertes Cove, 2003, *Dauphin* 3113 (CR, PMA, *Dauphin et al.* 2022). **PANAMA:** Panamá distrito, Río Tapia, *Standley* 26176 (JE, US, TYPE; Herzog 1951; Bonner 1963b; Morales 1991; Dauphin 2005; Pócs et al. 2014); Panamá distrito, Río Tapia, 12 Jul 1923–11 Jan 1924, *Standley* 26176 (JE-04004064 <https://je.jacq.org/JE04004064>, US-00070983 <http://n2t.net/ark:/65665/34d6b9a3a-a59d-455b-af8e-4a9e611388d8>, this publication).

Also reported from Northern South America, Brazil.

Cololejeunea moralesiae (Bern.-Lück.) Bernecker et Pócs, *Polish Bot. J.* 54(1): 7, 2009 (Pócs and Bernecker 2009).

≡ *Aphanolejeunea moralesiae* Bern.-Lück., *Diversit. Mikroh. Epiphyll* Moose: 51, 1995 (Lücking 1995), nom. inval. (ICN2018 Art. 30.9; published in thesis).

≡ *Aphanolejeunea moralesiae* Bern.-Lück., *Nova Hedwigia* 66(1/2): 166, 1998 (Bernecker-Lücking 1998a). Holotype: Costa Rica, Limón, Pococí, P. N. Braulio Carrillo, Quebrada González, 10°12'N, 83°55'W, 460–480 m, transition between tropical lowland and premontane rainforest zone, primary forest along the Botarrama trail, on leaves of *Miconia hamelii*, Jun 1992, *Bernecker-Lücking* 92-462 (G-00120476 <https://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?lang=en&id=242680&cl=ng=en>; isotypes EGR, GOET, USJ).

COSTA RICA. S. loc. (Holz et al. 2001 as *Aphanolejeunea moralesiae*; Pócs and Bernecker 2009; Sierra et al. 2018a). **HEREDIA:** San Miguel de Sarapiquí, 850 m, 30 Jan 1985, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea moralesiae*). **LIMÓN:** Braulio Carrillo National Park, 400–500 m (Eggers 2001 as *Aphanolejeunea moralesiae*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, 11 Apr 1993, *Lücking* 92-511 (hb. Lücking, *Lücking* 1995 as *Aphanolejeunea moralesiae*; Dauphin 2005 as *Aphanolejeunea moralesiae*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (*Lücking* 1997 as *Aphanolejeunea moralesiae*); Pococí cantón, Braulio Carrillo National Park, Quebrada González, 10°12'N, 83°55'W, 480 m, Jun 1992, *Lücking* 92-462, 92-463 (G, EGR, GOET, USJ, hb. Lücking, TYPE of *Aphanolejeunea moralesiae*, *Lücking* 1995 as *Aphanolejeunea moralesiae*; Bernecker-Lücking 1998a as *Aphanolejeunea moralesiae*; Kis 2004 as *Aphanolejeunea moralesiae*; Dauphin 2005 as *Aphanolejeunea moralesiae*; Crosby and Engel 2006 as *Aphanolejeunea moralesiae*; Pócs et al. 2014); Pococí cantón, Tortuguero, 1–5 m (Eggers 2001 as *Aphanolejeunea moralesiae*); Siquirres cantón, Río Siquirres (Eggers 2001 as *Aphanolejeunea moralesiae*); Siquirres cantón, Río Siquirres, Jul 1996, *Obando & Morales* 2442 (USJ-47813, hb. Lücking, *Bernecker-Lücking* 1998a as *Aphanolejeunea moralesiae*). **SAN JOSÉ:** Pérez Zeledón cantón, Quizarrá near San Isidro, 700 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea moralesiae*).

Also reported from Brazil.

Cololejeunea obliqua (Nees et Mont.) Schiffn., *Bot. Jahrb. Syst.* 23(5): 586, 1897 (Schiffner 1897).

≡ *Lejeunea obliqua* Nees et Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 19: 264, 1843 (Montagne 1843). Type: French Guiana.

≡ *Cololejeunea scabriflora* Gottsche ex Steph., *Hedwigia* 34(5): 251, 1895 (Stephani 1895c), syn. fide Tixier (1985). Type: Trinidad, Brazil.

≡ *Leptocolea scabriflora* (Gottsche ex Steph.) A. Evans, *Bull. Torrey Bot. Club* 38(6): 262, 1911 (Evans 1911b).

≡ *Physocolea semidentata* Steph., *Sp. Hepat. (Stephani)* 5: 883, 1916 (Stephani 1916a), syn. fide Pócs et al. (2015a). Lectotype (Pócs et al. 2015a) or possibly holotype: Costa Rica, Cartago, Bois de la vallée de Tuis, bassin du Reventarzon, Sep 1893, A. Tonduz, hb. Cardot 15591 (G-00069367 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=115606&lang=en>, isoelectotype JE-04004047 <https://je.jacq.org/JE04004047>).

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 21, 28, 100, 217, 243, 280 (USCG, *Freire et al.* 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del

Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). **EL PETÉN:** Flores Municipio, Dos Lagunas, *Can et al.* (USCG, Morales 2011).

BELIZE. **CAYO:** Blue Hole National Park, 100–200 m, 1996, *Eggers BEZ 3/3* (O'Shea et al. 1997). **STANN CREEK:** Cockscombe Reserve, 1996, *Eggers BEZ 5/6* (hb. Eggers, O'Shea et al. 1997).

HONDURAS. S. loc. (Lücking 1995); S. loc., 1903, *Wilson 603*, det. Pócs (EGR!, this publication). **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, *Standley* (Standley 1931 as *Leptocolea scabriflora*); Tela municipio, Lancetilla Valley, 20–600 m, *Standley 54810, 54826, 54841, etc.* (B, JE, FH, US, Herzog 1951 as *Cololejeunea scabriflora*).

EL SALVADOR. S. loc. (Lücking 1995). **SANTA ANA:** Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler A/32/y/3, A/32/y/9* (Winkler 1967 as *Leptocolea scabriflora*).

COSTA RICA. S. loc. (Cole 1982, 1983, both as *Cololejeunea scabriflora*; Zhu et al. 1999). **CARTAGO:** Rancho Naturalista, 900 m, *Eggers* (hb. Eggers, Eggers 2001); Turrialba cantón, Vallée de Tuis, bassin de Reventazón, 600 m, Sep 1893, *Tonduz 15591* (G-00069367, **TYPE** of *Physocolea semidentata*, *Stephani 1916a* as *Physocolea semidentata*; Geissler and Bischler 1989 as *Physocolea semidentata*; Pócs et al. 2015a). **GUANACASTE:** Tenorio, 500 m, *Eggers* (hb. Eggers, Eggers 2001); Tilarán cantón, La Tezona, N of Tilarán, 600–700 m, *Standley 45762 p.p.* (Herzog 1951 as *Cololejeunea scabriflora*; Morales 1991; Dauphin 2005). **HEREDIA:** San Miguel de Sarapiquí, 850 m, 30 Jan 1985, *Eggers* (hb. Eggers, Eggers 2001); Sarapiquí cantón, La Selva, 100 m, *Eggers* (hb. Eggers, Eggers 2001). **LIMÓN:** Braulio Carrillo National Park, 400–500 m (Eggers 2001); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking 92-185* (hb. Lücking, Lücking 1995, 1997); Pococí cantón, Tortuguero, 1–5 m, *Eggers* (hb. Eggers, Eggers 2001); Siquirres cantón, Cairo, Finca Hamburgo, *Standley & Valerio 48775a* (Morales 1991); Siquirres cantón, Cairo, Finca Hamburgo, on the Rio Reventazón below Cairo, 55 m, *Standley 48775a* (Herzog 1951 as *Cololejeunea scabriflora*; Dauphin 2005). **PUNTARENAS:** Golfito cantón, Esquinas, <100 m, *Eggers* (hb. Eggers, Eggers 2001); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009); Monteverde, <1,500 m (Morales 1991; Eggers 2001); Monteverde, 1,600 m, *Eggers* (hb. Eggers, Eggers 2001); Monteverde, 15 Jan 1965, *James, W. 41a* (R, Reed and Robinson 1971 as *Cololejeunea scabriflora*; Dauphin 2005).

PANAMA. Canal Zone (Schäfer-Verwimp 2014); S. loc. (Lücking 1995). **PANAMA WEST:** La Chorrera distrito, Barro Colorado Island, Quebrada R. Shannon, *Marino 4, 37, 38* (PMA, Stotler et al. 1998; Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Shannon 0–1, 20–170 m, *Dauphin 3186* (PMA, Dauphin et al. 2006); La Chorrera distrito, Barro Colorado Island, Shannon 0–5, 20–170 m, *Dauphin 3077, 3878* (PMA, Dauphin et al. 2006); La Chorrera distrito, Barro

Colorado Island, Shannon 4, 9°09'N, 79°51'W, 2003, *Dauphin & Moser 3128* (CR, PMA, Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Shannon Creek and ridge top, 1 Dec 1990, *Marino & Salazar Allen* (STRI, Marino and Salazar Allen 1992); La Chorrera distrito, Barro Colorado, Shannon, 2003, *Dauphin 3077, 3078* (PMA, Dauphin et al. 2022). **VERAGUAS:** Montijo distrito, Isla de Coiba (Parque Nacional Coiba), Playa Hermosa, subiendo a la falla y tomando hacia playa Santa Clara, 7°30'03.0"N, 81°52'26.9"W, 1995–1996, *Aranda 2518* (MA, PMA, Salazar Allen and Chung 1997a); Santa Fe distrito, Rio Santa María, 8°32'N, 81°06'W, 400–450 m, 1 Apr 2006, *Schäfer-Verwimp & Verwimp 30797* (JE, Schäfer-Verwimp 2014); Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, *Schäfer-Verwimp & Verwimp 30804, 30832, 30833/C* (JE, Schäfer-Verwimp 2014).

Also reported from West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Western Indian Ocean, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasias, Australia, Southwestern Pacific, Northwestern Pacific, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Cololejeunea panamensis G.Dauphin et Pócs, *Trop. Bryol.* 27: 76, 2006 (Dauphin et al. 2006). Holotype: Panama, Panama West, Barro Colorado I., 9°09'N, 79°51'W, Barbour Point, 28 Feb 2003, *Dauphin s.n.* (PMA-10103, isotype EGR).

PANAMA. S. loc. (von Konrat et al. 2010; Sierra et al. 2018a). **PANAMA WEST:** La Chorrera distrito, Barro Colorado Island, *Mežaka et al.* (PMA, Mežaka et al. 2020); La Chorrera distrito, Barro Colorado Island, Barbour Point, 2003, *Dauphin s.n.* (PMA, Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Barbour Point, 9°09'N, 79°51'W, 20 m, 27 Feb 1999, *Dauphin* (PMA, EGR, **TYPE**, Dauphin et al. 2006; Pócs et al. 2014).

Also reported from Brazil.

Cololejeunea papilliloba (Steph.) Steph., *Hedwigia* 34(5): 250, 1895 (Stephani 1895c).

=*Lejeunea papilliloba* Steph., *Hedwigia* 29(2): 73, 1890 (Stephani 1890c).

Type: Brazil.

=*Cololejeunea pustulosa* Jovet-Ast, *Rev. Bryol. Lichénol.* 29(1/2): 35, 1960 (Jovet-Ast 1960), syn. fide Pócs and Bernecker (2009). Type: Mexico.

=*Aphanolejeunea pustulosa* (Jovet-Ast) Bern.-Lück. et Pócs, *Bryologist* 102(4): 749, 1999 (Equihua and Pócs 1999).

COSTA RICA. S. loc. (Schäfer-Verwimp and Van Melick 2016). **PUNTARENAS:** Monteverde cantón, Cordillera de Tilarán, Refugio Monteverde, ~1,600 m, 6 Feb 1985, *Eggers CR 5/299* (Eggers et al. 2001 as *Aphanolejeunea pustulosa*); Monteverde, 1,600 m, *Eggers* (hb. Eggers, Eggers 2001 as *Aphanolejeunea pustulosa*).

PANAMA. S. loc. (Schäfer-Verwimp and Van Melick 2016). **CHIRIQUÍ:** Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W,

1,360–1,620 m, *Schäfer-Verwimp & Verwimp* 34351/D, 34356, 34398/C, etc. (JE, Schäfer-Verwimp 2014).

Also reported from West-Central Tropical Africa, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Cololejeunea papillosa (K.I.Goebel) Mizut., *J. Hattori Bot. Lab.* 29: 156, 1966 (Mizutani 1966).

≡ *Physocolea papillosa* K.I.Goebel, *Ann. Jard. Bot. Buitenzorg* 39: 41, 1928 (Goebel 1928). Type: Sumatra.

= *Aphanolejeunea angustissima* Steph. *Sp. Hepat. (Stephani)* 5: 859, 1916 (Stephani 1916a), nom. rejic. prop., syn. fide Pócs and Bernecker (2009). Lectotype (Bonner 1962a: 235; see also Pócs and Bernecker 2009 as “holotype”): Guatemala, Cobán, *Türckheim* ex hb. Levier 5826 (G-00067015 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=113712&lang=en>, isolectotype JE-04001106 <https://je.jacq.org/JE04001106>). Note: Before 2009 this name was mainly used in the sense of *Cololejeunea gracilis* (cf. Söderström et al. 2022b). Thus, many of the reports below probably refer to the latter taxon.

= *Aphanolejeunea cyathiphylla* Herzog, *Svensk Bot. Tidskr.* 46(1): 105, 1952 (Herzog 1952), syn. fide Pócs and Bernecker (2009). Type: Ecuador.

GUATEMALA. S. loc. (Arnell 1959 as *Aphanolejeunea angustissima*; Jovet-Ast 1960 as *Aphanolejeunea angustissima*; Eggers et al. 2004 as *Aphanolejeunea angustissima*). **ALTA VERAPAZ:** Cobán, 1,600 m, *Türckheim*, hb. Levier 5826 (G-00069375 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=115764&lang=en>, TYPE of *Aphanolejeunea angustissima*, Stephani 1916a as *Aphanolejeunea angustissima*; Fulford and Sharp 1990 as *Aphanolejeunea angustissima*; Cobán, 1,350 m, 1907, *Türckheim*, hb. Levier 5826 (G, FI, Bonner 1962a as *Aphanolejeunea angustissima*).

?BELIZE. ?CAYO: Blue Hole National Park, 100–200 m, 1996, Eggers & Timm BEZ 3/17 (Eggers et al. 2004 as *Aphanolejeunea angustissima*); Mountain Pine Ridge, Cave Rio Frio, ~600 m, 1996, Eggers & Timm BEZ 2/43 (Eggers et al. 2004 as *Aphanolejeunea angustissima*). Note: Probably used in the sense of *Cololejeunea gracilis*.

?HONDURAS. S. loc. (Eggers et al. 2004 as *Aphanolejeunea angustissima*). ?ATLÁNTIDA: Tela municipio, Lancetilla Valley, 20–600 m, 6 Jul 1927–20 Mar 1928, Standley 56755 (JE, US, Herzog 1951 as *Aphanolejeunea angustissima*). Note: Possibly used in the sense of *Cololejeunea gracilis*.

EL SALVADOR. S. loc. (Pócs 1984c as *Aphanolejeunea cyathiphylla*; Schäfer-Verwimp 1999 as *Aphanolejeunea angustissima* and *Aphanolejeunea cyathiphylla*; Eggers et al. 2004 as *Aphanolejeunea angustissima*). **SANTA ANA:** Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, Winkler B/6/b/4 (Winkler 1967 as *Aphanolejeunea cyathiphylla*).

?COSTA RICA. S. loc. (Schäfer-Verwimp 1999 as *Aphanolejeunea angustissima*; Eggers et al. 2004 as *Aphanolejeunea angustissima*). ?ALAJUELA: Poás, 1,950 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea angustissima*). ?CARTAGO: Paraíso cantón, Orosi, Tapantí National Park (Eggers 2001 as

Aphanolejeunea angustissima); Rancho Naturalista, 900 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea angustissima*); Turrialba cantón, Guayabo, 1,100 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea angustissima*); Turrialba cantón, Tuis Valley, Rancho Naturalista, 900 m, 30 Jan 2001, Eggers CR 17/28 (Eggers et al. 2001 as *Aphanolejeunea angustissima*). ?GUANACASTE: Tenorio, 500 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea angustissima*). ?HEREDIA: Barva cantón, between Montana and Volcán Barva, 2,000 m, 1 Feb 1982, Eggers CR 1/208, det. Pócs (EGR, Eggers et al. 2001 as *Aphanolejeunea angustissima*); Heredia cantón, Vara Blanca, 1,380 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea angustissima*); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, Standley 50500 (Pócs 1984c as *Aphanolejeunea angustissima*); San Miguel de Sarapiquí, 850 m, 30 Jan 1985, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea angustissima*); Sarapiquí cantón, La Selva, 100 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea angustissima*). ?LIMÓN: Braulio Carrillo National Park, 400–500 m (Eggers 2001 as *Aphanolejeunea angustissima*). ?PUNTARENAS: Golfito cantón, Esquinas, <100 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea angustissima*); Monteverde, 1,600 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea angustissima*). ?SAN JOSÉ: Pérez Zeledón cantón, Quizarrá near San Isidro, 700 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea angustissima*). Note: All reports probably represent *Cololejeunea gracilis*.

PANAMA. **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,500–1,650 m, Schäfer-Verwimp & Verwimp 34420, det. Pócs (JE, EGR, Schäfer-Verwimp 2014); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,300–1,700 m, Schäfer-Verwimp & Verwimp 34445/B (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, Schäfer-Verwimp & Verwimp 34572, 34575/C (JE, Schäfer-Verwimp 2014). **VERAGUAS:** Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, Schäfer-Verwimp & Verwimp 30806 p.p. (JE, Schäfer-Verwimp 2014).

COCOS I. S. loc. (Dauphin 1995, 1999, both as *Aphanolejeunea angustissima*); Bahía Yglesias, 0–20 m, Apr 1992, Lücking 462, 614 (ULM, Bernecker-Lücking 2000 as *Aphanolejeunea cyathiphylla*); Río Genio, 5°32'57"N, 87°03'56"W, 0–50 m, Apr 1992, Lücking 501 (hb. Bernecker, Bernecker-Lücking 2000 as *Aphanolejeunea cyathiphylla*); S. loc. (Dauphin 1995 as *Aphanolejeunea cyathiphylla*); Yglesias D, 250–350 m, Apr 1992, Lücking 621 (USJ, Bernecker-Lücking 2000 as *Aphanolejeunea cyathiphylla*).

Also reported from Indo-China, Malesia, Papuasia, Australia, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Cololejeunea planissima (Mitt.) Abeyw., *Ceylon J. Sci., Biol. Sci.* 2(1): 73, 1959 (Abeywickrama 1959) var. *planissima*.

≡ *Lejeunea planissima* Mitt., *J. Proc. Linn. Soc., Bot.* 5(18): 117, 1861 (Mitten 1860a). Type: Sri Lanka.

≡ *Leptocolea planifolia* A.Evans, *Bull. Torrey Bot. Club* 38(6): 265, 1911 (Evans 1911b), syn. fide Pócs et al. (2015a). Type: Puerto Rico.

≡ *Cololejeunea planifolia* (A.Evans) R.M.Schust., *Beih. Nova Hedwigia* 9: 177, 1963 (Schuster 1963b).

?**HONDURAS**. S. loc. (Pagán 1939b as *Leptocolea planifolia*). Note: We are not aware of any firsthand report from Honduras.

PANAMA. S. loc. (Schäfer-Verwimp et al. 2013 as *Cololejeunea planifolia*). **PANAMA WEST**: La Chorrera distrito, Barro Colorado Island, Camino F. Miller, 9°09'N, 79°51'W, 20–170 m, *Salazar Allen & Chung* 4530 (PMA, Stotler et al. 1998 as *Cololejeunea planifolia*); La Chorrera distrito, Barro Colorado Island, Caminos Armour, Wheeler and Zetek, 9°09'N, 79°51'W, 20–170 m, *Marino* 14, 17, 24, 29 p.p. (PMA, Stotler et al. 1998 as *Cololejeunea planifolia*); La Chorrera distrito, Barro Colorado Island, Shannon Creek and ridge top, 1 Dec 1990, *Marino & Salazar Allen* (STRI, Marino and Salazar Allen 1992 as *Cololejeunea planifolia*).

Also reported from East Tropical Africa, Western Indian Ocean, China, Eastern Asia, Indian Subcontinent, Indo-China, Malaysia, Papuasia, Australia, Northwestern Pacific, Northeastern Pacific(?), Mexico, the Caribbean, Northern South America, Western South America.

Cololejeunea platyneura (Spruce) A.Evans, *Mem. Torrey Bot. Club* 8(2): 172, 1902 (Evans 1902b).

≡ *Lejeunea platyneura* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 299, 1884 (Spruce 1884). Type: Brazil.

***HONDURAS**. ***ATLÁNTIDA**: El Porvenir municipio, Parque Nacional Pico Bonito, desde la quebrada Zacate al límite zona núcleo punto 54, 15°40'N, 86°55'W, 200–400 m, 29 Dec 2001, *Dauphin & Ferrufino* 3050.6, det. Dauphin Dec 2020 (CR-5152104!, this publication).

PANAMA. S. loc. (Pócs 2021). ***COLÓN**: Colón distrito, Quebrada Bonita, 15 Dec 1934, *Dodge et al.* 17016, det. Dauphin Jun 2017 (MO-5243761!, this publication); Colón distrito, Quebrada Bonita, 15 Dec 1934, *Dodge et al.* 17019, det. Dauphin Jun 2017 (MO-5243762!, this publication). **NASO TIJÉRDI COMARCA**: Cerro Fábrega, *Guerrero* 150 (PMA, Dauphin 2007).

Also reported from West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Western Indian Ocean, China, Indo-China, Malaysia, Northern South America, Western South America, Brazil.

Cololejeunea schusteri Pócs, *Acta Bot. Hung.* 44(3/4): 376, 2002 (Pócs 2002). Type: Brazil.

PANAMA. S. loc. (Sierra et al. 2018a). **PANAMA WEST**: La Chorrera distrito, Barro Colorado Island, Barbour Point, 9°09'N, 79°51'W, 20–190 m, *Dauphin* 3153, det. Pócs (EGR!, PMA-11282!, Dauphin et al. 2006; Pócs 2021; Dauphin et al. 2022).

Also reported from Northern South America, Brazil.

Cololejeunea setiloba A.Evans, *Bryologist* 16(4): 51, 1913 (Evans 1913). Type: USA, Florida.

COSTA RICA. S. loc. (Costa et al. 2020). **HEREDIA**: Sarapiquí cantón, Puerto Viejo (Caribbean lowlands), bank of the river Sarapiquí, ~1,600 m, 30 Jan 1985, *Eggers* CR 2/47 (Eggers et al. 2001); Sarapiquí cantón, Puerto Viejo, 100 m, *Eggers*, det. Pócs (hb. Eggers, Eggers 2001).

Also reported from Southeastern USA, Brazil.

Cololejeunea sicifolia subsp. *jamaicensis* (R.M.Schust.) Bernecker et Pócs, *Polish Bot. J.* 54(1): 8, 2009 (Pócs and Bernecker 2009).

≡ *Aphanolejeunea jamaicensis* R.M.Schust., *Phytologia* 45(5): 434, 1980 (Schuster 1980b). Type: Jamaica.

PANAMA. **CHIRIQUÍ**: Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (*Salazar Allen et al.* 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,640 m, *Schäfer-Verwimp & Verwimp* 34417/D (JE, Schäfer-Verwimp 2014). **COCLÉ**: Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 700–1,000 m, 31 Mar 2006, *Schäfer-Verwimp & Verwimp* 30765 (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, Alto de La Mesa, 8°38'N, 80°07'W, 800–850 m, 30 Mar 2006, *Schäfer-Verwimp & Verwimp* 30743/A, det. 30743 (JE, Schäfer-Verwimp 2014).

Also reported from the Caribbean, Northern South America, Western South America.

Cololejeunea sicifolia (Gottsche ex A.Evans) Pócs et Bernecker, *Polish Bot. J.* 54(1): 8, 2009 (Pócs and Bernecker 2009) subsp. *sicifolia*.

≡ *Aphanolejeunea sicifolia* Gottsche ex A.Evans, *Bull. Torrey Bot. Club* 38(6): 277, 1911 (Evans 1911b). Type: Puerto Rico.

GUATEMALA. **ALTA VERAPAZ**: Cobán municipio, Sierrita Yalijux, 2,300 m, 1992, *Lenz* 1992 (=GUA 1/8), det. Eggers (GUA, Eggers et al. 2004 as *Aphanolejeunea 'sicaefolia'*; Freire 2006 as *Aphanolejeunea 'sicaefolia'*; Pérez 2009 as *Aphanolejeunea 'sicaefolia'*). **BAJA VERAPAZ**: Purhulhá municipio, Biotope Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as *Aphanolejeunea 'sicaefolia'*). **HUEHUETENANGO**: S. loc., Pérez 1415 (USCG, Pérez 2009 as *Aphanolejeunea 'sicaefolia'*).

HONDURAS. **ATLÁNTIDA**: Tela municipio, Lancetilla Valley, *Standley* (Standley 1931 as *Aphanolejeunea 'sicaefolia'*).

COSTA RICA. S. loc. (Schäfer-Verwimp 1999 as *Aphanolejeunea 'sicaefolia'*). **CARTAGO**: Paraíso cantón, Orosi, Tapantí National Park, 600 m, *Morales* 2259, det. Morales (USJ, Morales 1991 as *Aphanolejeunea 'sicaefolia'*; Dauphin 2005 as *Aphanolejeunea 'sicaefolia'*).

PANAMA. S. loc. (Stotler et al. 1998 as *Aphanolejeunea sicifolia*). **PANAMA WEST**: La Chorrera distrito, Barro Colorado Island, Caminos Armour, Wheeler and Zetek, 9°09'N, 79°51'W, 20–170, *Marino* 14, 15, 16, etc. (PMA, Stotler et al. 1998 as

Aphanolejeunea sicifolia; Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Shannon Creek and ridge top, 1 Dec 1990, Marino & Salazar Allen (STRI, Marino and Salazar Allen 1992 as *Aphanolejeunea 'sicaefolia'*).

COCOS I. Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 15 Feb 1994, Dauphin A-8 (USJ, Dauphin 1995 as *Aphanolejeunea sicifolia*, 1999 as *Aphanolejeunea sicifolia*, 2005 as *Aphanolejeunea sicifolia*); Río Genio, 5°32'57"N, 87°03'56"W, 0–50 m, Apr 1992, Lücking 307 (hb. Bernecker, Bernecker-Lücking 2000 as *Aphanolejeunea sicifolia*).

Also reported from Southeastern USA(?), Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Cololejeunea sintenisii (Steph.) Pócs, *Cryptog. Bryol.* 29(3): 235, 2008 (Dauphin et al. 2008).

≡*Aphanolejeunea sintenisii* Steph., *Sp. Hepat. (Stephani)* 5: 861, 1916 (Stephani 1916a). Type: Puerto Rico [≡*Cololejeunea sintenisii* Steph. 1888, nom. inval.].

=*Aphanolejeunea ephemeroides* R.M.Schust., *J. Elisha Mitchell Sci. Soc.* 71(1): 130, 1955 (Schuster 1955a), syn. fide Dauphin et al. (2008). Type: USA, Florida.

BELIZE. S. loc. (Schäfer-Verwimp and Reiner-Drehwald 2009). STANN CREEK: Cockscombe Reserve, 1996, Eggers BEZ 5/22 (hb. Eggers, O'Shea et al. 1997 as *Aphanolejeunea ephemeroides*).

COSTA RICA. S. loc. (Schäfer-Verwimp and Pócs 2009; Schäfer-Verwimp and Reiner-Drehwald 2009; Schäfer-Verwimp and Van Melick 2016). GUANACASTE: Tenorio, 500 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea ephemeroides*). HEREDIA: Barva cantón, Montana de la Barva, 2,000 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea ephemeroides*); San Miguel de Sarapiquí, 850 m, 30 Jan 1985, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea ephemeroides*); Sarapiquí cantón, Caribbean slope 5 km above San Miguel, 850 m, 30 Jan 1985, Eggers CR 2/70, det. Pócs (EGR, Eggers et al. 2001 as *Aphanolejeunea ephemeroides*). LIMÓN: Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Lücking 92-264, 92-358, 92-359, etc. (hb. Lücking, USJ, Gradstein et al. 1994 as *Aphanolejeunea ephemeroides*; Lücking 1995 as *Aphanolejeunea ephemeroides*; Eggers 2001 as *Aphanolejeunea ephemeroides*; Dauphin 2005 as *Aphanolejeunea ephemeroides*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, Lücking (Lücking 1997 as *Aphanolejeunea ephemeroides*). PUNTARENAS: Coto Brus cantón, San Vito, Fila Cruces, 1 Jan 1979, Kalb 706, det. Pócs (EGR!, this publication); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009 as *Aphanolejeunea ephemeroides*); Monteverde, 1,600 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea ephemeroides*). SAN JOSÉ: Dota cantón, San Gerardo, "Los Robles," 2,180 m, 28 Dec 1999, Schäfer-Verwimp & Holz SV/H-0470/B (Lüth and Schäfer-Verwimp 2004 as *Aphanolejeunea sintenisii*); Dota cantón, San Gerardo, Los Robles, 2,180 m, Schäfer-Verwimp & Holz SV/H-0470b (Dauphin 2005 as *Aphanolejeunea sintenisii*); Dota cantón, San Gerardo, Los

Robles, 4 Jan 2000, Schäfer-Verwimp & Holz SV/H-0473/C (Schäfer-Verwimp 2001 as *Aphanolejeunea sintenisii*); Pérez Zeledón cantón, Cordillera de Talamanca, Quizarra east of San Isidro El General, ~700 m, 12 Jul 1985, Eggers CR 7/12 (Eggers et al. 2001 as *Aphanolejeunea ephemeroides*); Pérez Zeledón cantón, Quizarrá near San Isidro, 700 m, Eggers (hb. Eggers, Eggers 2001 as *Aphanolejeunea ephemeroides*).

PANAMA. VERAGUAS: Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, Schäfer-Verwimp & Verwimp 30833/C (JE, Schäfer-Verwimp 2014).

Also reported from Macaronesia, Western Indian Ocean, China, Eastern Asia, Indo-China, Papuasias, Australia, Southwestern Pacific, Southeastern USA, the Caribbean, Northern South America, Western South America, Brazil.

***Cololejeunea spathulata* Jovet-Ast, *Rev. Bryol. Lichénol.* 29(1/2): 36, 1960 (Jovet-Ast 1960). Type: Mexico.

*COSTA RICA. *LIMÓN: Pococí cantón, Braulio Carrillo National Park, Botarrama trail, Jun 1982, Lücking 92-138, det. Pócs 2016 (EGR!, this publication); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 460–480 m, Jun 1982, Lücking 92-513, det. Pócs 2016 (EGR!, this publication). *SAN JOSÉ: Dota cantón, San Gerardo, Chacón Holiday Camp to waterfall, 9°32'13.81440"N, 83°49'27.2480"W, 1,950–2,000 m, 25 Dec 1999, Schäfer-Verwimp & Holz SV/H-0053, det. G. Dauphin Oct 2020 (CR!, this publication).

Also reported from Mexico, the Caribbean.

Cololejeunea standleyi Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 172, 1951 (Herzog 1951). Lectotype (Söderström and Hentschel 2023: 7): Honduras, Atlántida, Lancetilla Valley near Tela, 20–600 m, 6 Dec 1927–20 Mar 1928, Standley 54827 (JE-04003945 <https://je.jacq.org/JE04003945>, isolecotype US-00070986 <http://n2t.net/ark:/65665/324192e64-4c6a-48a3-8438-70b81447882b>).

≡*Leptocolea standleyi* Herzog ex Standl. *Field Museum Nat. Hist. Bot. Ser.* 10: 62, 1931 (Standley 1931), nom. inval. (ICN2018 Art. 38.1(a); no description).

HONDURAS. S. loc. (Robinson 1964; Zhu and So 2001). ATLÁNTIDA: Tela municipio, Lancetilla Valley (Geissler and Bischler 1985 as *Leptocolea standleyi*); Tela municipio, Lancetilla Valley, 20–600 m, Standley 54827 (Bonner 1963b; Herzog 1951; Morales 2009; Pócs et al. 2014, TYPE); Tela municipio, Lancetilla Valley, Standley (Standley 1931 as *Leptocolea standleyi*).

COSTA RICA. S. loc. (Cole 1982, 1983). ALAJUELA: San Ramón cantón, San Ramón, Reserva Biológica Alberto Brenes, Morales 2060 (USJ, Morales 1991); San Ramón cantón, San Ramón, Reserva Biológica Alberto Brenes, Morales 2063 (USJ, Morales 1991). CARTAGO: Paraíso cantón, Tapanti National Park, Morales 2168 (USJ, Morales 1991). HEREDIA: San Miguel de Sarapiquí, 850 m, 30 Jan 1985, Eggers (hb. Eggers, Eggers 2001); Sarapiquí cantón, Caribbean slope 5 km above San Miguel, 850 m, 30 Jan 1985, Eggers CR 2/70, det. Pócs (EGR, Eggers et al. 2001); Sarapiquí cantón, La Selva, 100 m, Eggers (hb. Eggers, Eggers 2001). PUNTARENAS: Garabito cantón,

Carara National Park, 30 m, 13 Sep 1991, *Dauphin & Döbbele* (USJ-47961, **Morales 2009**); Garabito cantón, Carara National Park, 30 m, *Dauphin & Döbbele* (**Dauphin et al. 1998**; **Eggers 2001**; **Dauphin 2005**); Garabito cantón, Carara National Park, <100 m, *Eggers* (hb. *Eggers*, **Eggers 2001**); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al. 2001a* as *Cololejeunea cf. standleyi*); Quepos, 0–50 m, 7 Aug 1998, *Obando* (**Morales 2009**); S. loc., Mar 1997, *Alfaro* (USJ-59360, **Morales 2009**).

COCOS I. S. loc., 30 Jan 1997, *Sánchez* (USJ-60315, **Morales 2009**).

Not found outside Central America.

Cololejeunea subcardiocalpa Tixier, *Bradea* 3(6): 39, 1980 (Tixier 1980). Type: French Guiana.

PANAMA. S. loc. (*Schäfer-Verwimp and Van Melick 2016*). CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (**Salazar Allen et al. 2021**); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,300–1,700 m, *Schäfer-Verwimp & Verwimp 34401/A* (JE, *Schäfer-Verwimp 2014*). COCLÉ: Antón distrito, El Valle de Antón, along road to Mato Ahogado, 8°37.05'N, 82°06.60'W, 670 m, 4 Apr 2009, *Schäfer-Verwimp & Verwimp 34763* (JE, *Schäfer-Verwimp 2014*); Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, *Schäfer-Verwimp & Verwimp 34175/A* (JE, *Schäfer-Verwimp 2014*). VERAGUAS: Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, *Schäfer-Verwimp & Verwimp 30829/A p.p.* (JE, *Schäfer-Verwimp 2014*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Cololejeunea submarginata Tixier, *Bradea* 3(6): 40, 1980 (Tixier 1980). Type: Guadeloupe.

GUATEMALA. EL PETÉN: S. loc., 2007, *Pérez*, det. *Pérez* (USCG, *Barillas de Klee et al. 2008*). IZABAL: S. loc., 2007, *Pérez*, det. *Pérez* (USCG, *Barillas de Klee et al. 2008*).

COSTA RICA. S. loc. (*Gradstein 1993*). HEREDIA: Barva cantón, Bosque de la Hoja, 10°03'N, 84°07'W, 1,400–1,500 m, Jun 1989, *Menjivar & Morales 2259*, det. *Grolle* (USJ, MO-5624274, **Dauphin 2005**; **Morales 1991**).

PANAMA. Canal Zone (*Schäfer-Verwimp 2014*). CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (**Salazar Allen et al. 2021**); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,360 m, *Schäfer-Verwimp & Verwimp 34351/A, 34357, 34377/A, 34453/B* (JE, EGR, *Schäfer-Verwimp 2014*). COCLÉ: Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, *Schäfer-Verwimp & Verwimp 34117/A* (JE, *Schäfer-Verwimp 2014*). PANAMA WEST: La Chorrera distrito, Barro Colorado Island, *Mežaka et al.* (PMA, *Mežaka et al.*

2020); La Chorrera distrito, Barro Colorado Island, Armour 27, 9°09'N, 79°51'W, 20–170 m, *Dauphin 3091 p.p.* (PMA, *Dauphin et al. 2006*); La Chorrera distrito, Barro Colorado Island, Bahía al E de Gross 5, 9°09'N, 79°51'W, 20–170 m, *Dauphin 3147 p.p., 3178* (PMA, *Dauphin et al. 2006*); La Chorrera distrito, Barro Colorado Island, Basilisk Bay, 2003, *Dauphin 3166, 3170* (PMA, *Dauphin et al. 2022*); La Chorrera distrito, Barro Colorado Island, Bay East from Gross 5, 2003, *Dauphin 3177 p.p., 3178* (*Dauphin et al. 2022*); La Chorrera distrito, Barro Colorado Island, Lathrop 3, 9°09'N, 79°51'W, 20–170 m, *Dauphin 3098, 3099* (PMA, *Dauphin et al. 2006*); La Chorrera distrito, Barro Colorado Island, Armour, 2003, *Dauphin 3091 p.p.* (PMA, *Dauphin et al. 2022*).

COCOS I. S. loc. (*Dauphin 1999*); Presidio, 100–200 m, Apr 1992, *Lücking 275, 450, 652, 653* (USJ, ULM, *Bernecker-Lücking 2000*); Yglesias A, 50–100 m, Apr 1992, *Lücking 273, 274, 681, 685* (USJ, ULM, *Bernecker-Lücking 2000*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Cololejeunea subscariosa (Spruce) Pócs, *Acta Bot. Hung.* 56(1/2): 197, 2014 (Pócs et al. 2014).

≡ *Lejeunea subscariosa* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 300, 1884 (Spruce 1884). Type: Brazil.

≡ *Physocolea subscariosa* (Spruce) Steph., *Sp. Hepat. (Stephani)* 5: 884, 1916 (Stephani 1916a).

≡ *Leptocolea manaoensis* Herzog, *Hedwigia* 71(6): 349, 1931 (Herzog 1931), syn. fide Pócs et al. (2014). Type: Brazil.

≡ *Cololejeunea manaoensis* (Herzog) Herzog, *Rev. Bryol. Lichénol.* 20(6): 174, 1951 (Herzog 1931).

GUATEMALA. EL PETÉN: Flores municipio, Tikal, near the Maya ruins, 150 m, 4 Mar 1996, *Eggers GUA 2/15, Lenz GUA 2/2* (**Eggers et al. 2001** as *Cololejeunea manaoensis*).

COSTA RICA. S. loc. (Stephani 1916a as *Physocolea subscariosa*). CARTAGO: Jiménez cantón, Rio Naranjo, 200–250 m, Mar 1893, *Tonduz 3077d, 3077e, 3077g* (**Morales 2009**). PUNTARENAS: Buenos Aires cantón, Boruca Reserve, Ceibón stream, 80 m, 30 Nov 2004, *Chaves P81* (USJ-60557, **Morales 2009**); Osa cantón, Mogos Region, 18 Feb 1992, *Sánchez* (USJ-59642, **Morales 2009**); Osa cantón, Osa Peninsula, 0–100 m, 30–31 Oct 1993, *Dauphin* (USJ-48100, **Morales 2009**); Osa cantón, Sierpe River, 10 m, Sep 2005, *Obando* (USJ-60558, **Morales 2009**).

Also reported from Mexico, Northern South America, Western South America, Brazil.

Cololejeunea subsphaeroidea (R.M.Schust.) Pócs, *Cryptog. Bryol.* 29(3): 235, 2008 (*Dauphin et al. 2008*).

≡ *Aphanolejeunea subsphaeroidea* R.M.Schust., *Phytologia* 39(6): 431, 1978 (Schuster 1978b). Type: Venezuela.

PANAMA. S. loc. (Pócs 2021). CHIRIQUÍ: Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,450 m, 4 Apr 2006, *Schäfer-Verwimp & Verwimp 30889*, det. Pócs (JE, EGR, *Schäfer-Verwimp 2014*).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Cololejeunea surinamensis Tixier, *Bradea* 3(6): 42, 1980 (Tixier 1980). Type: Suriname.

COSTA RICA. SAN JOSÉ: Acosta cantón, El Cornelio, 1,350 m, *Dauphin et al.* 2945 p.p., det. Ilkiu-Borges (NY, Dauphin 2005).

PANAMA. PANAMA WEST: La Chorrera distrito, Barro Colorado Island, 9°09'N, 79°51'W, 20–170 m, *Gradstein & Salazar Allen* 15141 p.p. (PMA, Dauphin et al. 2006, 2022); La Chorrera distrito, Barro Colorado Island, Armour 27, 9°09'N, 79°51'W, 20–170 m, *Dauphin* 3091 p.p. (PMA, Dauphin et al. 2006); La Chorrera distrito, Barro Colorado Island, Bahía al E de Gross 5, 9°09'N, 79°51'W, 20–170 m, *Dauphin* 3166 p.p., 3178 (PMA, Dauphin et al. 2006); La Chorrera distrito, Barro Colorado Island, Basilisk Bay, 2003, *Dauphin* 3166, 3170 (PMA, Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Bay East from Gross 5, 2003, *Dauphin* 3177, 3178 (PMA, Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Camino F. Miller, 9°09'N, 79°51'W, 20–170, *Salazar Allen & Chung* 4530 (PMA, Dauphin et al. 2006, 2022); La Chorrera distrito, Barro Colorado Island, Caminos Armour, Wheeler and Zetek, 9°09'N, 79°51'W, 20–170, *Marino* 14, 17, 24, 29 (PMA, Dauphin et al. 2006, 2022); La Chorrera distrito, Barro Colorado Island, Lathrop 3, 9°09'N, 79°51'W, 20–170 m, *Dauphin* 3098 (PMA, Dauphin et al. 2006, 2022); La Chorrera distrito, Barro Colorado, Armour, 2003, *Dauphin* 3091 (PMA, Dauphin et al. 2022).

Also reported from Northern South America, Western South America, Brazil.

Cololejeunea tamarii Schäf.-Verw., *Phytotaxa* 60: 9, 2012 (Schäfer-Verwimp 2012). Holotype: Panama, Chiriquí, Cordillera de Talamanca, Boquete, Ostseite des Vulkan Barú, Regenwald entlang der Erdstraße zum Sendero Los Quetzales, epiphyll, 1,880 m, 8°51.0'N, 82°29.9'W, 7 Apr 2010, *Schäfer-Verwimp & Verwimp* 30992 (JE; isotype EGR).

PANAMA. CHIRIQUÍ: Boquete distrito, Cordillera de Talamanca, Vulkan Barú National Park, Sendero Los Quetzales, 8°51.0'N, 82°29.9'W, 1,880 m, 7 Apr 2010, *Schäfer-Verwimp & Verwimp* 30992 (JE, EGR, TYPE, Schäfer-Verwimp 2012; Pócs et al. 2014; Söderström et al. 2014); Boquete distrito, La culebra trail to the hidden water fall, 800 m, 29 Jan 2016, *López & Testo* 806 (PMA, INPA, Sierra and Dauphin 2016).

Not found outside Central America.

Cololejeunea verwimpai Tixier, *Cryptog. Bryol. Lichénol.* 16(3): 230, 1995 (Tixier 1995). Type: Brazil.

GUATEMALA. ALTA VERAPAZ: S. loc., 2007, Pérez (USCG, Barillas de Klee et al. 2008). IZABAL: S. loc., 2007, Pérez (USCG, Barillas de Klee et al. 2008).

PANAMA. S. loc. (Gradstein and Costa 2003). PANAMA WEST: La Chorrera distrito, Barro Colorado Island, *Mežaka*

et al. (PMA, Mežaka et al. 2020); La Chorrera distrito, Barro Colorado Island, *Zetek* (F, Tixier 1991); La Chorrera distrito, Barro Colorado Island, Barbour Point, 9°09'N, 79°51'W, 20–170 m, *Dauphin* 3153 p.p., det. Pócs (EGR!, PMA!, this publication); La Chorrera distrito, Barro Colorado Island, Shannon 7, *Gradstein & Salazar Allen* 15123 (Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Zetek (F, Stotler et al. 1998); La Chorrera distrito, Barro Colorado, Barbour Point, 2003, *Dauphin* 3153 p.p. (PMA, Dauphin et al. 2022); La Chorrera distrito, Barro Colorado, Fuertes Cove, 2003, *Dauphin* 3110 (CR, PMA, Dauphin et al. 2022).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Cololejeunea vitaliana Tixier, *Cryptog. Bryol. Lichénol.* 16(3): 230, 1995 (Tixier 1995). Type: Brazil.

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b as *Cololejeunea 'vitalana'*); S. loc. (Schäfer-Verwimp et al. 2013; Schäfer-Verwimp 2014; Gradstein 2021); S. loc., *Schäfer-Verwimp & Holz* SV/H-0473/A (GOET, Wilson et al. 2007; Gradstein et al. 2011; Heinrichs et al. 2012c; Yu et al. 2013). SAN JOSÉ: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo, “Los Robles” trail, 2,330 m, 4 Jan 2000, *Schäfer-Verwimp & Holz* SV/H-0473/A, det. Pócs (GOET, CR EGR, hb. Schäfer-Verwimp, MO-5915784, Holz et al. 2001; Gradstein et al. 2006b; Dong et al. 2012, 2013; Heinrichs et al. 2012a, 2014a, 2014b; Czumay et al. 2013; Feldberg et al. 2014; Renner and de Lange 2020); Dota cantón, San Gerardo, Los Robles, 4 Jan 2000, *Schäfer-Verwimp & Holz* SV/H-0473/C (Schäfer-Verwimp 2001); Dota cantón, Savegre, 5 Mar 2003, Eggers, det. Pócs (EGR!, this publication); Pérez Zeledón cantón, Rio Savegre, 24 Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0053/A, det. Pócs (EGR!, this publication); Trogon Lodge, Sendero Candelita, 2,400 m, 7 Nov 1999, *Holz* CR 99-581 (GOET, Holz et al. 2001; Dauphin 2005).

PANAMA. CHIRIQUÍ: Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,450 m, 4 Apr 2006, *Schäfer-Verwimp & Verwimp* 30891, det. Pócs (JE, EGR, Schäfer-Verwimp 2014). COCLÉ: Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, *Schäfer-Verwimp & Verwimp* 34147/B (JE, Schäfer-Verwimp 2014).

Also reported from Mexico, Western South America, Brazil.

Cololejeunea winkleri (M.I.Morales et A.Lücking) Pócs, *Mem. New York Bot. Gard.* 76(4): 78, 2009 (Gradstein and Ilkiu-Borges 2009).

≡ *Aphanolejeunea winkleri* M.I.Morales et A.Lücking, *Nova Hedwigia* 60(1/2): 120, 1995 (Morales and Lücking 1995). Holotype: Costa Rica, Heredia, Sarapiquí, Finca La Selva, ~50 m, tropical lowland rainforest zone, trail between administration office and Casa Holdridge, on fern leaves, Jun 1991, *Morales, Dauphin & Umaña* 2361 (USJ 40919).

COSTA RICA. S. loc. (Pócs and Lücking 1996, 1997, both as *Aphanolejeunea winkleri*; Ilkiu-Borges 2000 as *Aphanolejeunea winkleri*; Gradstein and Costa 2003 as *Aphanolejeunea winkleri*; Zartman and Ilkiu-Borges 2007 as *Aphanolejeunea winkleri*; Pócs and Bernecker 2009; Schäfer-Verwimp et al. 2013; Sierra et al. 2019b; Gradstein 2021). **HEREDIA:** Sarapiquí cantón, Finca La Selva, 10°26'N, 84°03'W, 50 m, 18 Jan 1993, Morales et al. 2361 (USJ-40919, **TYPE** of *Aphanolejeunea winkleri*, Lücking 1995 as *Aphanolejeunea winkleri*; Morales and Lücking 1995 as *Aphanolejeunea winkleri*; Crosby and Engel 2006 as *Aphanolejeunea winkleri*; Pócs et al. 2014); Sarapiquí cantón, Finca La Selva, Sarapiquí, Jun 1991, Vargas 2287 (USJ-34948, Morales and Lücking 1995 as *Aphanolejeunea winkleri*). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, Lücking 92-175, 92-176, 92-373, 92-545, 92-604, 94-10, 94-24 (hb. Lücking, Lücking 1995 as *Aphanolejeunea winkleri*; Morales and Lücking 1995 as *Aphanolejeunea winkleri*; Dauphin 2005 as *Aphanolejeunea winkleri*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, Lücking (Lücking 1997 as *Aphanolejeunea winkleri*). **PUNTARENAS:** Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009 as *Aphanolejeunea winkleri*).

Also reported from Northern South America, Western South America, Brazil.

Cololejeunea yelitzae Pócs et Bernecker, *Acta Bot. Hung.* 55(3/4): 386, 2013 (Pócs and Bernecker 2013). Type: Venezuela.

COSTA RICA. S. loc. (Pócs et al. 2022). ***LIMÓN:** Pococí cantón, Braulio Carrillo National Park, Botarrama trail, Dec 1991, Lücking 91-120, det. Pócs (EGR!, **this publication**). **PUNTARENAS:** Coto Brus cantón, Fila Cruces, 8°57'00"N, 83°04'20"W, 1,400 m, 4 Jun 1995, Dauphin & Chacón 1777A, det. G. Dauphin & T. Pócs (CR!, **this publication**). **SAN JOSÉ:** Cordillera de Talamanca, "Genesis II" Cloud Forest Reserve, 2,300 m, Feb 1997, Lücking, det. Pócs 2013 (EGR, ULM, Pócs and Bernecker 2013); Dota cantón, San Gerardo, 1,905 m, Schäfer-Verwimp & Holz SV/H-0049/F, det. Pócs (EGR!, hb. Schäfer-Verwimp, Pócs and Bernecker 2013); Dota cantón, San Gerardo, 10 Nov 1993, Carranza, det. Pócs 2013 (EGR!, Pócs and Bernecker 2013); Pérez Zeledón cantón, Río Savegre, 24 Dec 1999, Schäfer-Verwimp & Holz SV/H-0053/A, det. Pócs (EGR!, Pócs and Bernecker 2013).

PANAMA. **CHIRIQUÍ:** Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,870–2,260 m, 6 Apr 2006, Schäfer-Verwimp & Verwimp 30984 (JE, EGR, Pócs and Bernecker 2013; Schäfer-Verwimp 2014); Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,450 m, 4 Apr 2006, Schäfer-Verwimp & Verwimp 30890 (JE, Schäfer-Verwimp 2014); Boquete distrito, Bajo Mono, along Río Caldera, 8°50.5'N, 82°28.9'W, 1,670–1,680 m, 5 Apr 2006, Schäfer-Verwimp & Verwimp 30937, 30940, det. A. Schäfer-Verwimp (JE, EGR, hb. Schäfer-Verwimp,

Schäfer-Verwimp 2014); Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,500–1,570 m, Schäfer-Verwimp & Verwimp 34398/A, 34453/C (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, El Volcán, road to Río Sereno, near Santa Clara, 8°49.8'N, 82°44.0'W, 1,200 m, 2 Apr 2009, Schäfer-Verwimp & Verwimp 34710 (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Parque Internacional La Amistad, Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, Schäfer-Verwimp & Verwimp 34578, 34594/B (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Volcán, road to Río Sereno, 8°49.67'N, 82°42.85'W, 1,220 m, 2 Apr 2009, Schäfer-Verwimp & Verwimp 34701 (JE, Schäfer-Verwimp 2014). **VERAGUAS:** Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, Schäfer-Verwimp & Verwimp 30805 (JE, EGR, Pócs and Bernecker 2013; Schäfer-Verwimp 2014); Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, Schäfer-Verwimp & Verwimp 30828 (JE, EGR, Pócs and Bernecker 2013; Schäfer-Verwimp 2014).

Also reported from Northern South America, Western South America.

Colura (Dumort.) Dumort., *Recueil Observ. Jungerm.*: 12, 1835 (Dumortier 1835).

Colura cylindrica Herzog, *Svensk Bot. Tidskr.* 46(1): 106, 1952 (Herzog 1952). Type: Ecuador.

***NICARAGUA.** ***CHONTALES:** Cuapa municipio, N of Cuapa, Cerro El Parlamento, E peak, 12°18'40"N, 85°21'27"W, 840 m, 3 Dec 2012, Magill 14419, det. Atwood 2013 (MO-6493069! <https://tropicos.org/specimen/102847622>, HULE <http://tropicos.org/specimen/100608069>, **this publication**).

PANAMA. ***BOCAS DEL TORO:** Bocas del Toro distrito, Bastimentos, Salt Creek, Sendero a Long Beach, 9.29456°N, 82.10303°W, 70 m, 16 Aug 2017, Ramírez-Román PA 19, det. Ramírez-Román Aug 2017 (PMA, **this publication**). **COCLÉ:** Antón distrito, El Valle de Antón, Alto de La Mesa, 8°38'N, 80°07'W, 800–850 m, 30 Mar 2006, Schäfer-Verwimp & Verwimp 30758 (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, ascent to "India Dormida," 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, Schäfer-Verwimp & Verwimp 34156, 34160/C, 34175/D (JE, Schäfer-Verwimp 2014). **PANAMA:** Panamá distrito, Cerro Jefe, 9°13.4–5'N, 79°22.7–9'W, 956 m, 28 Mar 1906, Schäfer-Verwimp & Verwimp 30741 (JE, Heinrichs et al. 2012a; Schäfer-Verwimp 2014). **VERAGUAS:** Santa Fe distrito, between the village and Alto de Piedra, 8°31'N, 81°06'W, 635–600 m, 27 Mar 2009, Schäfer-Verwimp & Verwimp 34330/A (JE, Schäfer-Verwimp 2014); Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, Schäfer-Verwimp & Verwimp 30803/B, 30825, 30863 (JE, Schäfer-Verwimp 2014).

COCOS I. Río Genio, 5°32'57"N, 87°03'56"W, 0–50 m, Apr 1992, Lücking 356 (ULM, Bernecker-Lücking 2000); Yglesias

A, 50–100 m, Apr 1992, *Lücking* 354 (USJ, hb. Bernecker, Bernecker-Lücking 2000).

Also reported from East Tropical Africa, the Caribbean, Northern South America, Western South America, Brazil.

Colura greig-smithii Jovet-Ast, *Rev. Bryol. Lichénol.* 22(2/3): 293, 1954 (Jovet-Ast 1953). Type: Trinidad.

COSTA RICA. S. loc. (Onraedt 1979; Dauphin 2005). **LIMÓN:** Pococí cantón, Guápiles, Finca Earth, *Eggers & Eggers CR 14/10* (Dauphin 2005); Pococí cantón, Guápiles, Territory of the “Earth University,” ~50 m, 2003, *Eggers & Eggers CR 14/10* (Eggers et al. 2004); Siquirres cantón, Cairo, Finca Hamburgo, on the Rio Reventazón below Cairo, 55 m, *Standley 48775a* (Jovet-Ast 1954).

***PANAMA.** ***BOCAS DEL TORO:** Bocas del Toro distrito, Bastimentos, Salt Creek, Sendero a Long Beach, 9.29456°N, 82.10303°W, 70 m, 16 Aug 2017, *Zevallos 317*, det. Zevallos Aug 2017 (PMA, this publication).

COCOS I. Presidio, 100–200 m, Apr 1992, *Lücking* 358 (USJ, Bernecker-Lücking 2000); Río Genio, 5°32'57"N, 87°03'56"W, 0–50 m, Apr 1992, *Lücking* 361 (hb. Bernecker, Bernecker-Lücking 2000); Yglesias A, 50–100 m, Apr 1992, *Lücking* 360 (hb. Bernecker, Bernecker-Lücking 2000).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Colura naumannii (Schiffn.) Steph., *Sp. Hepat. (Stephani)* 5: 935, 1916 (Stephani 1916a).

≡*Colurolejeunea naumannii* Schiffn., *Hepat. (Engl.-Prantl)*: 121, 1893 (Schiffner 1893a). Type: Chile.

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Gradstein and Holz 2005; Schäfer-Verwimp et al. 2013; Gradstein 2021). **SAN JOSÉ:** Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,400 m, *Holz & Schäfer-Verwimp CR 99-1208, SV/H-0147/B, SV/H-0147/C* (CR, GOET, hb. Schäfer-Verwimp, Holz et al. 2001; Schäfer-Verwimp 2001; Dauphin 2005).

Also reported from Northern South America, Western South America, Southern South America.

Colura rhynchophora Jovet-Ast, *Rev. Bryol. Lichénol.* 17(1/4): 27, 1949 (Jovet-Ast 1948). Type: Guadeloupe.

COSTA RICA. S. loc. (Schäfer-Verwimp and Van Melick 2016). **PUNTARENAS:** Monteverde cantón, Sendero Brillante, 1,600 m, *Eggers CR 5/346* (Eggers et al. 2004; Dauphin 2005).

Also reported from the Caribbean, Northern South America, Brazil.

Colura tenuicornis (A.Evans) Steph., *Sp. Hepat. (Stephani)* 5: 942, 1916 (Stephani 1916a), nom. cons. prop.

≡*Colurolejeunea tenuicornis* A.Evans, *Trans. Connecticut Acad. Arts* 10(8): 455, 1900 (Evans 1900a). Type: Hawaii.

=*Lejeunea ceratophora* Nees, *Syn. Hepat.* 3: 405, 1845 (Gottsche et al. 1845a), syn. fide Jovet-Ast (1953), nom. rej. prop. Type: Peru.

≡*Colura ceratophora* (Nees) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 402, 1877 (Trevisan 1877), nom. rej. prop.

=*Colura tenuis* Steph. *Sp. Hepat. (Stephani)* 5: 942, 1916 (Stephani 1916a), syn. fide Miller (1963). Type: Hawaii.

GUATEMALA. ALTA VERAPAZ: Tukurú, Pérez 195 (USCG, Pérez 2006, 2009).

†**HONDURAS.** †**ATLÁNTIDA:** Tela municipio, Lancetilla Valley, *Standley* (Standley 1931 as *Colura ceratophora*); Tela municipio, Lancetilla Valley, 20–600 m, *Standley 54835, 54841, 56815* (B, JE, Herzog 1951 as *Colura ceratophora*). Note: All reports from Honduras use Stephani's concept, and the reports were referred to *Colura ulei* by Jovet-Ast (1953).

EL SALVADOR. S. loc. (Lücking 1995). **SANTA ANA:** Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, 2,240 m, 23 May 1962, *Winkler A/5/4, A/10/4, B/4/d/3* (Winkler 1967).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Jovet-Ast 1960; Arnell 1963; Cole 1982 as *Colura tenuis*, 1983; Miller et al. 1983; Fulford and Sharp 1990; Gradstein and Holz 2005). **ALAJUELA:** Poás, 1,950 m, *Eggers* (hb. Eggers, Eggers 2001). **CARTAGO:** Turrialba cantón, Guayabo, 1,100 m, *Eggers* (hb. Eggers, Eggers 2001). **GUANACASTE:** Tenorio, 500 m, *Eggers* (hb. Eggers, Eggers 2001). **HEREDIA:** Heredia cantón, Vara Blanca, 1,380 m, *Eggers* (hb. Eggers, Eggers 2001). **LIMÓN:** Braulio Carrillo National Park, 400–500 m (Eggers 2001); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 92-450, 92-451 (hb. Lücking, Lücking 1995); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (Lücking 1997); Siquirres cantón, Cairo, Finca Hamburgo, *Standley & Valerio 48775a* (Jovet-Ast 1953); Siquirres cantón, Cairo, Finca Hamburgo, on the Rio Reventazón below Cairo, 55 m, *Standley 48676 p.p., 48775 p.p.* (Herzog 1951 as *Colura ceratophora*, probably using Stephani's concept, and the report should be referred to *Colura ulei*; cf. Jovet-Ast 1953). **PUNTARENAS:** Monteverde, <1,500 m (Eggers 2001; Morales 1991); Monteverde, 15 Jan 1965, *James, W. 40f* (R, MO-6163062, Reed and Robinson 1971; Dauphin 2005). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, San Gerardo (Dauphin 2005); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a).

PANAMA. **CHIRIQUÍ:** Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,600 m, 4 Apr 2006, *Schäfer-Verwimp & Verwimp 30912 p.p., 30912* (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Volcán, along road to Rio Serena at western edge of the village, 8°47.6'N, 82°39.4'W, 1,370 m, 1 Apr 2009, *Schäfer-Verwimp & Verwimp 34621* (JE, Schäfer-Verwimp 2014). **COCLÉ:** Antón distrito, El Valle de Antón, Alto de La Mesa, 8°38'N, 80°07'W, 800–850 m, 30 Mar 2006, *Schäfer-Verwimp & Verwimp 30745 p.p., 30745* (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, Cerro

Gaital, 8°37.4–8°N, 80°06.9–7.0°W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34231 (JE, *Schäfer-Verwimp* 2014). **PANAMA**: Panamá distrito, Cerro Jefe, 9°13.4–5°N, 79°22.7–9°W, 995 m, 28 Mar 1906, *Schäfer-Verwimp & Verwimp* 30725 (JE, *Schäfer-Verwimp* 2014).

Also reported from West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Middle Atlantic Ocean, Western Indian Ocean, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasias, Southwestern Pacific, Southeastern Pacific, Northeastern Pacific, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Colura tortifolia (Nees et Mont.) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 402, 1877 (Trevisan 1877).

=*Lejeunea tortifolia* Nees et Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 19: 265, 1843 (Montagne 1843). Type: Guyana.

BELIZE. S. loc. (Eggers et al. 1998, 2004). **CAYO**: Blue Hole National Park, 100–200 m, 1996, *Eggers BEZ* 3/5 (O'Shea et al. 1997); Mountain Pine Ridge, Cave Rio Frio, 600 m, 1996, *Eggers BEZ* 2/30 (O'Shea et al. 1997). **STANN CREEK**: Cockscombe Reserve, 1996, *Eggers BEZ* 5/10 (hb. Eggers, JE, O'Shea et al. 1997).

***HONDURAS**. ***ATLÁNTIDA**: El Porvenir municipio, Parque Nacional Pico Bonito, desde la quebrada Zacate al límite zona núcleo punto 54, 15°40'N, 86°55'W, 200–400 m, 29 Dec 2001, *Dauphin & Ferrufino* 3050.4, det. Dauphin Dec 2020 (CR-5152105!, *this publication*).

COSTA RICA. S. loc. (Eggers et al. 1998; Ilkiu-Borges 2000; Lücking et al. 2010). **CARTAGO**: Rancho Naturalista, 900 m, *Eggers* (hb. Eggers, Eggers 2001). **GUANACASTE**: La Cruz cantón, Guanacaste National Park, Cerros Santa Elena, 10°53'24"N, 85°50'55"W, 650–700 m, 27 Aug 2003, *Dauphin et al.* 3346 (CR, Dauphin 2005; Dauphin and Grayum 2005); Tenorio, 500 m, *Eggers* (hb. Eggers, Eggers 2001). **HEREDIA**: Sarapiquí cantón, La Selva, 100 m, *Eggers* (hb. Eggers, Eggers 2001). **LIMÓN**: Braulio Carrillo National Park, 400–500 m (Eggers 2001); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 92-79 (hb. Lücking, Lücking 1995); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (Lücking 1997); Pococí cantón, Tortuga Lodge near Tortuguero, 21 Feb 1985, *Eggers CR* 12/82 (Eggers 2001); Pococí cantón, Tortuguero, 1–5 m, *Eggers* (hb. Eggers, Eggers 2001). **PUNTARENAS**: Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009); Osa cantón, Lower Road, Rincon de Osa, 11 Mar 1965, *Richards* (Jovet-Ast 1976); Osa cantón, Península de Osa, Boscosa, 150 m, *Gradstein & Dauphin* 9303a (U, USJ, Gradstein et al. 1994); Osa cantón, Rincón de Osa, *Richards* 1, 3 (Morales 1991; Eggers 2001; Dauphin 2005). **SAN JOSÉ**: Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,000 m, *Eggers* (hb. Eggers, Eggers 2001).

PANAMA. Canal Zone (*Schäfer-Verwimp* 2014); S. loc. (Lücking 1995; Eggers et al. 1998; Ilkiu-Borges 2000). **BOCAS DEL TORO**: Bocas del Toro distrito, Dolphin Bay, 9°13'16.9"N, 82°13'03.0"W, 16 m, 15 Aug 2017, *Cox* 111, det. Cox Aug 2017 (PMA, *this publication*); Bocas del Toro distrito, Salt Creek, Long Beach Trail, Aug 2017, *Dauphin et al.* 4629 (PMA, *this publication*); Dolphin Bay (9°13'14.7"N, 82°13'02.9"W), Aug 2017 (Salazar Allen et al. 2022). **CHIRIQUÍ**: Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 2,050 m, 6 Apr 2006, *Schäfer-Verwimp & Verwimp* 31017 (JE, *Schäfer-Verwimp* 2014). **COCLÉ**: Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 700–1,000 m, 31 Mar 2006, *Schäfer-Verwimp & Verwimp* 30767 (JE, *Schäfer-Verwimp* 2014); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Rio Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López* 709 p.p., 710 p.p., 715, 775, 833, 838 (PMA, Sierra et al. 2019a). **DARIÉN**: Cerro Pirre (Stotler et al. 1998); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992); S. loc. (*Schäfer-Verwimp* 2014). **PANAMA WEST**: La Chorrera distrito, Barro Colorado Island, Caminos Armour, Wheeler and Zetek, 9°09'N, 79°51'W, *Marino* 18, 33 (PMA, Stotler et al. 1998; Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Shannon Creek and ridge top, 1 Dec 1990, *Marino & Salazar Allen* (STRI, Marino and Salazar Allen 1992); La Chorrera distrito, Barro Colorado, Shannon, 2003, *Dauphin* 3079 (Dauphin et al. 2022). **VERAGUAS**: Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, *Schäfer-Verwimp & Verwimp* 30803/A (JE, *Schäfer-Verwimp* 2014).

COCOS I. Río Genio, 5°32'57"N, 87°03'56"W, 0–50 m, Apr 1992, *Lücking* 352, 353 (USJ, Bernecker-Lücking 2000); S. loc. (Dauphin 1995, 1999).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Colura ulei Jovet-Ast, *Rev. Bryol. Lichénol.* 22(2/3): 270, 1954 (Jovet-Ast 1953). Type: Brazil.

=*Colura ceratophora* sensu Steph., *Spec. Hepat. (Stephani)* 5: 931, 1916 (Stephani 1916a), non *Colura ceratophora* (Nees) Trevisan [= *Colura tenuicornis*], syn. fide Jovet-Ast (1953).

HONDURAS. S. loc. (Bonner 1963b). **ATLÁNTIDA**: Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 54835, 54841, 56815, 56902 (B, JE-04004023, US, Jovet-Ast 1953).

COSTA RICA. S. loc. (Bonner 1963b; Cole 1982, 1983). **LIMÓN**: Siquirres cantón, Cairo, Finca Hamburgo, on the Rio Reventazón below Cairo, 55 m, *Standley* 48676 p.p., 48755 p.p. (JE, Jovet-Ast 1953; Morales 1991; Dauphin 2005). **PUNTARENAS**: Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a); S. loc. (Merwin et al. 2001).

Also reported from Northern South America, Western South America, Brazil.

Colura verdoornii Herzog et Jovet-Ast, *Rev. Bryol. Lichénol.* 22(2/3): 288, 1954 (Jovet-Ast 1953). Type: Malaysia.

BELIZE. S. loc. (Eggers et al. 2004). STANN CREEK: Cockscombe Reserve, 1996, *Eggers BEZ 5/19* (hb. Eggers, O'Shea et al. 1997).

COSTA RICA. S. loc. (Eggers et al. 2004). LIMÓN: Braulio Carrillo National Park, 400–500 m (Eggers 2001); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking 92-134, 92-135, 92-444, 92-559* (hb. Lücking, Lücking 1995; Dauphin et al. 1998; Dauphin 2005); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (Lücking 1997); Pococí cantón, Tortuga Lodge near Tortuguero, 21 Feb 1985, *Eggers CR 12/82* (Eggers 2001; Eggers et al. 2001).

Also reported from Indian Subcontinent, Indo-China, Malaysia, the Caribbean.

***Cryptolophocolea* L.Söderstr., Crand.-Stotl.,
Stotler et Váňa, *Phytotaxa*. 97(2): 39, 2013
(Söderström et al. 2013a).**

Cryptolophocolea connata (Sw.) L.Söderstr. et Váňa, *Phytotaxa* 112(1): 19, 2013 (Söderström et al. 2013b).

≡ *Jungermannia connata* Sw., *Prodr. (Swartz)*: 143, 1788 (Swartz 1788). Type: Jamaica.

≡ *Lophocolea connata* (Sw.) Nees ex Mont., *Ann. Sci. Nat., Bot.*, sér. 2, 12: 51, 1839 (Montagne 1839a).

≡ *Chiloscyphus connatus* (Sw.) J.J.Engel et R.M.Schust., *Nova Hedwigia* 39: 413, 1985 (Engel and Schuster 1984).

= *Lophocolea granatensis* Gottsche, *Ann. Sci. Nat. Bot.*, sér. 5: 126, 1864 (Gottsche 1864), syn. fide Dauphin et al. (2018). Type: Colombia.

GUATEMALA. ALTA VERAPAZ: Tukurú municipio, Chelémhá, 15°22'32"N, 90°05'05"W, 2,100–2,360 m, Pérez (Pérez 2006 as *Lophocolea connata*).

HONDURAS. S. loc. (Fulford 1987 as *Lophocolea connata*; Fulford and Sharp 1990 as *Lophocolea connata*; Engel 2010 as *Lophocolea connata*); S. loc., *Standley 54621 p.p.* (F, Fulford 1976 as *Lophocolea connata*).

COSTA RICA. Cordillera de Talamanca, *Kappelle 5474* (U, *Kappelle 1996* as *Lophocolea connata*). †CARTAGO: Paraíso cantón, Orosi, Tapantí National Park, *Griffin & Morales 161* (USJ, FLAS, Morales 1991 as *Lophocolea* cf. *granatensis*; Dauphin 2005 as *Lophocolea* cf. *granatensis*; Dauphin et al. 2018 as *Lophocolea granatensis*). Note: No specimen from Cartago was found by Dauphin et al. (2018), and they suggested that it should be rejected. PUNTARENAS: Coto Brus cantón, Parque Internacional La Amistad, Pittier, 1,550 m, *Dauphin 1356* (CR, Dauphin 2005 as *Lophocolea connata*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al. 2001a* as *Lophocolea connata*); Monteverde cantón, Santa Elena, Pacific slope, 10°20'N, 84°48'W, 26 Mar 1992, *Lyon 498*, det. Dauphin Jun 2017 (MO-4423822!, this publication); Monteverde, 1,550 m, *Gradstein & Solano 9404, 9474, 9579* (U, USJ, Dauphin 2005

as *Lophocolea connata*; *Gradstein et al. 1994* as *Lophocolea connata*); Monteverde, *Gradstein 9404* (GOET, Hentschel et al. 2006a, 2006b, 2007b, all as *Chiloscyphus connatus*; Feldberg et al. 2014; Patzak et al. 2016 as *Chiloscyphus connatus*; Renner et al. 2017a as *Chiloscyphus connatus*; Bakalin et al. 2022b).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, NE of camping site, 900–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, NW of camping site, 1,000–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Hornito, Fortuna, 1,000–1,200 m, *Salazar Allen et al. 615b p.p., 704 p.p., 724* (PMA, Stotler et al. 1998 as *Lophocolea connata*). COCLÉ: La Pintada distrito, Corregimiento El Copé, Parque Nacional G. D. Omar Torrijos H., Sendero La Rana Dorada, 8°40'06"N, 80°35'26"W, 696 m, 31 Jul 2017, *Dauphin & Gudiño 4443 p.p.* (PMA, Dauphin et al. 2015 as *Lophocolea connata*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Cryptolophocolea guadalupensis (Steph.) L.Söderstr. et Váňa, *Phytotaxa* 112(1): 19, 2013 (Söderström et al. 2013b).

≡ *Lophocolea guadalupensis* Steph., *Bull. Herb. Boissier*, sér. 2, 7(1): 65 (=Spec. Hepat. [Stephani] 3: 153), 1907 (Stephani 1907b). Type: Guadeloupe.

≡ *Chiloscyphus guadalupensis* (Steph.) J.J.Engel et R.M.Schust., *Nova Hedwigia* 39: 416, 1985 (Engel and Schuster 1984), "guadeloupensis."

= *Chiloscyphus obliquefolius* Herzog ex Fulford, *Mem. New York Bot. Gard.* 11(4): 448, 1976 (Fulford 1976), nom. inval. (ICN2018 Art. 36.1(c); publ. in syn. [sub *Lophocolea guadalupensis* Steph. 1907]), syn. fide Fulford (1976). Original material: Costa Rica, Cartago, Cerro de la Carpintera, 1,500–1,800 m, *Standley 35724* (JE-04010814 <https://je.jacq.org/JE04010814>).

GUATEMALA. ZACAPA: Sierra de Las Minas, *Steyermark 29995* (F, Fulford 1976 as *Lophocolea guadalupensis*; Freire 2006 as *Lophocolea 'guadeloupensis'*; Pérez 2009 as *Lophocolea 'guadeloupensis'*).

COSTA RICA. S. loc. (Cole 1982, 1983, both as *Lophocolea 'guadelupensis'*); S. loc., *Gradstein & Mues 9630* (GOET, Hentschel et al. 2006b, 2007b, both as *Chiloscyphus guadalupensis*; Patzak et al. 2016 as *Chiloscyphus guadalupensis*; Bakalin et al. 2022a). CARTAGO: La Unión cantón, Cerro de La Carpintera, 1,500–1,800 m, *Standley 35724* (JE, Fulford 1976 as *Lophocolea guadalupensis*; Morales 1991 as *Lophocolea guadalupensis*, Dauphin 2005 as *Lophocolea 'guadeloupensis'*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Cryptolophocolea martiana (Nees) L.Söderstr., Crand.-Stotl. et Stotler, *Phytotaxa* 112(1): 20, 2013 (Söderström et al. 2013b) var. *martiana*.

≡ *Lophocolea martiana* Nees, *Syn. Hepat.* 2: 152, 1845 (Gottsche et al. 1845b). Type: Brazil.

≡ *Lophocolea liebmannaiana* var. *martiana* (Nees) Herzog ex Standl., *Field Mus. Nat. Hist., Bot. Ser.* 10: 62, 1931 (Standley 1931).

≡ *Chiloscyphus martianus* (Nees) J.J.Engel et R.M.Schust., *Nova Hedwigia* 39: 419, 1985 (Engel and Schuster 1984).

=*Lophocolea epiphylla* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 127, 1951 (Herzog 1951), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Fulford (1976). Original material: Honduras: Lancetilla Valley, near Tela, 20–600 m, on leaf, *Standley* 55.669 (F fide Fulford 1976).

GUATEMALA. S. loc. (Oliveira-e-Silva and Yano 2000 as *Lophocolea martiana*); S. loc., 3,800 ft (1,158 m), *Türckheim* (NY Bryo. Levier 5084, M, **Fulford 1976** as *Lophocolea martiana*). **ALTA VERAPAZ:** Cobán municipio, near Cubilguitz, *Steyermark* 44423 (F, **Fulford 1976** as *Lophocolea martiana*; **Freire 2006** as *Lophocolea martiana*; **Pérez 2009** as *Lophocolea martiana*); Panzós municipio, Cahabón and/or Senahú, 2012, **Pérez & López-Medina**, det. M. Pérez (**Pérez and López-Medina 2012** as *Lophocolea martiana*); Tukurú municipio, Chelémhá, 15°22'32"N, 90°05'05"W, 2,300–2,500 m, **Pérez 374** (USCG, **Pérez 2009** as *Lophocolea martiana*). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo del Quetzal, 11 Sep 2004, **Pérez**, det. Pérez (MO-6233909!, **this publication**); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, **Freire et al.** 63, 77, 142, 180, 417, 418, 425, 471, 499, 517 (USCG, **Freire et al. 2013** as *Chiloscyphus martianus*); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (**Freire et al. 2005** as *Lophocolea martiana*). **EL PROGRESO:** Montaña Canahui, *Steyermark* 43782 (F, NY, **Fulford 1976** as *Lophocolea martiana*). **HUEHUETENANGO:** S. loc., **Pérez 1446** (USCG, **Pérez 2009** as *Lophocolea martiana*). **IZABAL:** S. loc., *Türckheim* 5084 (NY, **Freire 2006** as *Lophocolea martiana*); trail Darmouth to Morales, *Steyermark* 39144 (F, **Fulford 1976** as *Lophocolea martiana*). **SACATEPÉQUEZ:** S. loc., *Salvin* (NY, **Pérez 2009** as *Lophocolea martiana*). **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, **Ramírez** (USCG, **BIGU, Ramírez 2007** as *Lophocolea martiana*).

BELIZE. **CAYO:** Monkey Tail Branch, 16°44'N, 88°56'W, 7 Dec 1996, **Allen 18036**, det. Whittemore 1997 (MO-4417197!, **this publication**); Monkey Tail Branch, 16°44'N, 88°56'W, 10 Dec 1996, **Allen 18265**, det. Whittemore (MO-4417007!, **this publication**); S. loc. (Whittemore and Allen 1996 as *Lophocolea martiana*); San Agustín, *Mains* 3903, 3904 (MICH, **Fulford 1976** as *Lophocolea martiana*); Southern Maya Mountains, summit of Doyle's Delight, 16°29'N, 89°02'W, 1,140 m, 10 Dec 1993, **Allen 15345B**, det. Whittemore 1994 (BRH, MO-4421606, **Whittemore and Allen 1996** as *Lophocolea martiana*); Valentín, *Mains* 3698 (MICH, **Fulford 1976** as *Lophocolea martiana*).

HONDURAS. S. loc. (Oliveira-e-Silva and Yano 2000 as *Lophocolea martiana*). **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, *Standley* (**Standley 1931** as *Lophocolea liebmanni* var. *martiana*); Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 54563 (JE, **Herzog 1938** as *Lophocolea martiana*); Tela municipio, Lancetilla Valley, *Standley* 55280 (F, **Fulford 1976** as *Lophocolea martiana*); Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 55669 (F, **Herzog 1951** as *Lophocolea epiphylla*; **Fulford 1976** as *Lophocolea martiana*). ***OLANCHO:** Catacamas municipio, Sierra de Algalta, Montana Babilonia, 15 km NNW of Catacamas, 14°59'N, 85°56'W, 30 May 1992, **Allen**

12551, det. Whittemore 1993 (MO-3994176!, **this publication**). ***YORO:** Cordillera Nombre de Dios, N slope ridge between Rio Guan Guan and Quebrada Aguacatal, 15°30'N, 87°28'W, 5 Mar 1993, **Allen 13613**, det. Dauphin Jun 2017 (MO-5227631!, **this publication**).

NICARAGUA. S. loc. (Oliveira-e-Silva and Yano 2000 as *Lophocolea martiana*). ***ATLÁNTICO NORTE:** Bonanza municipio, from mine Plantel ~1 km NE, 14°02'N, 84°34–35'W, 14 Dec 1980, *Stevens 18801*, det. Whittemore 1990 (MO-3674636!, **this publication**). **CHONTALES:** La Libertad, 250–350 m, *Standley* 9087 (F, **Fulford 1976** as *Lophocolea martiana*).

COSTA RICA. S. loc. (Cole 1982, 1983, both as *Lophocolea martiana*; Oliveira-e-Silva and Yano 2000 as *Lophocolea martiana*); S. loc., *Brenes* (F, **Fulford 1976** as *Lophocolea martiana*; **Morales 1991** as *Lophocolea martiana*). **ALAJUELA:** Poás National Park, 10°12'N, 84°14'W, Aug 1973, *Griffin et al.* (**Griffin et al. 1974** as *Lophocolea martiana*); Poás Volcano, Aug 1977, *Griffin et al.* 21 (FLAS-020510, USJ, **Morales and Griffin 1983** as *Lophocolea martiana*; **Morales 1991** as *Lophocolea martiana*; **Dauphin 2005** as *Lophocolea martiana*); San Ramón cantón, La Balsa, 10°11'N, 84°30'W, 29 Aug 1979, *Stevens 13715*, det. Whittemore Jul 1990 (MO-3674644!, **this publication**). ***CARTAGO:** La Sierra, 6 km NE of Empalme, 14 Jan 1983, *Gómez-Pignataro 19735*, det. Whittemore Jul 1990 (MO-3060501!, **this publication**). **GUANACASTE:** Liberia cantón, Guanacaste National Park, Estación Cacao, 10°55'45"N, 85°28'15"W, 26 Sep 1990, *Chávez 83b*, det. Dauphin Jun 2017 (MO-6230262!, **this publication**); Liberia cantón, Guanacaste National Park, Sector Pitilla, *Dauphin 1903* (CR, **Dauphin 2005** as *Lophocolea martiana*). **LIMÓN:** Finca Montecristo, *Standley* 48492 (**Morales 1991** as *Lophocolea martiana*; **Dauphin 2005** as *Lophocolea martiana*); Pococí cantón, Río Toro Amarillo, 2 km W de Guápiles, *Woodruff*, det. Griffin (FLAS, **Morales 1991** as *Lophocolea martiana*; **Dauphin 2005** as *Lophocolea martiana*); Siquirres cantón, Pinea Montecristo, on the Rio Reventazón, below Cairo, 25 m, *Standley* 48492, 48502, 48533 (B-06380, **Herzog 1938** as *Lophocolea martiana*; **Dauphin 2005** as *Lophocolea martiana*). **PUNTARENAS:** Monteverde (Morales 1991 as *Lophocolea martiana*); Monteverde, 10–17 Mar 1965, *James, W. & James, M.* 87b (R, **Reed and Robinson 1971** as *Lophocolea martiana*; **Dauphin 2005** as *Lophocolea martiana*); Monteverde, 10–17 Mar 1965, *James, W. & James, M.* 76 (R, MO-6163171, **Reed and Robinson 1971** as *Lophocolea martiana*; **Dauphin 2005** as *Lophocolea martiana*); Monteverde, 10–17 Mar 1965, *James, W. & James, M.* 77 (R, MO-6163170, **Reed and Robinson 1971** as *Lophocolea martiana*; **Dauphin 2005** as *Lophocolea martiana*).

PANAMA. **DARIÉN:** Cerro Pirre (Stotler et al. 1998 as *Lophocolea martiana*); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, **Gradstein and Salazar Allen 1992** as *Lophocolea martiana*); Cerro Pirre, from Rancho Mojado, 800–1,150 m, *Salazar Allen & Gradstein 9250* (PMA, **Stotler et al. 1998** as *Lophocolea martiana*).

Also reported from West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, South-eastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Cryptolophocolea martiana (Nees) L.Söderstr. var. *perissodonta* (Spruce) Gradst., *Phytoneuron* 2015(22): 1, 2015 (Bernal et al. 2015).

≡ *Lophocolea martiana* var. *perissodonta* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 432, 1885 (Spruce 1885). Type: Brazil.

≡ *Lophocolea perissodonta* (Spruce) Steph., *Bull. Herb. Boissier*, sér. 2, 7(1): 63 [Sp. Hepat. (Stephani) 3: 151], 1907 (Stephani 1907b).

≡ *Chiloscyphus perissodontus* (Spruce) J.J.Engel et R.M.Schust., *Nova Hedwigia* 39: 421, 1985 (Engel and Schuster 1984).

≡ *Cryptolophocolea perissodonta* (Spruce) L.Söderstr., *Phytotaxa* 112(1): 20, 2013 (Söderström et al. 2013b).

BELIZE. **CAYO:** Valentín, *Mains* 3698 (MICH, Fulford 1976 as *Lophocolea perissodonta*; Whittemore and Allen 1996 as *Lophocolea perissodonta*).

HONDURAS. **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 53489, 54563 (JE, Fulford 1976 as *Lophocolea perissodonta*); Tela municipio, San Alejo, *Standley* 7620 7914 p.p. (F, Fulford 1976 as *Lophocolea perissodonta*). **EL PARAÍSO:** El Paraíso municipio, El Zamorano, *Standley* 2343 (F, Fulford 1976 as *Lophocolea perissodonta*).

***EL SALVADOR.** ***SANTA ANA:** Metapán municipio, Montecristo, casco de hacienda, 4 Nov 2014, *Búcaro* H347, det. Dauphin 2016 (MHES!, this publication).

COSTA RICA. S. loc. (Cole 1982 as *Lophocolea perissodonta*, 1983 as *Lophocolea perissodonta*). **LIMÓN:** Siquirres cantón, Cairo, *Standley & Valerio* 36876, 48492, 48502, 48533 (JE, Fulford 1976 as *Lophocolea perissodonta*; Morales 1991 as *Lophocolea perissodonta*; Dauphin 2005 as *Lophocolea perissodonta*); Siquirres cantón, La Colombiana, *Brenes* 118 (F, Fulford 1976 as *Lophocolea perissodonta*; Morales 1991 as *Lophocolea perissodonta*; Dauphin 2005 as *Lophocolea perissodonta*).

Also reported from the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Cryptomitrium Austin ex Underw., Bull. Illinois State Lab. Nat. Hist. 2(1): 36, 1884 (Underwood 1884).

Cryptomitrium tenerum (Hook.) Austin ex Underw., *Bull. Illinois State Lab. Nat. Hist.* 2(1): 36, 1884 (Underwood 1884).

≡ *Marchantia tenera* Hook., *Syn. Pl. (Kunth)* 1: 45, 1822 (Kunth 1822). Type: Mexico.

GUATEMALA. S. loc. (Gradstein et al. 2001b; Bischler-Causse et al. 2005; Gradstein 2017b; Arrocha et al. 2020). **QUETZALTENANGO:** Between Quetzaltenango and San Felipe, near Santa María de Jesús, 13 Sep 1940, *Haupt* (Haupt 1942).

COSTA RICA. S. loc. (Mehra and Sokhi 1977; Cole 1984; Perold 1994; Gradstein et al. 2001b; Bischler-Causse et al. 2005;

Gradstein 2017b; Arrocha et al. 2020). **SAN JOSÉ:** Escazú cantón, Escazú, Montañas de Escazú, mountains SW of village, 7–8 Jul 1940 (Dauphin 2005); Escazú cantón, Escazú, mountains SW of village, 17 Jul 1940, *Haupt* (Haupt 1942); Montañas de Escazú y Aserri (Morales 1991).

PANAMA. **CHIRIQUÍ:** Boquerón distrito, Finca El Aguacatal, Parque Nacional Volcán Barú, 8°47'23.3"N, 82°34'29.8"W, 2,052 m, 4 Aug 2014, *Arrocha* 2748 (UCH, Arrocha et al. 2020); Boquerón distrito, Finca El Aguacatal, Parque Nacional Volcán Barú, 8°47'23.3"N, 82°34'29.8"W, 2,052 m, 4 Aug 2014, *Arrocha* 2996 (UCH, Arrocha et al. 2020); Boquerón distrito, Finca El Aguacatal, Parque Nacional Volcán Barú, 8°47'23.3"N, 82°34'29.8"W, 2,052 m, 4 Aug 2014, *Arrocha* 2997 (UCH, Arrocha et al. 2020); Boquerón distrito, Finca El Aguacatal, Parque Nacional Volcán Barú, 8°47'23.3"N, 82°34'29.8"W, 2,052 m, 4 Aug 2014, *Arrocha* 2998 (UCH, Arrocha et al. 2020).

Also reported from Eastern Asia, Indian Subcontinent, Southwestern USA, Mexico, Southern South America.

Cyathodium Kunze, Nov. Stirp. Pug. 6: 17, 1834 (Lehmann 1834).

Cyathodium bischlerianum N.Salazar, *Bryologist* 104(1): 141, 2001 (Salazar Allen 2001a). Holotype: Panama. Parque Nacional Soberanía, Río Pedro Miguel, Camino de Cruces (9°01'N, 79°36'W), on rocky banks of river, *Salazar Allen, Chung & Rivera* 14390 (PMA).

PANAMA. **COCLÉ:** Antón distrito, El Valle de Antón, Río Las Mozas, *Salazar Allen et al.* 14447 (PMA, Bischler-Causse et al. 2005; Salazar Allen 2001a). **PANAMA:** Panamá distrito, Parque Nacional Soberanía, Río Masambí Grande en el camino hacia Canopy Tower, 9°04'N, 79°40'W, *Salazar Allen et al.* 16765, 16772, 16789, 16791, 16796 p.p., 16798, 16799, 16800, 16804, 16805 (PMA, Salazar Allen 2001a); Panamá distrito, Parque Nacional Soberanía, Río Pedro Miguel entrando por Camino de Cruces, 9°01'N, 79°36'W, *Rodríguez* 220b, 221 (PMA, Salazar Allen 2001a); Panamá distrito, Parque Nacional Soberanía, Río Pedro Miguel entrando por Camino de Cruces, 9°01'N, 79°36'W, *Salazar Allen et al.* 14390 (PMA, TYPE, Salazar Allen 2001a); Panamá distrito, Parque Nacional Soberanía, Río Pedro Miguel entrando por Camino de Cruces, 9°01'N, 79°36'W, *Salazar Allen et al.* 14386 p.p., 14393, 14395 p.p., 16599, 16600, 16612 p.p., 16613 p.p., 16643 (PMA, Salazar Allen 2001a; Bischler-Causse et al. 2005); Panamá distrito, Parque Nacional Soberanía, Río Pedro Miguel, Camino de Cruces, Sendero El Charco, 9°05'N, 79°41'W, *Rodríguez* 209, 220, 211, 216 (PMA, Salazar Allen 2001a; Bischler-Causse et al. 2005); Panamá distrito, Parque Nacional Soberanía, Sendero Natural El Charco, 70 m, 1 Dec 2004, *Salazar Allen et al.* 20993 (PMA, Salazar Allen et al. 2017).

Not found outside Central America.

Cyathodium cavernarum Kunze, *Nov. Stirp. Pug.* 6: 18, 1834 (Lehmann 1834). Type: Cuba.

COSTA RICA. S. loc. (Gradstein et al. 2016; Gradstein 2021); S. loc., *Salazar Allen et al.* 20549, 20568, 20917, 20918, 20921 (PMA, *Salazar Allen and Korpelainen* 2006). **ALAJUELA:** Alajuela cantón, Universidad Adventista de Centroamerica, *Salazar Allen et al.* 16090 (PMA, SJ, *Bischler-Causse et al.* 2005); Atenas cantón, a ~20 m del letrero Altos del Monte, *Salazar Allen et al.* 16109, 16111, 16116, etc. (PMA, *Bischler-Causse et al.* 2005; *Dauphin* 2005); Atenas, *Salazar Allen et al.* 16106, 16112, 16113, etc. (PMA, SJ, *Bischler-Causse et al.* 2005); Río Quatro cantón, San Miguel de Sarapiquí, Cerro Congo, *Salazar Allen et al.* 16162 (PMA, SJ, *Bischler-Causse et al.* 2005); road to Carrara, *Salazar Allen et al.* 16099, 16100, 16101, etc. (PMA, SJ, *Bischler-Causse et al.* 2005); San Carlos cantón, Area de Conservación Arenal por la carretera de piedra de Pocosal a la Laguna, *Salazar Allen et al.* 20547, 20555, 20556, 20570 (PMA, *Dauphin* 2005; *Salazar Allen and Korpelainen* 2006); San Mateo cantón, Quebrada Fierro, *Salazar Allen et al.* 16137, 16138, 16139, etc. (PMA, SJ, *Bischler-Causse et al.* 2005); San Mateo, *Salazar Allen et al.* 16124, 16125, 16126, etc. (PMA, SJ, *Bischler-Causse et al.* 2005). **SAN JOSÉ:** Acosta cantón, Camino a San Ignacio de Acosta, cerca del pueblo del Cangrejal, *Salazar Allen et al.* 20708 (*Dauphin* 2005); Camino a Puntarenas, Cerca del Curce de Paso Real, 86 km de Pérez Zeledón, Río Cataratas, *Salazar Allen et al.* 20694, det. *Salazar Allen* (PMA, *Dauphin* 2005); Pérez Zeledón cantón, Fila Tinamastes, San Isidro El General, Sitio donde está una virgen de la Medalla Milagrosa, *Salazar Allen et al.* 20688 (*Dauphin* 2005); Pérez Zeledón cantón, Pan-American Highway Sur, camino a San Isidro El General, a 375.62 km de San José, Río Cataratas, *Salazar Allen et al.* 20680 (*Dauphin* 2005; *Salazar Allen and Korpelainen* 2006); San José cantón, Zoológico Nacional Simón Bolívar, *Salazar Allen et al.* 16082, 16083, 16084, etc. (PMA, SJ, *Bischler-Causse et al.* 2005); San José cantón, Zoológico Simón Bolívar, 9°56'25"N, 84°04'35"W, *Salazar Allen* 16085, det. *Salazar Allen* (PMA, *Dauphin* 2005).

PANAMA. S. loc. (Gradstein 2021; Gradstein et al. 2016; *Salazar Allen et al.* 2004; *Stotler et al.* 1998). **COCLÉ:** Antón distrito, El Valle de Antón, cerca del Mirador, 736, 21 Jul 2004, *Salazar Allen et al.* 20926, 20927 (PMA, *Salazar Allen et al.* 2017); Antón distrito, El Valle de Antón, Guayabo, 624 m, 21 Jul 2004, *Salazar Allen et al.* 20939 (PMA, *Salazar Allen et al.* 2017); Antón distrito, El Valle de Antón, Río Las Mozas 8°37'N, 80°08'W (*Salazar Allen* 2001a); Antón distrito, El Valle de Antón, Río Las Mozas, *Rodríguez* 169, 170 (PMA, *Bischler-Causse et al.* 2005); Antón distrito, El Valle de Antón, Río Las Mozas, *Salazar Allen et al.* 14457, 14520, 16555, etc. (PMA, *Bischler-Causse et al.* 2005); Antón distrito, Quebrada El Guayabo, *Salazar Allen et al.* 16592, 16595 (PMA, *Bischler-Causse et al.* 2005). **COLÓN:** Portobelo distrito, Aduana de Portobelo, *Salazar Allen & Santamaria* (PMA, *Bischler-Causse et al.* 2005). **LOS SANTOS:** Tonosí distrito, Parque Nacional Cerro Hoya, E of Río Progreso, *Rivera* (PMA, *Bischler-Causse et al.* 2005). **PANAMA WEST:** Capiro distrito, Parque Nacional Altos de Campana, *Salazar Allen & H. Korpelainen* 15692, 15694, *Salazar Allen et al.* 17005 (PMA, *Salazar Allen and Korpelainen*

2006). **PANAMA:** Panamá distrito, Cuevas de Chilibre, *Salazar Allen et al.* 16660, 16661, 16665 (PMA, *Bischler-Causse et al.* 2005); Panamá distrito, La Cascada, *Rodríguez* 226, 234, 235 (PMA, *Bischler-Causse et al.* 2005); Panamá distrito, Parque Nacional Soberanía (*Salazar Allen* 2001a); Panamá distrito, Parque Nacional Soberanía, Río Pedro Miguel entrando por Camino de Cruces, 9°01'N, 79°36'W, *Rodríguez* 221 (PMA, *Bischler-Causse et al.* 2005); Panamá distrito, Parque Nacional Soberanía, Sendero El Charco, *Salazar Allen et al.* 14311, 14825, 14832, etc. (PMA, *Bischler-Causse et al.* 2005); Panamá distrito, Río Pedro Miguel, Camino de Cruces, *Rodríguez* 179, 220 (PMA, *Bischler-Causse et al.* 2005); Panamá distrito, Río Pedro Miguel, Camino de Cruces, *Salazar Allen et al.* 14383, 14387, 14395, etc. (PMA, *Bischler-Causse et al.* 2005). **VERAGUAS:** Montijo distrito, Isla Coiba, 200 ft (61 m), *Antonio* 2366 (MA, PMA, *Salazar Allen and Chung* 1997a; *Stotler et al.* 1998).

Also reported from Macaronesia, West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa(?), East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, Arabian Peninsula, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Australia, Mexico, the Caribbean, Western South America, Brazil.

Cyathodium foetidissimum Schiffn., *Denkschr. Kaiserl. Akad. Wiss., Math.-Naturwiss. Kl.* 67: 154, 1898 (Schiffner 1898b). Type: Indonesia.

COSTA RICA. S. loc. (Gradstein 2021). **CARTAGO:** Paraíso cantón, Orosi, puente colgante Río Grande de Orosi, 1,200 m, *Salazar Allen et al.* 20618 (PMA, *Dauphin* 2005; *Salazar Allen and Korpelainen* 2006; *Salazar Allen et al.* 2017); Paraíso cantón, Parque Nacional Tapantí, Valle del Río Grande de Orosi, 1,200 m, *Salazar Allen et al.* 20619 (PMA, *Salazar Allen and Korpelainen* 2006; *Salazar Allen et al.* 2017); Paraíso cantón, Tapanti National Park, *Salazar Allen et al.* 20635, 20636 (PMA, *Salazar Allen and Korpelainen* 2006); Paraíso cantón, Valle del Río Grande de Orosi, cerca del puente colgante sobre el Río Grande de Orosi, en la carretera 224 de Purisil hacia el Parque Nacional Tapantí, 9°46'00"N, 83°48'10"W, 1,200 m, Mar 2001–Feb 2002, *Salazar Allen et al.* 15, 25, 26, 27, 47, 48, 49 (PMA, *Salazar Allen et al.* 2004; *Dauphin* 2005; *Salazar Allen and Korpelainen* 2006).

Also reported from Southeastern Europe, West-Central Tropical Africa, East Tropical Africa, Indian Subcontinent(?), Malesia, Papuasias, Southeastern Pacific, Western South America.

Cyathodium spruceanum Prosk., *Bryologist* 54(4): 243, 1952 (Proskauer 1951b). Type: Peru.

COSTA RICA. S. loc., *Salazar Allen & Lepiz* 20565, 20569, 20914, 20916 (PMA, *Salazar Allen and Korpelainen* 2006). **ALAJUELA:** Atenas cantón, Alto del Monte, 9°59'10"N, 84°20'40"W, *Salazar Allen et al.* 16121 (PMA, *Bischler-Causse et al.* 2005); San Carlos cantón, Area de Conservación Arenal por la carretera de piedra de Pocosal a la Laguna, *Salazar Allen et al.* 20557, 20559, 20560, 20564, 20570 (*Dauphin* 2005; *Salazar Allen and Korpelainen* 2006); San Mateo cantón, Desamparados,

Rio Negro, 9°57'20"N, 84°29'W, Area de La Cascada, *Salazar Allen et al.* 16124b, 16128, 16129 (PMA, SJ, *Bischler-Causse et al.* 2005; *Dauphin* 2005). SAN JOSÉ: Acosta cantón, Camino hacia San Ignacio de Acosta, a 27.7 km de la intersección de Parrita hacia San Ignacio de Acosta, 480–515 m, *Salazar Allen et al.* 20702, det. Salazar Allen (PMA, *Dauphin* 2005).

PANAMA. S. loc. (Salazar Allen 2001a; Salazar Allen et al. 2004). COCLÉ: Antón distrito, El Valle de Antón, *Salazar Allen et al.* 7007 (PMA, *Salazar Allen and Korpelainen* 2006); Antón distrito, El Valle de Antón, Río Las Mozas, 580 m, 21 Jul 2004, *Salazar Allen et al.* 20943, 20946, 20947, etc. (PMA, *Bischler-Causse et al.* 2005); Antón distrito, Valle de Antón, Río Las Mozas, *Rodríguez* 171 (PMA, *Bischler-Causse et al.* 2005). LOS SANTOS: S. loc., *Rivera* 202, 213 (PMA, *Bischler-Causse et al.* 2005). PANAMA WEST: Capira distrito, Parque National Altos de Campana, *Salazar Allen et al.* 16549, 16674, 16675, 16679, 16817, 16863, 16955 (PMA, *Salazar Allen and Korpelainen* 2006); Capira distrito, Parque National Soberanía, La Cascada, *Rodríguez* 161, 162, *Salazar Allen et al.* 16688, 16693, 16699 (PMA, *Bischler-Causse et al.* 2005); La Chorrera distrito, Barro Colorado, Donato Trail to Lutz tower, 2003, *Dauphin* 3084 (*Dauphin et al.* 2022). PANAMA: Condado de El Rey, *Salazar Allen et al.* 16080 (PMA, *Bischler-Causse et al.* 2005); Panamá distrito, Cuevas de Chilibre, *Salazar Allen et al.* 16667 (PMA, *Bischler-Causse et al.* 2005); Panamá distrito, después del mirador de la represa Madden, 118 m, 1 Dec 2004, *Salazar Allen et al.* 21003, 21004 (PMA, *Salazar Allen et al.* 2017); Panamá distrito, Parque Nacional Chagres, Campo Chagres, 110 m, 1 Dec 2004, *Salazar Allen et al.* 21002 (PMA, *Salazar Allen et al.* 2017); Panamá distrito, Parque Nacional Soberanía, La Cascada, 76 m, 1 Dec 2004, *Salazar Allen et al.* 20999 (PMA, *Salazar Allen et al.* 2017); Panamá distrito, Parque Nacional Soberanía, Sendero Natural El Charco, 70 m, 1 Dec 2004, *Salazar Allen et al.* 16699, 16700, 20992, 20994, 20995, 20997 (PMA, *Salazar Allen et al.* 2017); Panamá distrito, Río Masambí Grande, camino a Canopy Tower a 0.5 km de la entrada desde la carretera hacia Gamboa, *Salazar Allen et al.* 16927, 16955 (PMA, *Salazar Allen and Korpelainen* 2006); Panamá distrito, Río Pedro Miguel, Camino de Cruces, *Salazar Allen et al.* 14383, 14389, 16549, etc. (PMA, *Bischler-Causse et al.* 2005).

Also reported from Western South America.

***Cyclolejeunea* A. Evans, Bull. Torrey Bot. Club 31(4): 193, 1904 (Evans 1904).**

Cyclolejeunea accedens (Gottsche) A. Evans, Bull. Torrey Bot. Club 31(4): 201, 1904 (Evans 1904).

≡ *Lejeunea accedens* Gottsche, Syn. Hepat. 3: 339, 1845 (Gottsche et al. 1845a). Type: Saint Kitts.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 250 (USCG, *Freire et al.* 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al.* 2005).

COSTA RICA. Cordillera de Talamanca (*Holz* 2003; *Holz and Gradstein* 2005b); Cordillera de Talamanca, *Dauphin* (USJ, *Kappelle* 1996); S. loc. (Eggers et al. 1998; Schäfer-Verwimp 2014; Prado and Ilkiu-Borges 2021). CARTAGO: Paraíso cantón, Orosi, Tapantí National Park (*Dauphin* 2005); Paraíso cantón, Orosi, Tapanti National Park, *Lücking* (hb. *Lücking, Bernecker-Lücking* 1998b). GUANACASTE: Liberia cantón, Guanacaste National Park, Sector Pitilla, *Dauphin* 1897 (CR, *Dauphin* 2005). LIMÓN: Braulio Carrillo National Park, 400–500 m (Eggers 2001); Pococí cantón, Braulio Carrillo National Park, Botarrama trail (*Dauphin* 2005); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 92-35, 92-36, 92-210, etc. (hb. *Lücking, Lücking* 1995; *Bernecker-Lücking* 1998b); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (*Lücking* 1997). PUNTARENAS: Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (*Sonnleitner et al.* 2009); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a); Monteverde cantón, Reserva Biológica Monteverde, 1,550 m, *Gradstein & Solano* 9459 (U, USJ, *Gradstein et al.* 1994; *Dauphin* 2005); Monteverde, 1,550 m, *Eggers* (hb. *Eggers, Eggers* 2001). SAN JOSÉ: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, *Holz et al.* 2002); Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, San Gerardo (*Dauphin* 2005); Dota cantón, San Gerardo, *Schäfer-Verwimp & Holz* SV/H-0279/A (M, *Czumay et al.* 2013; *Heinrichs et al.* 2014a, 2014b, 2014c); Madreselva, *Dauphin* (USJ, *Dauphin* 2005); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 2,600–3,000 m (*Eggers* 2001).

PANAMA. *BOCAS DEL TORO: Chiriquí Trail Cloud Forest, 18 Apr 1938, *Kirkbride & Duke* 762A, det. *Dauphin* Jun 2017 (MO-6169710!, this publication). CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (*Salazar Allen et al.* 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (*Salazar Allen et al.* 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, near southern edge of storage lake, 8°44.0'N, 82°14.5'W, 1,215 m, 30 Mar 2009, *Schäfer-Verwimp & Verwimp* 34497/C, 34503 (JE, *Schäfer-Verwimp* 2014). COCLÉ: Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8'N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34218/A (JE, *Schäfer-Verwimp* 2014; *Prado and Ilkiu-Borges* 2021); Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8'N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34263/C (JE, *Schäfer-Verwimp* 2014); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Río Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López* 662, 663, etc. (PMA, *Sierra et al.* 2019a).

COCOS I. Cerro Yglesias, 5°32'57"N, 87°03'56"W, 550 m, *Lücking* 92-328 (USJ, *Gradstein et al.* 1994; *Dauphin* 1995, 1999, 2005); Cerro Yglesias, 5°32'57"N, 87°03'56"W, Jun 2016, *Sanchez* 2753, det. *Dauphin* 2016 (CR!, *this publication*); S. loc., *Soto*, det. G. *Dauphin* Apr 2021 (USJ-47365!, *this publication*); trail to summit of Cerro Yglesias, 5°31'N, 87°04–05'W, 550 m, *Lücking* 92-366 (hb. *Lücking*, *Bernecker-Lücking* 1998b); trail to summit of Cerro Yglesias, 5°31'N, 87°04–05'W, ~550 m, *Lücking* (hb. *Lücking*, *Bernecker-Lücking* 1998b); trail to summit of Cerro Yglesias, 5°31'N, 87°04–05'W, 500–634 m, 31 Mar 1988, *Lücking* 92-328, det. A. *Lücking* 1992 (USJ-47365!, *this publication*); Yglesias E, 500–634 m, Apr 1992, *Lücking* 307, 609, 616, 710 (USJ, *Bernecker-Lücking* 2000).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Cyclolejeunea chitonia (Taylor) A. Evans, *Bull. Torrey Bot. Club* 31(4): 194, 1904 (Evans 1904).

≡ *Lejeunea chitonia* Taylor, *Nov. Stirp. Pug.* 8: 27, 1844 (Lehmann 1844).

Type: Guyana.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 12 (USCG, *Freire et al.* 2013).

COSTA RICA. S. loc. (*Schäfer-Verwimp* 1999; *Prado and Ilkiu-Borges* 2021; *Pócs et al.* 2022). **ALAJUELA:** Río Cuatre cantón, Laguna Hule, *Dauphin & Gonzáles* 2123 (CR, *Dauphin* 2005); San Ramon cantón, La Palma, 12 Nov 1920, *Brenes* 168, det. *Dauphin* Jun 2017 (MO-5243770!, *this publication*). **HEREDIA:** Sarapiquí cantón, La Selva Biological Station, *Arroyo-Rodríguez* (*Arroyo-Rodríguez et al.* 2007); Sarapiquí cantón, La Selva Biological Station, Feb 1997, *Lücking* (hb. *Lücking*, *Bernecker-Lücking* 1998b); Sarapiquí cantón, La Selva, 100 m, *Eggers* (hb. *Eggers*, *Eggers* 2001); Sarapiquí cantón, La Selva, SCH trail (*Dauphin* 2005). **LIMÓN:** Braulio Carrillo National Park, 400–500 m (*Eggers* 2001); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 91-91, 91-92, 91-93, etc. (hb. *Lücking*, USJ, *Gradstein et al.* 1994; *Lücking* 1995; *Bernecker-Lücking* 1998b); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (*Lücking* 1997); Pococí cantón, Cuatro Esquinas de San Juan, *Dauphin et al.* 1665 (CR, *Dauphin* 2005); Pococí cantón, Tortuguero, 1–5 m, *Eggers* (hb. *Eggers*, *Eggers* 2001). **PUNTARENAS:** Coto Brus cantón, Las Cruces, Jardín Botánico Wilson, 40–1,000 m, *Dauphin* 1875 (CR, *Dauphin* 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, 8 May 1992, *Lyon* 219B, det. *Whittemore* 1995 (MO-4411451!, *this publication*); Monteverde, 1,600 m, *Eggers* (hb. *Eggers*, *Eggers* 2001).

PANAMA. S. loc. (*Lücking* 1995; *Schäfer-Verwimp* 1999); S. loc., *Schäfer-Verwimp & Verwimp* 30724 (M, *Heinrichs et al.* 2014c). **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (*Salazar Allen et al.* 2021); Gualaca distrito, Fortuna Forest Reserve, Quijada del Diablo, 1,200–1,600 m (*Salazar Allen et al.* 2021); Gualaca

distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°41,4'N, 82°13,7'W, 1,280 m, 30 Mar 2009, *Schäfer-Verwimp & Verwimp* 34456/D, 34462, 34518/A (JE, *Schäfer-Verwimp* 2014); Gualaca distrito, Reserva Forestal La Fortuna, Hornito, Sendero Quebrada Alemán, 1,100–1,200 m, 16 Mar 1996, *Reiner-Drehwald* 960068 (GOET, *Prado and Ilkiu-Borges* 2021); S. loc., *Reiner-Drehwald* 960092 (GOET, *Prado and Ilkiu-Borges* 2021). **COCLÉ:** La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Río Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López* 699, 760 (PMA, *Sierra et al.* 2019a). **DARIÉN:** Cerro Pirre (Stotler et al. 1998); Cerro Pirre, 800–1,150 m, *Salazar Allen & Gradstein* 9247 (PMA, *Stotler et al.* 1998); Cerro Pirre, 800–1,150 m, *Salazar Allen & Gradstein* 9252 p.p. (PMA, *Stotler et al.* 1998); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992); S. loc. (*Schäfer-Verwimp* 2014). **PANAMA:** Panamá distrito, Cerro Jefe, along unpaved road. 9°13.4–5'N, 79°22.7–9'W, 995 m, 28 Mar 1906, *Schäfer-Verwimp & Verwimp* 30724 (JE, *Schäfer-Verwimp* 2014); Panamá distrito, Parque Nacional Chagres, Cerro Azul, Sendero El Cantar, 800 m, 20 Mar 1996, *Reiner-Drehwald* 960141 (GOET, *Prado and Ilkiu-Borges* 2021). **VERAGUAS:** Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, *Schäfer-Verwimp & Verwimp* 30814/A (JE, *Schäfer-Verwimp* 2014).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Cyclolejeunea convexistipa (Lehm. et Lindenb.) A. Evans, *Bull. Torrey Bot. Club* 31(4): 198, 1904 (Evans 1904).

≡ *Jungermannia convexistipa* Lehm. et Lindenb., *Nov. Stirp. Pug.* 6: 43, 1834 (Lehmann 1834). Type: St. Vincent.

≡ *Lejeunea truncatula* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 150, 1884 (Spruce 1884), syn. fide Grolle (1984b). Type: Ecuador.

≡ *Cyclolejeunea truncatula* Steph., *Sp. Hepat. (Stephani)* 5: 183, 1913 (Stephani 1913).

≡ *Cyclolejeunea exigua* Steph., *Sp. Hepat. (Stephani)* 5: 185, 1913 (Stephani 1913), syn. fide Grolle (1984b). Lectotype (Bonner 1963b: 919; see also Grolle 1984b as “holotype”) or possibly holotype: Guatemala, Cobán, 1,500 m, s.d., *Türckheim s.n.*, in hb. *Levier* 5591 (G-00060850 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=114707&lang=en>).

GUATEMALA. S. loc. (*Stephani* 1913 as *Cyclolejeunea exigua* and *Cyclolejeunea truncatula*; Bonner 1963b as *Cyclolejeunea truncatula*; Fulford and Sharp 1990; *Lücking* 1995; *Ilkiu-Borges* 2000; *Bastos* 2004; *Prado and Ilkiu-Borges* 2021). **ALTA VERAPAZ:** Cobán, 1,500 m, *Türckheim* (G, *TYPE* of *Cyclolejeunea exigua*, Bonner 1963b as *Cyclolejeunea exigua*); Panzós municipio, Cahabón and/or Senahú, 2012, *Pérez & López-Medina*, det. M. Pérez (*Pérez and López-Medina* 2012); S. loc., 1,600 m, *Türckheim* 6312 (G, *Grolle* 1984b); S. loc., 2007, *Pérez*, det. Pérez (USCG, *Barillas de Klee et al.* 2008). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la

Conservación del Quetzal, Freire *et al.* 382, 470, 526 (USCG, Freire *et al.* 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire *et al.* 2005). **CHIQUMULA**: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee *et al.* 2008). **HUEHUETENANGO**: S. loc., Pérez 1415 (USCG, Pérez 2009).

BELIZE. S. loc. (Fulford 1938 as *Cyclolejeunea 'convexistipula'*; Whittemore and Allen 1996).

HONDURAS. S. loc. (Fulford and Sharp 1990; Lücking 1995; Ilkiu-Borges 2000; Bastos 2004; Prado and Ilkiu-Borges 2021). **ATLÁNTIDA**: Tela municipio, Lancetilla Valley, Standley (Standley 1931); Tela municipio, Lancetilla Valley, 20–600 m, Standley 54174, 54612, 54793, 55621 (Herzog 1951; Grolle 1964b); Tela municipio, Lancetilla Valley, 20–600 m, 6 Jul 1927–20 Mar 1928, Standley 56762 (US, Herzog 1951).

COSTA RICA. S. loc. (Fulford and Sharp 1990; Ilkiu-Borges 2000; Bastos 2004; Prado and Ilkiu-Borges 2021). **ALAJUELA**: Río Cuatre cantón, Laguna Hule, Dauphin & Gonzáles 2109 (CR, Dauphin 2005); San Ramón cantón, Nectandra Cloud Forest (UC, Norris *et al.* 2017); San Ramón cantón, San Ramón, Reserva Biológica Alberto Brenes (Dauphin 2005); San Ramón cantón, San Ramón, Reserva Biológica Alberto Brenes, Lücking 97-48, 97-49 (hb. Lücking, Bernecker-Lücking 1998b); San Ramón cantón, San Ramón, Reserva Biológica Alberto Brenes, 5 May 1991, Zamora (USJ, Bernecker-Lücking 1998b); San Ramón cantón, San Ramón, Reserva Biológica Alberto Brenes, 9–10 May 1992, Dauphin & Wagner (USJ, Bernecker-Lücking 1998b). **CARTAGO**: Paraíso cantón, Orosi, Tapantí National Park (Dauphin 2005); Paraíso cantón, Orosi, Tapantí National Park, Morales 2264 (USJ, Bernecker-Lücking 1998b); Paraíso cantón, Tapantí National Park, Lücking 97-50, 97-51, 97-52 (hb. Lücking, Bernecker-Lücking 1998b); Paraíso cantón, Tapantí National Park, 28 Jun 1992, Rodríguez (USJ, Bernecker-Lücking 1998b). **GUANACASTE**: La Cruz cantón, Guanacaste National Park, Cerros Santa Elena, 10°53'24"N, 85°50'55"W, 650–700 m, 27 Aug 2003, Dauphin *et al.* 3311 (CR, Heinrichs *et al.* 2014c); Liberia cantón, Guanacaste National Park, Pitilla, Dauphin 1899 (CR, Dauphin 2005); Tenorio, 500 m, Eggers (hb. Eggers, Eggers 2001). **HEREDIA**: Heredia cantón, Vara Blanca, 1,380 m, Eggers (hb. Eggers, Eggers 2001); San Isidro cantón, Cerro de Caricias, Standley 51985 *p.p.* (Morales 1991; Dauphin 2005); San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, Standley 51988 *p.p.* (JE-04002124, Herzog 1951); San Isidro cantón, Yerba Buena, 2,000 m, Standley 49802 *p.p.* (Herzog 1951; Morales 1991; Dauphin 2005); San Miguel de Sarapiquí, 850 m, 30 Jan 1985, Eggers (hb. Eggers, Eggers 2001). **LIMÓN**: Braulio Carrillo National Park, 400–500 m (Eggers 2001); Pococí cantón, Braulio Carrillo National Park, Botarrama trail (Dauphin 2005); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, Lücking 91-108 (hb. Lücking, Lücking 1995; Bernecker-Lücking 1998b); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, Lücking 91-109, 91-110, 91-111, *etc.* (hb. Lücking, Lücking 1995; Bernecker-Lücking 1998b);

Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, Lücking (Lücking 1997); Talamanca, Tonduz 15607 (G, Grolle 1984b). **PUNTARENAS**: Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner *et al.* 2009); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 80–140 m (GOET, Wanek and Pörtl 2008); Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, 1,550 m, Dauphin (GOET, Gradstein and Schäfer-Verwimp 2011); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein *et al.* (FLAS, U, USJ, Gradstein *et al.* 2001a); Monteverde cantón, Monteverde Cloud Forest Preserve, 12 Jul 1991, Conejo (USJ, Bernecker-Lücking 1998b); Monteverde, 1,600 m, Eggers (hb. Eggers, Eggers 2001); S. loc. (Merwin *et al.* 2001). **SAN JOSÉ**: Moravia cantón, La Palma, 1,600 m (Eggers 2001); Moravia cantón, La Palma, 1,450–1,550 m, Maxon 383 (Grolle 1984b); Moravia cantón, La Palma, Maxon (MO, Morales 1991; Dauphin 2005); Moravia cantón, La Palma, 1,600 m, Standley 33146 (Herzog 1951; Morales 1991; Dauphin 2005).

PANAMA. S. loc. (Lücking 1995; Ilkiu-Borges 2000; Bastos 2004; Eggers *et al.* 2004); S. loc., Holz FG00-0217 (GOET, Ilkiu-Borges 2016); S. loc., Salazar Allen & Gradstein 9406 (GOET, Ye *et al.* 2013; Ye and Zhu 2018; Ye and Wei 2021); S. loc., Schäfer-Verwimp & Verwimp 30786 (M, Heinrichs *et al.* 2014c); S. loc., Schäfer-Verwimp & Verwimp 34520 (M, Heinrichs *et al.* 2014b). ***BOCAS DEL TORO**: Bocas del Toro distrito, Bastimentos, Salt Creek, Sendero a Long Beach, 9.29456°N, 82.10303°W, 70 m, 16 Aug 2017, Gudiño 3383, det. Gudiño Aug 2017 (PMA, this publication). **CHIRIQUÍ**: Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (Salazar Allen *et al.* 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Alemán, 1,200–1,400 m (Salazar Allen *et al.* 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Arena, 920–1,150 m (Salazar Allen *et al.* 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°44.3'N, 82°14.7'W, 1,100 m, 30 Mar 2009, Schäfer-Verwimp & Verwimp 34520 (JE, MG, Schäfer-Verwimp 2014); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, near southern edge of storage lake, 8°44.0'N, 82°14.5'W, 1,215 m, 30 Mar 2009, Schäfer-Verwimp & Verwimp 34482, 34497/A (JE, Schäfer-Verwimp 2014); Gualaca distrito, Reserva Forestal La Fortuna, Hornito, Sendero Quebrada Alemán, 1,100–1,200 m, 16 Mar 1996, Reiner-Drehwald 960070 (GOET, Prado and Ilkiu-Borges 2021); S. loc., Reiner-Drehwald 960075 (GOET, Prado and Ilkiu-Borges 2021); S. loc., Reiner-Drehwald 960144 (GOET, Prado and Ilkiu-Borges 2021). **COCLÉ**: Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 700–1,000 m, 31 Mar 2006, Schäfer-Verwimp & Verwimp 30786 (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, Alto de La Mesa, 8°38.3'N, 82°07.6'W, 850–870 m, 3 Apr 2009, Schäfer-Verwimp & Verwimp 34737/B (JE, Schäfer-Verwimp

2014); Antón distrito, El Valle de Antón, Alto de La Mesa, 8°38'N, 80°07'W, 800–850 m, 30 Mar 2006, *Schäfer-Verwimp & Verwimp* 30745 p.p. (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, *Schäfer-Verwimp & Verwimp* 34171/B (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa, 8°36.8'N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34191, 34218/B, 34233, 34262/A (JE, Schäfer-Verwimp 2014; Prado and Ilkiu-Borges 2021); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Río Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López* 662, 663, etc. (PMA, Sierra et al. 2019a). DARIÉN: Cerro Pirre (Stotler et al. 1998); Cerro Pirre, 400–500 m, *Salazar Allen & Gradstein* 9234 (PMA, Stotler et al. 1998); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992); Cerro Pirre, along trail to Rancho Mojado, 400–500 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992); Cerro Pirre, around INRENARE field station, ~100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992); Cerro Pirre, Trail El Real–Pirre, along Río Pirre, ~50 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992); S. loc. (Schäfer-Verwimp 2014). PANAMA WEST: Capira distrito, Altos de Campana National Park, Sendero de Interpretación, 850 m, *Salazar Allen et al.* 9431 (PMA, Stotler et al. 1998). PANAMA: Panamá distrito, Chagres National Park, Altos de Cerro Azul, 800 m, *Gradstein* 9783b (GOET, Stotler et al. 1998); S. loc. (Schäfer-Verwimp 2014). VERAGUAS: Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, *Schäfer-Verwimp & Verwimp* 30859 (JE, Schäfer-Verwimp 2014).

COCOS I. Bahía Yglesias, 0–20 m, Apr 1992, *Lücking* 468, 469, 472, 473, 503 (ULM, USJ, Bernecker-Lücking 2000); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 15 Feb 1994, *Dauphin* 979 (USJ, Dauphin 1995, 1999, 2005); Cerro Yglesias, 5°32'57"N, 87°03'56"W, Jun 2016, *Sanchez* 2758, det. Dauphin 2016 (CR!, this publication); Río Genio, 5°32'57"N, 87°03'56"W, 0–10 m, *Dauphin* 926, det. G. Dauphin Mar 2021 (USJ-47196!, CR-44688404!, W!, this publication); Río Genio, 5°32'57"N, 87°03'56"W, *Lücking* (hb. Lücking, Bernecker-Lücking 1998b); Río Genio, 5°32'57"N, 87°03'56"W, 10 m, 15 Feb 1994, *Dauphin* 926 (USJ, Dauphin 1995, 1999, 2005); Río Pittier (Yglesias Bay), *Lücking* 92-364 (hb. Lücking, Bernecker-Lücking 1998b); S. loc. (Fosberg and Klawe 1966; Dauphin 1995, 2005); trail to summit of Cerro Yglesias, 5°31'N, 87°04–05'W, 550 m, *Lücking* 92-365 (hb. Lücking, Bernecker-Lücking 1998b); Wafer Bay, 28 Jun 1932, *Howell* 227 p.p. (CAS, Clark 1953a).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Cyclolejeunea foliorum (Nees) Grolle, *J. Hattori Bot. Lab.* 65: 403, 1988 (Grolle 1988).

≡ *Lejeunea foliorum* Nees, *Syn. Hepat.* 3: 326, 1845 (Gottsche et al. 1845a). Type: s. loc.

*NICARAGUA. *ATLÁNTICO SUR: Nueva Guinea municipio, road to Colonia Yolaina, 11°40'N, 84°26'W, 180–200 m, 11–12 Feb 1978, *Stevens* 6378 p.p., det. Dauphin May 2017 (MO-6699915! <http://tropicos.org/specimen/100988653>, this publication).

PANAMA. COCLÉ: La Pintada distrito, Corregimiento El Copé, Parque Nacional G. D. Omar Torrijos H., Sendero La Rana Dorada, 8°40'06"N, 80°35'26"W, 696 m, 31 Jul 2017, *Dauphin & Gudiño* 4467, 4470, 4506, 4508 (PMA, Dauphin et al. 2015).

Also reported from Northern South America, Western South America, Brazil.

Cyclolejeunea luteola (Spruce) Grolle, *Wiss. Z. Friedrich-Schiller-Univ. Jena, Math.-Naturwiss. Reihe* 33: 761, 1984 (Grolle 1984b).

≡ *Lejeunea luteola* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 205, 1884 (Spruce 1884). Type: Venezuela.

≡ *Prionolejeunea crenulata* Steph., *Sp. Hepat. (Stephani)* 5: 216, 1913 (Stephani 1913), syn. fide Grolle (1987). Lectotype (Grolle 1987 as “holotype”) if not holotype: Guatemala, s. loc., 1908, *Türckheim*, hb. Levier 5823 (G-00069250 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=115342&clang=en>).

GUATEMALA. S. loc. (Stephani 1913 as *Prionolejeunea crenulata*; Bastos 2004); S. loc., *Türckheim* 5826 (Geissler and Bischler 1989 as *Prionolejeunea crenulata*); S. loc., *Türckheim*, hb. Levier 5823 (G, NY, Grolle 1987; Ilkiu-Borges 2016 as *Prionolejeunea crenulata*); S. loc., *Türckheim* (G-17975, Grolle 1984b); S. loc., 1908, *Türckheim* (TYPE of *Prionolejeunea crenulata*, Grolle 1987; Prado and Ilkiu-Borges 2021).

COSTA RICA. S. loc. (Ilkiu-Borges 2000; Prado and Ilkiu-Borges 2021). CARTAGO: El Guarco cantón, La Esperanza, 1.5 km N Pan-American Highway (km 61.5), 2,460 m, 4 Dec 1985, *Kappelle* 224 (GOET, Holz et al. 2001; Dauphin 2005). LIMÓN: Pococí cantón, Braulio Carrillo National Park, Botarrama trail (Dauphin 2005); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 91-108, 91-109, 91-110, etc. (hb. Lücking, Bernecker-Lücking 1998b). PUNTARENAS: Coto Brus cantón, Parque Internacional La Amistad, Pittier, *Dauphin* 1360 (CR, Dauphin 2005); Monteverde cantón, Campbell's Wood, 1,550 m, *Sillett* 3-8 (U, Gradstein et al. 1994); Monteverde cantón, Campbell's Wood, *Sillett* 42436 (Dauphin 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995); S. loc. (Merwin et al. 2001).

PANAMA. S. loc., *Schäfer-Verwimp & Verwimp* 30955 (M, Heinrichs et al. 2014c). CHIRIQUÍ: Boquete distrito, Bajo

Mono, along Rio Caldera, 8°50.5'N, 82°28.9'W, 1,670–1,745 m, 5 Apr 2006, *Schäfer-Verwimp & Verwimp* 30955 (JE, Schäfer-Verwimp 2014). COCLÉ: Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 700–1,000 m, 31 Mar 2006, *Schäfer-Verwimp & Verwimp* 30773 p.p. (JE, Schäfer-Verwimp 2014).

COCOS I. Río Genio, 5°32'57"N, 87°03'56"W, 0–50 m, *Lücking* 92-327 (USJ, Dauphin 1995); Río Genio, 5°32'57"N, 87°03'56"W, Apr 1992, *Lücking* 92-284 (Gradstein et al. 1994; Dauphin 2005); Río Pittier (Yglesias Bay), *Lücking* 92-367 (hb. Lücking, Bernecker-Lücking 1998b); S. loc., *Lücking* (USJ, Dauphin 1999); S. loc., 1994, *Dauphin A-4/17* (USJ, Bernecker-Lücking 1998b); trail to summit of Cerro Yglesias, 5°31'N, 87°04–05'W, 500–634 m, 31 Mar 1988, *Lücking* 92-317, det. A. Lücking 1992 (USJ-47520!, this publication); Yglesias E, 500–634 m, Apr 1992, *Lücking* 710 (hb. Bernecker, Bernecker-Lücking 2000).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Cyclolejeunea peruviana (Lehm. et Lindenb.) A. Evans, *Bull. Torrey Bot. Club* 31(4): 196, 1904 (Evans 1904).

≡ *Jungermannia peruviana* Lehm. et Lindenb., *Nov. Stirp. Pug.* 5: 18, 1833 (Lehmann 1833). Type: Peru.

≡ *Lejeunea peruviana* (Lehm. et Lindenb.) Gottsche, Lindenb. et Nees, *Syn. Hepat.* 3: 339, 1845 (Gottsche et al. 1845a).

GUATEMALA. ALTA VERAPAZ: Panzós municipio, Cahabón and/or Senahú, 2012, *Pérez & López-Medina*, det. M. Pérez (Pérez and López-Medina 2012); S. loc., 2007, *Pérez*, det. Pérez (USCG, Barillas de Klee et al. 2008); Tukurú municipio, Chelemhá, *Pérez* 307 (USCG, Pérez 2006, 2009). BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as '*Lophocolea peruviana*'). EL PETÉN: S. loc., 2007, *Pérez*, det. Pérez (USCG, Barillas de Klee et al. 2008). HUEHUETENANGO: S. loc., *Pérez* 1405 (USCG, Pérez 2009). IZABAL: S. loc., 2007, *Pérez*, det. Pérez (USCG, Barillas de Klee et al. 2008).

BELIZE. CAYO: Southern Maya Mountains, summit of Doyle's Delight, 16°29'N, 89°02'W, 1,140 m, 10 Dec 1993, *Allen* 15350, det. Whittemore 1995 (BRH, MO-4421581, Whittemore and Allen 1996).

HONDURAS. S. loc. (Jovet-Ast 1957; Grolle 1988; Lücking 1995; Wanek and Pörtl 2008; Prado and Ilkiu-Borges 2021). ATLÁNTIDA: Tela municipio, Lancetilla Valley, *Standley* (Standley 1931); Tela municipio, Lancetilla Valley, 20–600 m, 6 Jul 1927–20 Mar 1928, *Standley* 55605, 55611, 55622, etc. (US, Herzog 1951).

COSTA RICA. S. loc. (Jovet-Ast 1957); S. loc., *Schäfer-Verwimp & Holz* SV/H-0280/A (M, Heinrichs et al. 2014c); S. loc., *Schäfer-Verwimp & Holz* SV/H-0300/A (JE, Prado and Ilkiu-Borges 2021). ALAJUELA: San Ramón cantón, Nectandra Cloud Forest (UC, Norris et al. 2017); San Ramón cantón, San Ramón, Reserva Biológica Alberto Brenes (Dauphin 2005); San Ramón cantón, San Ramón, Reserva Biológica Alberto Brenes,

Lücking (hb. Lücking, Bernecker-Lücking 1998b); San Ramón cantón, San Ramón, Reserva Biológica Alberto Brenes, 5 May 1991, *Zamora* (USJ, Bernecker-Lücking 1998b). CARTAGO: Paraíso cantón, Orosi, Tapantí National Park (Dauphin 2005); Paraíso cantón, Refugio de Fauna Silvestre de Tapantí, *Lücking* (hb. Lücking, Bernecker-Lücking 1998b); Paraíso cantón, Tapantí National Park, *Lücking* 97-52 (hb. Lücking, Bernecker-Lücking 1998b); Paraíso cantón, Tapantí National Park, *Morales* 2158 (USJ, Bernecker-Lücking 1998b); S. loc., *Schäfer-Verwimp & Holz* SV/H-0327/b (JE, Prado and Ilkiu-Borges 2021). GUANACASTE: Liberia cantón, Guanacaste National Park, Sector Pitilla, *Dauphin* 1899 p.p. (CR, Dauphin 2005); Tilarán cantón, La Tejona, N of Tilarán, 600–700 m, *Standley* 45762a (Herzog 1951; Morales 1991). HEREDIA: Heredia cantón, Vara Blanca, 1,380 m, *Eggers* (hb. Eggers, Eggers 2001); San Isidro cantón, Cerro Caricias, ~2,000 m (Dauphin 2005); San Isidro cantón, Cerro de Caricias, N of San Isidro, 2,000–2,400 m, *Standley* 51985 (Herzog 1951; Morales 1991); San Isidro cantón, Yerba Buena, 2,000 m (Dauphin 2005); San Isidro cantón, Yerba Buena, 2,000 m, *Standley* 49802 p.p. (Herzog 1951; Morales 1991). LIMÓN: Braulio Carrillo National Park, 400–500 m (Eggers 2001); Braulio Carrillo National Park, 24 Oct 1991, *Dauphin* (USJ, Bernecker-Lücking 1998b); Pococí cantón, Braulio Carrillo National Park, Botarrama trail (Dauphin 2005); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, *Lücking* 91-18, 91-19, etc. (hb. Lücking, Lücking 1995; Bernecker-Lücking 1998b); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 460–480 m, Mar 1994, *Lücking* 94-49 (MG, Prado and Ilkiu-Borges 2021); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (Lücking 1997); Pococí cantón, Guapiles, ~400 m (Eggers 2001); Pococí cantón, Guapiles, 300–500 m, *Standley* 37060, 37615 (Herzog 1951; Morales 1991); Pococí cantón, Tortuga Lodge near Tortuguero, 21 Feb 1985, *Eggers* CR 12/82 (Eggers et al. 2001); Pococí cantón, Tortuguero, 1–5 m, *Eggers* (hb. Eggers, Eggers 2001); Pococí cantón, Tortuguero, Cuatro Esquinas, *Dauphin et al.* 1673 (CR, Dauphin 2005); S. loc., *Lücking* 94-49a, 94-49b (SP, Prado and Ilkiu-Borges 2021). PUNTARENAS: Coto Brus cantón, Fila Cruces, *Dauphin* 1782 (CR, Dauphin 2005); Coto Brus cantón, San Vito, La Cruces Botanical Garden, Jan 1990, *Menjivar* (USJ, MO-5624274, Bernecker-Lücking 1998b); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 80–140 m (GOET, Wanek and Pörtl 2008); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde, 1,600 m, *Eggers* (hb. Eggers, Eggers 2001); S. loc. (Merwin et al. 2001). SAN JOSÉ: Genesis II Cloud Forest Reserve, Cordillera de Talamanca, *Lücking* (hb. Lücking, Bernecker-Lücking 1998b); Moravia cantón, La Palma (Dauphin 2005); Moravia cantón, La Palma, 1,600 m, *Standley* 33221 (Herzog 1951; Morales 1991).

PANAMA. S. loc. (Lücking 1995). CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Alemán, 1,200–1,400 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Arena, 920–1,100 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, near southern edge of storage lake, 8°44.0'N, 82°14.5'W, 1,215 m, 30 Mar 2009, *Schäfer-Verwimp & Verwimp* 34487/B, 34497/B (JE, Schäfer-Verwimp 2014; Prado and Ilkiu-Borges 2021); Gualaca distrito, Reserva Forestal La Fortuna, Hornito, Sendero Quebrada Alemán, 1,100–1,200 m, 16 Mar 1996, *Reiner-Drehwald* 960068 (GOET, Prado and Ilkiu-Borges 2021). COCLÉ: La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Rio Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López* 662, 672, etc. (PMA, Sierra et al. 2019a). DARIÉN: Cerro Pirre (Stotler et al. 1998); Cerro Pirre, 400–500 m, *Salazar Allen & Gradstein* 9235, 9236 (PMA, Stotler et al. 1998); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992); Cerro Pirre, along trail to Rancho Mojado, 400–500 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992); S. loc. (Schäfer-Verwimp 2014). PANAMA: Panamá distrito, Cerro Jefe (Stotler et al. 1998); Panamá distrito, Cerro Jefe, *Spörle* 5243a (PMA, Spörle 1990); Panamá distrito, Cerro Jefe, along creek of Río San Cristóbal, *Salazar Allen et al.* 5243 (PMA, Stotler et al. 1998); S. loc. (Schäfer-Verwimp 2014).

COCOS I. Cerro Yglesias, 5°32'57"N, 87°03'36"W, 600 m, 22 Jan 1994, *Dauphin* 969, det. G. Dauphin Apr 2021 (USJ-47194!, CR-4468406!, W-0207431! <https://w.jacq.org/W0207431>, this publication); Cerro Yglesias, 5°32'57"N, 87°03'56"W, Apr 1992, *Lücking* 92-250 (hb. Lücking, *Lücking* 1995; *Bernecker-Lücking* 1998b); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 15 Feb 1994, *Dauphin* 969 (CR, USJ, *Dauphin* 1995, 1999, 2005); S. loc., *Soto*, det. G. Dauphin Apr 2021 (USJ-47365!, this publication); Yglesias E, 500–634 m, Apr 1992, *Lücking* 706, 707 (hb. *Bernecker*, *Bernecker-Lücking* 2000).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Cyclolejeunea schaefer-verwimpiae M.L.M.Prado et Ilk.-Borg., *Nova Hedwigia* 113(1/2): 130, 2021 (Prado and Ilkiu-Borges 2021). Holotype: Panama, Chiriquí, Reserva Forestal Fortuna, 8°44.3'N, 82°14.7'W, “epiphytisch, feuchtes Sekundärgebüsch am Ufer des Stausees,” 1,100 m, 31 Mar 2013, *Schäfer-Verwimp & Verwimp* 34520 (JE; isotype: MG).

PANAMA. CHIRIQUÍ: Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°44.3'N, 82°14.7'W, 1,100 m, 30 Mar 2009, *Schäfer-Verwimp & Verwimp* 34520 (JE, MG, Prado and Ilkiu-Borges 2021, TYPE).

Also reported from the Caribbean.

***Cylindrocolea* R.M.Schust., *Bull. Natl. Sci. Mus. Tokyo*, n.s., 12(3): 666, 1904 (Schuster 1969b).**

Cylindrocolea rhizantha (Mont.) R.M.Schust., *Nova Hedwigia* 22: 175, 1972 (Schuster 1971b).

≡*Jungermannia rhizantha* Mont., *Hist. Phys. Cuba, Bot., Pl. Cell.*: 454, 1842 (Montagne 1842b). Type: Cuba.

GUATEMALA. EL PETÉN: San José municipio, El Zotz, *Can et al.* (USCG, Morales 2011).

BELIZE. S. loc. (Fulford and Sharp 1990; Dauphin et al. 1998). COROZAL: Libertad, *Lundell* 2276 (MICH, Fulford 1976); S. loc. (Whittemore and Allen 1996).

†HONDURAS. S. loc. (Schuster 2002). Note: Schuster said that *Cylindrocolea rhizantha* from Honduras and southward may be *Chonecolea*. We do not know of any firsthand report from Honduras.

PANAMA. PANAMA WEST: La Chorrera distrito, Barro Colorado Island, Barbour Point, 9°09'N, 79°51'W, 20–170 m, *Dauphin* 3152 (PMA, Dauphin et al. 2006, 2022); La Chorrera distrito, Barro Colorado Island, Pearson 12, 9°09'N, 79°51'W, 20–170 m, *Dauphin* 3108 (PMA, Dauphin et al. 2006, 2022).

Also reported from Southeastern USA, Mexico, the Caribbean, Western South America, Brazil.

***Dibrachiella* (Spruce) X.Q.Shi, R.L.Zhu et Gradst., *Taxon* 64(5): 888, 2015 (Shi et al. 2015).**

Dibrachiella auberiana (Mont.) X.Q.Shi, R.L.Zhu et Gradst., *Taxon* 64(5): 888, 2015 (Shi et al. 2015).

≡*Lejeunea auberiana* Mont., *Hist. Phys. Cuba, Bot., Pl. Cell.*: 483, 1842 (Montagne 1842b). Type: Cuba.

≡*Archilejeunea auberiana* (Mont.) Steph., *Hedwigia* 29(3): 134, 1890 (Stephani 1890a).

≡*Lejeunea florentissima* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 95, 1884 (Spruce 1884), syn. in Gradstein and Buskes (1985). Type: Peru.

≡*Archilejeunea florentissima* (Spruce) Steph., *Sp. Hepat. (Stephani)* 4: 722, 1911 (Stephani 1911b).

≡*Archilejeunea parviflora* var. *florentissima* (Spruce) Gradst. et Buskes, *Beih. Nova Hedwigia* 80: 104, 1985 (Gradstein and Buskes 1985).

GUATEMALA. EL PETÉN: San Andres municipio, Estación Biológica Las Guacamayas, Laguna del Tigre, *Can et al.* (USCG, Morales 2011 as *Archilejeunea auberiana*).

BELIZE. S. loc. (Fulford 1938 as *Archilejeunea auberiana*).

HONDURAS. S. loc. (Dauphin et al. 1998 as *Archilejeunea auberiana*). ATLÁNTIDA: Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 54428, 55342 p.p., 55558, etc. (Herzog 1951 as *Archilejeunea florentissima*).

NICARAGUA. S. loc. (Ilkiu-Borges 2000 as *Archilejeunea auberiana*; Bastos 2004 as *Archilejeunea auberiana*). ATLÁN-TICO SUR: Escondido River (US, YU, Gradstein 1994 as *Archilejeunea auberiana*); Escondido River, Oct 1982 (YU, Gradstein and Buskes 1985 as *Archilejeunea parviflora* var. *florentissima*).

COSTA RICA. GUANACASTE: Liberia cantón, Rincón de La Vieja National Park, Sector Santa María, “Los Naranjos”

near Provision rivulet, 10°46'20"N, 85°17'15"W, 920 m, *Dauphin* 2300, 2301 (CR, *Dauphin et al.* 1998 as *Archilejeunea auberiana*; *Dauphin* 2005 as *Archilejeunea auberiana*).

PANAMA. Canal Zone (Schäfer-Verwimp 2014 as *Archilejeunea auberiana*); S. loc. (Dauphin et al. 1998 as *Archilejeunea auberiana*). COCLÉ: Antón distrito, El Valle de Antón, ascent to "India Dormida," 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, *Schäfer-Verwimp & Verwimp* 34137 (JE, *Schäfer-Verwimp* 2014 as *Archilejeunea auberiana*). PANAMA WEST: La Chorrera distrito, Barro Colorado Island, *Salazar Allen & Gradstein* 15099 (PMA, *Stotler et al.* 1998 as *Archilejeunea auberiana*; *Dauphin et al.* 2022). VERAGUAS: Santa Fe distrito, base of Cerro Tute, 8°30'N, 81°06'W, 710–890 m, 26 Mar 2009, *Schäfer-Verwimp & Verwimp* 34288 (JE, *Schäfer-Verwimp* 2014 as *Archilejeunea auberiana*); Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, *Schäfer-Verwimp & Verwimp* 30813 (JE, *Schäfer-Verwimp* 2014 as *Archilejeunea auberiana*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Dibrachiella parviflora (Nees) X.Q.Shi, R.L.Zhu et Gradst., *Taxon* 64(5): 889, 2015 (Shi et al. 2015).

≡ *Jungermannia parviflora* Nees, *Fl. Bras. (Martius)* 1(1): 353, 1833 (Nees 1833b). Type: Brazil.

≡ *Archilejeunea parviflora* (Nees) Steph., *Hedwigia* 29(3): 134, 1890 (Stephani 1890a).

≡ *Jungermannia lepreurii* Mont., *Ann. Sci. Nat., Bot.*, ser. 2, 3: 213, 1835 (Montagne 1835), syn. fide Gradstein and Buskes (1985). Type: French Guiana.

≡ *Archilejeunea lepreurii* (Mont.) Schiffn., *Hepat. (Engl.-Prantl)*: 130, 1893 (Schiffner 1893a).

≡ *Archilejeunea viridissima* (Lindenb.) Steph. f. *multiflora* Herzog ex Standl., *Field Mus. Nat. Hist., Bot. Ser.* 10: 62, 1931 (Standley 1931), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Honduras, Lancetilla Valley, *Standley s.n.* (no specimen corresponding to this name has been found).

GUATEMALA. IZABAL: Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007 as *Archilejeunea parviflora*).

*BELIZE. *TOLEDO: Punta Gorda, Oct 1932, *White* 20, det. *Dauphin* Jun 2017 (MO-5375138! <http://tropicos.org/specimen/101411619>, this publication).

HONDURAS. S. loc. (Ilkui-Borges 2000 as *Archilejeunea parviflora*; Oliveira-e-Silva and Yano 2000 as *Archilejeunea parviflora*). ATLÁNTIDA: Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 55342 (JE, *Gradstein* 1994 as *Archilejeunea parviflora*); Tela municipio, Lancetilla Valley, *Standley* (Standley 1931 as *Archilejeunea viridissima* f. *multiflora*).

COSTA RICA. S. loc. (Cole 1982, 1983, both as *Archilejeunea lepreurii*). PUNTARENAS: Coto Brus cantón, Las Cruces, Jardín Botánico Wilson, *Dauphin* 2018 (CR, *Dauphin* 2005 as *Archilejeunea parviflora* var. *parviflora*); Monteverde (Morales 1991 as *Archilejeunea parviflora* var. *parviflora*); Monteverde,

1,100 m, 11 Mar 1965, *James, W. & James, M.* 100 (R, MO-6168484, *Reed and Robinson* 1971 as *Archilejeunea lepreurii*; *Dauphin* 2005 as *Archilejeunea parviflora* var. *parviflora*); Osa, *Gradstein & Dauphin* 9370 (GOET, *Wilson et al.* 2007 as *Archilejeunea parviflora*; *Feldberg et al.* 2014 as *Archilejeunea parviflora*; *Wang et al.* 2014 as *Archilejeunea parviflora*, 2016; *Shi et al.* 2015 as *Archilejeunea parviflora*).

PANAMA. S. loc. (Oliveira-e-Silva and Yano 2000 as *Archilejeunea parviflora*). CHIRIQUÍ: Tierras Altas distrito, Parque Nacional Volcán Barú, Paso Ancho, 8°48'55.13"N, 82°34'33.50"W, 2,047 m, *Guerra Batista et al.* (UCH, *Guerra et al.* 2020 as *Archilejeunea parviflora*). DARIÉN: Base of Cerro Pirre, *Salazar Allen & Gradstein* 9227 (PMA, U, *Gradstein* 1994 as *Archilejeunea parviflora*; *Stotler et al.* 1998 as *Archilejeunea parviflora*); Cerro Pirre (Stotler et al. 1998 as *Archilejeunea parviflora*); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992 as *Archilejeunea parviflora*); Cerro Pirre, around INRENARE field station, ~100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992 as *Archilejeunea parviflora*). PANAMA WEST: Capira distrito, Parque Nacional Altos de Campana, Sendero de Interpretación, 1 km E del campamento de los guardabosques del INRENARE, 8°40'N, 79°55'W, 800–900 m, 7 Apr 1989, *Lara et al.* 1459 (PMA, *Dauphin et al.* 2006 as *Archilejeunea parviflora*); La Chorrera distrito, Barro Colorado Island, *Chung & Aranda* 238, 243 (PMA, NY, *Gradstein* 1994 as *Archilejeunea parviflora*; *Stotler et al.* 1998 as *Archilejeunea parviflora*; *Dauphin et al.* 2022); La Chorrera distrito, Barro Colorado Island, *Gradstein & Salazar Allen* 15109 (*Dauphin et al.* 2022); La Chorrera distrito, Barro Colorado Island, Barbour 27–28, *Salazar Allen* 4424b (*Dauphin et al.* 2022); La Chorrera distrito, Barro Colorado Island, Basilisk Bay, 2003, *Dauphin* 3160 (CR, PMA, *Dauphin et al.* 2022); La Chorrera distrito, Barro Colorado Island, Sendero T. Barbour 27–28, *Salazar Allen* 4424, 4426 (PMA, *Stotler et al.* 1998 as *Archilejeunea parviflora*; *Dauphin et al.* 2022); La Chorrera distrito, Barro Colorado, Lathrop-Barbour, 2003, *Dauphin* 3100 (CR, PMA, *Dauphin et al.* 2022); La Chorrera distrito, Barro Colorado, Snyder-Molino, 2003, *Dauphin* 3059 (CR, PMA, *Dauphin et al.* 2022).

*COCOS I. Fila entre Bahía Wafer y Chatham, sendero hacia Cerro Yglesias, sobre ladera hacia Valle de los Piratas, Cuenca del Río Minuta, 5°32'56.9"N, 87°03'28.3"W, 251 m, *Es-trada et al.* 6140, det. G. *Dauphin* May 2021 (CR-4468344!, this publication).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

***Dicranolejeunea* (Spruce) Schiffn., *Hepat. (Engl.-Prantl)*: 128, 1893 (Schiffner 1893a).**

Dicranolejeunea axillaris (Nees et Mont.) Schiffn., *Hepat. (Engl.-Prantl)*: 128, 1893 (Schiffner 1893a).

=*Lejeunea axillaris* Nees et Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 5: 59, 1836 (Nees and Montagne 1836). Type: Peru.

=*Dicranolejeunea longissima* Steph., *Sp. Hepat. (Stephani)* 5: 161, 1912 (Stephani 1912a), syn. fide Kruijt (1985). Lectotype (Bonner 1965: 29; see also Kruijt 1988: 48 as “holotype”): Costa Rica, Cartago, 1,500 m, May 1900, C. Wercklé s.n., hb. Levier 6233 (G-00060875 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=114961&lang=en>, isoelectotype NY-1041822 <https://sweetgum.nybg.org/science/vh/specimen-details/?irn=1179538>).

=*Brachiolejeunea acuta* S.Winkl., *Rev. Bryol. Lichénol.* 35(1/4): 316, 1968 (Winkler 1967), syn. nov. Type: El Salvador, Santa Ana, Cerro Miramundo, 23 May 1962, Winkler B/6/c/8 (material not available fide Gradstein 1994). Note: Van Slageren (1985b) could not examine the type, but he suggested that it should be excluded from *Brachiolejeunea* based on the description. Gradstein (pers. comm.) placed it in synonymy with *Dicranolejeunea axillaris*, and it is here published as a new synonymy with his approval.

GUATEMALA. S. loc. (Ellis et al. 2019b). **ALTA VERA-PAZ:** Camino a Tactic-Tamahu, *Standley* 71077, 71126 (NY, US, Kruijt 1988; Gradstein 1994; Freire 2006); Cobán, O'Sharin (NY, Kruijt 1988); S. loc., *Türckheim* 1344 (B-24534, BM, G-22644, NY, YU, Kruijt 1988; Gradstein 1994; Freire 2006; Pérez 2009); S. loc., *Türckheim* (G, Kruijt 1988); Tucurú municipio, Reserva Privada Chelemhá (Pérez 2006). ***HUEHUETENANGO:** San Mateo Ixtatán municipio, N of San Mateo Ixtatán, 15°51'45.1"N, 91°30'52.1"W, 2,800 m, 11 Apr 2007, *Laeger et al.* 3701, det. Dauphin Jun 2017 (MO-6160442!, [this publication](http://tropicos.org/specimen/100366012)).

***HONDURAS.** ***COMAYAGUA:** Meambar municipio, Quebrada Agua Helada, above San José, de los Planes, ~15 km E of Lake Yojoa, 14°47'N, 87°51'W, 9 Mar 1993, *Allen* 13683, det. Whittemore 1996 (MO-4428491! <http://tropicos.org/specimen/90040025>, [this publication](http://tropicos.org/specimen/101213065)). ***OLANCHO:** La Unión municipio, La Muralla Biological Reserve, 15°05'N, 86°44'W, 5 Jun 1992, *Allen* 12850, det. Whittemore 1992 (MO-3964983! <http://tropicos.org/specimen/101213065>, [this publication](http://tropicos.org/specimen/100369450)).

EL SALVADOR. S. loc. (Ellis et al. 2019b). **AHUACHAPÁN:** Apaneca municipio, laguna Las Ninfas, Feb 1969, *Brinson*, det. FLAS, U (Gradstein 1994). **SAN SALVADOR:** S. loc., *Mabille* (MANCH, Kruijt 1988; Gradstein 1994). **SANTA ANA:** Metapán municipio, Montecristo, calle a Los Planes, 12 Nov 2014, *Búcaro* H309, det. Dauphin (MHES!, [this publication](http://tropicos.org/specimen/100366012)); Metapán municipio, Montecristo, calle a Los Planes, 12 Nov 2014, *Búcaro* H321 (MHES!, [this publication](http://tropicos.org/specimen/100366012)); Metapán municipio, Montecristo, Calle Los Planes, 12 Nov 2014, *Búcaro* H313, det. Dauphin (MHES!, [this publication](http://tropicos.org/specimen/100366012)); Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler* A/32/8/5, A/32/γ/1 (Winkler 1967 as *Brachiolejeunea acuta*); Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, 2,350 m, 23 May 1962, *Winkler* B/6/c/8 (TUB, TYPE of *Brachiolejeunea acuta*, Winkler 1967 as *Brachiolejeunea acuta*; Bonner 1977 as *Brachiolejeunea acuta*).

***NICARAGUA.** ***ESTELÍ:** Estelí municipio, Cerro Quiabú (Cerro Las Brisas), 13°06'N, 86°25'W, 24 Nov 1979, *Stevens & Grijalva* 16294, det. Dauphin Jun 1917 (MO-6236097!

<http://tropicos.org/specimen/100366012>, [this publication](http://tropicos.org/specimen/100369450)). ***GRANADA:** Granada municipio, W slope of Volcán Mombacho, 11°49–50'N, 85°58'W, 1 Oct 1977, *Stevens* 4387, det. Whittemore 1989 (MO-3669088! <http://tropicos.org/specimen/100200767>, [this publication](http://tropicos.org/specimen/100369450)). ***MATAGALPA:** La Dalia municipio, Macizos de Peñas Blancas, SE side, drainage of Quebrada el Quebradon, slopes N and W of Hacienda San Sebastian, 13°14'00"N, 85°38'00"W, 10–21 Jan 1982, *Stevens et al.* 21413 p.p., det. Dauphin May 2017 (MO-6699903!, [this publication](http://tropicos.org/specimen/100369450)); La Dalia municipio, Macizos de Peñas Blancas, SE side, drainage of Quebrada el Quebradon, slopes N and W of Hacienda San Sebastian, 13°14'00"N, 85°38'00"W, 10–21 Jan 1982, *Stevens et al.* 2145, det. Dauphin May 2017 (MO-6230308!, [this publication](http://tropicos.org/specimen/100369450)); La Dalia municipio, Macizos de Peñas Blancas, SE side, drainage of Quebrada el Quebradon, slopes N and W of Hacienda San Sebastian, 13°14–15'00"N, 85°38'00"W, 20–21 Jan 1982, *Stevens et al.* 21414, det. Dauphin May 2017 (MO-6230307! <http://tropicos.org/specimen/100369450>, [this publication](http://tropicos.org/specimen/100369450)).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Stephani 1912a as *Dicranolejeunea longissima*; Ellis et al. 2019b); S. loc., *Heinrichs et al.* AHH-0077 (Groth-Maloney et al. 2004); S. loc., *Oersted* (S-B58739, G-00282693, Kruijt 1988); S. loc., *Pittier* (Kruijt 1988). **ALAJUELA:** San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 3 Nov 2010, *Castillo* 57 (UC, Norris et al. 2017). **CARTAGO:** Alvarado cantón, Coliblanco, *Maxon* 347 (NY, YU, Kruijt 1988; Gradstein 1994); La Estrella, *Standley* 39379 p.p. (Herzog 1951; Morales 1991; Gradstein 1994; Dauphin 2005); Paraíso cantón, Oroquieta, *Standley* 39628 (Herzog 1951; Morales 1991; Dauphin 2005); Paraíso cantón, Tapanti National Park, *Griffin & Eakin* 247 (FLAS, U, van Slageren and Berendsen 1985; Kruijt 1988; Morales 1991; Gradstein 1994; Dauphin 2005); Paraíso cantón, Tapanti National Park, *Griffin & Eakin* 297 (FLAS, Morales 1991; Dauphin 2005); S. loc., May 1900, *Wercklé* 6244 (Kruijt 1988); S. loc., 1,500 m, May 1900, *Wercklé*, det. G-00060875 (G, TYPE of *Dicranolejeunea longissima*, Bonner 1965 as *Dicranolejeunea longissima*; Kruijt 1988). **PUNTARENAS:** Buenos Aires cantón, Dúrika, *Quesada* 1244 (CR, Dauphin 2005); Coto Brus cantón Las Cruces garden, ~4 km SSE of San Vito, Dec 1978, *Sipman* 11822, 11935 (U, Kruijt 1988); Coto Brus cantón, Fila Cruces, *Dauphin* 2052 (CR, Dauphin 2005); Coto Brus cantón, Las Cruces, *Gómez-Pignataro* 25389, det. Whittemore Apr 1989 (MO-3665341!, [this publication](http://tropicos.org/specimen/100369450)); Coto Brus cantón, near San Vito, *Sipman* 11822, 11935 (U, Gradstein 1994); Coto Brus cantón, Parque Internacional La Amistad, *Pittier*, *Dauphin* 1604 (CR, Dauphin 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde, 20 Jan 1971, *James*, W. 1971-21, det. Dauphin Jun 2017 (MO-6169715!, [this publication](http://tropicos.org/specimen/100369450)); S. loc. (Merwin et al. 2001). **SAN JOSÉ:** Alajuelita cantón, La Verbena, *Tonduz* 15631 (B, NY, Kruijt 1988; Gradstein 1994); Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, Chacón

Holiday Camp to waterfall, *Holz & Schäfer-Verwimp* CR 99-1171 (Schäfer-Verwimp 2001); Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, San Gerardo (Dauphin 2005); Tarrazú cantón, La Palma Forest, *Pittier* 6008 (Stephani 1893c; Morales 1991; Dauphin 2005).

PANAMA. S. loc. (Ellis et al. 2019b); S. loc., 1906, *Hélion* (PC, Kruijt 1988; Stotler et al. 1998). CHIRIQUÍ: David, *Hélion* 119 (G, Gradstein 1994; Stotler et al. 1998); David, *Hélion* 434 (G-22640, Kruijt 1988; Gradstein 1994; Stotler et al. 1998); S. loc., *Hélion* 119 bis (G-22639, Kruijt 1988; Stotler et al. 1998); Tierras Altas distrito, Cerro Punta, *Salazar Allen* 5253 (PMA, U, Gradstein 1994; Stotler et al. 1998); Tierras Altas distrito, Cerro Punta, on route to Las Nubes, 1,500 m, *Salazar Allen* 515 (PMA, Stotler et al. 1998); Tierras Altas distrito, Parque Nacional Volcán Barú, Paso Ancho, 8°48'55.13"N, 82°34'33.50"W, 2,047 m, *Guerra Batista et al.* (UCH, Guerra et al. 2020); Barú Volcano National Park (Rodríguez-Quiel et al. 2022).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

***Diplasiolejeunea* (Spruce) Schiffn., Hepat. (Engl.-Prantl): 121, 1893 (Schiffner 1893a).**

Diplasiolejeunea alata Jovet-Ast, *Rev. Bryol. Lichénol.* 17(1/4): 31, 1949 (Jovet-Ast 1948). Type: Guadeloupe.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotope Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

EL SALVADOR. S. loc. (Schäfer-Verwimp 1992, 1999, 2004). SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler* B/6/d/4 (Winkler 1967).

COSTA RICA. S. loc. (León et al. 1998; Schäfer-Verwimp 1999, 2004, 2014; Rico and Pócs 2004; Schäfer-Verwimp and Pócs 2009; Schäfer-Verwimp and Reiner-Drehwald 2009). ALAJUELA: Alajuela cantón, between Vara Blanca and Poás Volcano, 31 Jan 1985, *Eggers* CR 1/200 (Pócs 2006a); Poás, 1,950 m, *Eggers* (hb. Eggers, Eggers 2001). CARTAGO: Cerro de la Muerte, *Morales* 2198 (USJ, Morales 1991; Dauphin 2005); Paraíso cantón, Orosi, Tapantí National Park, *Morales* 2182 (USJ, Morales 1991; Dauphin 2005); Paraíso cantón, Refugio de Fauna Silvestre de Tapantí, 1,400 m (Eggers 2001); S. loc., 2,460 m, *Schäfer-Verwimp & Holz* SV/H-0422 (GOET, Dong et al. 2012). HEREDIA: San Isidro cantón, Yerba Buena (JE, Reyes 1982). PUNTARENAS: Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a); S. loc. (Merwin et al. 2001). SAN JOSÉ: Dota cantón, Los Robles, 2,400 m, 4 Jan 2000, *Schäfer-Verwimp & Holz* SV/H-0486/E (EGR, CR, JE, Schäfer-Verwimp 2001); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 2,600–3,000 m (Eggers 2001).

PANAMA. BOCAS DEL TORO: S. loc. (Schäfer-Verwimp 2014). CHIRIQUÍ: Boquete distrito, Bajo Mono, along Rio

Caldera, 8°50.5'N, 82°28.9'W, 1,670–1,745 m, 5 Apr 2006, *Schäfer-Verwimp & Verwimp* 30956 (JE, Schäfer-Verwimp 2014); S. loc., 1,740 m, *Schäfer-Verwimp et al.* 30956 (GOET, Dong et al. 2012). NASO TJÉR DI COMARCA: Cerro Fábrega, *Gue-rrero* 150 (PMA, Dauphin 2007).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Diplasiolejeunea brunnea Steph., *Sp. Hepat. (Stephani)* 5: 922, 1916 (Stephani 1916a). Lectotype (Bonner 1965: 40; see also Tixier 1985: 392 as “holotype”) or possibly holotype: Guatemala, Alta Verapaz, Cobán, *Türckheim* s.n., hb. Levier 5826 p.p. (G-00060874 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=114651&lang=en>).

=*Diplasiolejeunea galloana* Jovet-Ast., *Rev. Bryol. Lichénol.* 25(3/4): 277, 1956 (Jovet-Ast 1956), syn. fide Tixier (1985). Type: Guadeloupe.

GUATEMALA. S. loc. (Stephani 1916a; Jovet-Ast 1956, 1960; Fulford and Sharp 1990; Lücking 1995; Oliveira-e-Silva and Yano 2000). ALTA VERAPAZ: Cobán, *Türckheim*, hb. Levier 5826 p.p. (G-16494A, TYPE, Bonner 1965; Reyes 1982; Tixier 1985; Lücking 1995); Cobán, 1,650 m, Jun 1908, *Türckheim*, hb. Levier 6078 (G-00061198 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=121330&lang=en>), NY, Reyes 1982); Laguna Sapalá, *Steyermark* 44935 (F, Reyes 1982); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). HUEHUETENANGO: S. loc., Pérez 1679 (USCG, Pérez 2009). IZABAL: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008).

BELIZE. CAYO: Blue Hole National Park, 100–200 m, 1996, *Eggers* BEZ 3/6 (O'Shea et al. 1997); Mountain Pine Ridge, Cave Rio Frio, 600 m, 1996, *Eggers* BEZ 2/33 (O'Shea et al. 1997). ORANGE WALK: Rio Bravo Reserve, 1996, *Eggers* BEZ 4/11 (O'Shea et al. 1997). STANN CREEK: Cockscombe Reserve, 1996, *Eggers* BEZ 5/8 (hb. Eggers, O'Shea et al. 1997); Cockscombe Reserve, 17 Mar 1996, *Eggers* BEZ 5/24 (Eggers et al. 2001 as admixture to *Cololejeunea guadelupensis*).

HONDURAS. S. loc. (Lücking 1995; Oliveira-e-Silva and Yano 2000); S. loc., *Standley* 18594 (FH, Reyes 1982). ATLÁNTIDA: Tela municipio, Lancetilla Valley, *Standley* 56875a (S, Tixier 1985); Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 56876 (JE, Reyes 1982 as *Diplasiolejeunea galloana*).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Lücking et al. 2010). CARTAGO: Turrialba cantón, Guayabo, 1,100 m, *Eggers* (hb. Eggers, Eggers 2001); Turrialba cantón, Valle Río Tuis, *Tonduz* 6229, 15566, 15569 (FH, Reyes 1982; Morales 1991; Dauphin 2005). GUANACASTE: Tenorio, 500 m, *Eggers* (hb. Eggers, Eggers 2001). HEREDIA: S. loc., *Standley* 49709 (JE, Morales 1991 as *Diplasiolejeunea galloana*; Dauphin 2005 as *Diplasiolejeunea galloana*); San Isidro cantón, Yerba Buena, 22–28 Feb 1926, *Standley* 49709a (JE, Reyes 1982 as *Diplasiolejeunea galloana*); Sarapiquí cantón, La Selva, *Morales* 2242 (USJ, Morales 1991 as *Diplasiolejeunea galloana*; Dauphin 2005 as *Diplasiolejeunea galloana*). LIMÓN: Braulio Carrillo National Park, 400–500 m

(Eggers 2001); Guácimo cantón, Jalova, southern border of the Tortuguero National Park, 2 m, 19 Feb 1985, *Eggers* CR 12/7 (*Eggers et al.* 2001 in specimen of *Cololejeunea guadelupensis*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 92-115, 92-484, 92-515, 92-538, 92-539, 92-590 (hb. *Lücking*, CR, *Lücking* 1995; *Dauphin* 2005); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (Lücking 1997); Pococí cantón, Cariari, El Carmen, Estación Biológica El Zota, 10°34'N, 83°45'W, *Egremy* 329, det. *Dauphin* (CR, *Dauphin* 2005); Pococí cantón, Tortuguero, 1–5 m, *Eggers* (hb. *Eggers*, *Eggers* 2001). PUNTARENAS: Golfito cantón, Esquinas, <100 m, *Eggers* (hb. *Eggers*, *Eggers* 2001); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (*Sonnleitner et al.* 2009); Golfo Dulce (*Eggers* 2001); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a); Osa cantón, Dominical, 20 m, *Eggers* (hb. *Eggers*, *Eggers* 2001); Osa cantón, Santo Domingo de Golfo Dulce, *Pittier* 15603 (NY, FI, *Reyes* 1982; *Morales* 1991; *Dauphin* 2005). SAN JOSÉ: Acosta cantón, El Cornelio, *Dauphin et al.* 2945 p.p., det. *Ilkui-Borges* (NY, *Dauphin* 2005); Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, *Holz et al.* 2002); Dota cantón, San Gerardo (*Dauphin* 2005); Pérez Zeledón cantón, Quizarra near San Isidro, 700 m, *Eggers* (hb. *Eggers*, *Eggers* 2001).

PANAMA. S. loc. (*Lücking* 1995; *Oliveira-e-Silva and Yano* 2000). *BOCAS DEL TORO: Bocas del Toro distrito, Bastimentos, Salt Creek, Sendero a Long Beach, 9.29456°N, 82.10303°W, 70 m, 16 Aug 2017, *Gudiño & Salazar Allen* 3364, det. *Gudiño* Aug 2017 (PMA, this publication). CHIRIQUÍ: Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,870–2,260 m, 6 Apr 2006, *Schäfer-Verwimp & Verwimp* 30982/B (JE, *Schäfer-Verwimp* 2014); Boquete distrito, Bajo Mono, along Río Caldera, 8°50.5'N, 82°28.9'W, 1,670–1,745 m, 5 Apr 2006, *Schäfer-Verwimp & Verwimp* 30936/B (JE, *Schäfer-Verwimp* 2014); Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, *Schäfer-Verwimp & Verwimp* 34561 (JE, *Schäfer-Verwimp* 2014); Tierras Altas distrito, Parque Internacional La Amistad, Las Nubes, sendero Panamá Verde, 8°53'37.4"N, 82°38'52.5"W, 2,218 m, Sep 2015–Jul 2016, *Guerra-Batista et al.* (*Guerra-Batista et al.* 2020). COCLÉ: Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 700–1,000 m, 31 Mar 2006, *Schäfer-Verwimp & Verwimp* 30768 (JE, *Schäfer-Verwimp* 2014); Antón distrito, El Valle de Antón, Alto de La Mesa, 8°38'N, 80°07'W, 800–850 m, 30 Mar 2006, *Schäfer-Verwimp & Verwimp* 30746 (JE, *Schäfer-Verwimp* 2014); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Río Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López* 685, 752, 823 (PMA, *Sierra et al.* 2019a). DARIÉN: Cerro

Pirre (*Stotler et al.* 1998); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992); S. loc. (*Schäfer-Verwimp* 2014). PANAMA WEST: La Chorrera distrito, Barro Colorado Island, *Mežaka et al.* (PMA, *Mežaka et al.* 2020); La Chorrera distrito, Barro Colorado Island, 11 Sep 1953, *Heim* (PC, *Tixier* 1985); La Chorrera distrito, Barro Colorado, Fuertes Cove, 2003, *Dauphin* 3110 3114 (CR, PMA, *Dauphin et al.* 2022).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Diplasiolejeunea cavifolia Steph., *Sp. Hepat. (Stephani)* 5: 918, 1916 (*Stephani* 1916a), nom. nov. pro *Lejeunea cavifolia* Steph., *Bot. Jahrb. Syst.* 8(2): 89, 1886 (*Stephani* 1886a), nom. illeg. (ICN2018 Art. 53.1 [hom. illeg., non (*Ehrh.*) *Lindb.* 1871]). Type: São Tomé.

=*Diplasiolejeunea brachyclada* A. Evans, *Bull. Torrey Bot. Club* 39(5): 216, 1912 (Evans 1912a), syn. fide *Grolle* (1972b). Type: Puerto Rico.

=*Diplasiolejeunea robertiana* A. Lücking, *Diversit. Mikroh. Epiphyll* Moose: 84, 1995 (*Lücking* 1995), nom. inval. (ICN2018 Art. 30.9; published in a thesis), syn. fide *Eggers* (2001). Original material: Costa Rica, Limon: Braulio Carrillo National Park, Botarrama Naturpfad, auf *Ctenitis subincisa*, 92-509; same location, auf *Salpichlaena volubilis*, 92-383; same location, auf *Heliconia* sp., 92-39; same location, auf *Welfia georgii*, 92-244, 92-588; same location, auf *Calyptrogyna condensata*, 92-422; same location, auf *Dieffenbachia longispatha*, 92-516; same location, auf *Ocotea atirrensis*, 92-540.

GUATEMALA. S. loc. (*Grolle* 1966b as *Diplasiolejeunea brachyclada*; *Miller et al.* 1983). ALTA VERAPAZ: Cobán municipio, Dampine, 1,260–1,440 m, *Standley* 69372 (NY, F, *Reyes* 1982); Cobán, 1,550 m, *Türkheim* 5074 (FI, *Reyes* 1982); Panzós municipio, Cahabón and/or Senahú, 2012, *Pérez & López-Medina*, det. M. Pérez (*Pérez and López-Medina* 2012); S. loc., 350 m, *Türkheim* 5068b (FI, *Reyes* 1982); S. loc., 2007, *Pérez*, det. Pérez (USCG, *Barillas de Klee et al.* 2008); Tactic, 500 m, *Standley* 7005 (F, *Reyes* 1982); Tukurú municipio, Chelémhá, 15°22'32"N, 90°05'05"W, 2,300–2,500 m, *Pérez* 305 (USCG, *Pérez* 2009); Tukurú municipio, Reserva Privada Chelémhá (*Pérez* 2006 as *Diplasiolejeunea* cf. *cavifolia*). IZABAL: Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007).

BELIZE. CAYO: Blue Hole National Park, 100–200 m, 1996, *Eggers & Timm* BEZ 3/18, det. *Eggers* (*Eggers et al.* 2004).

EL SALVADOR. SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler* B/4h/1 (*Winkler* 1967 as *Diplasiolejeunea brachyclada*).

*NICARAGUA. *ATLÁNTICO SUR: Nueva Guinea municipio, road to Colonia Yolaina, 11°40'N, 84°26'W, 180–200 m, 11–12 Feb 1978, *Stevens* 6378, det. *Dauphin* May 2017 (MO-5238576! <http://tropicos.org/specimen/90108678>, this publication).

COSTA RICA. Cordillera de Talamanca (*Holz* 2003; *Holz and Gradstein* 2005b); S. loc. (*Cole* 1982, 1983, both also as

Diplasiolejeunea brachyclada); S. loc., *Schäfer-Verwimp & Holz SV/H-0473/B* (Wilson et al. 2007). **ALAJUELA**: Poás, 1,950 m, Eggers (hb. Eggers, Eggers 2001). **CARTAGO**: Paraíso cantón, Orosi, Tapantí National Park, Morales 2113, 2249, 2253 (USJ, Morales 1991; Dauphin 2005); Turrialba cantón, Guayabo, 1,100 m, Eggers (hb. Eggers, Eggers 2001). **HEREDIA**: San Miguel de Sarapiquí, 850 m, 30 Jan 1985, Eggers (hb. Eggers, Eggers 2001); Sarapiquí cantón, Caribbean slope 5 km above San Miguel, 850 m, 30 Jan 1985, Eggers CR 2/70, det. Pócs (EGR, Eggers et al. 2001). **LIMÓN**: Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, Lücking 92-39, 92-244, 92-383, etc. (hb. Lücking, Lücking 1995 as *Diplasiolejeunea robertiana*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, Lücking (Lücking 1997 as *Diplasiolejeunea robertiana*). **PUNTARENAS**: Golfito cantón, Esquinas, <100 m, Eggers (hb. Eggers, Eggers 2001); Monteverde (Morales 1991); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde, 1,600 m, Eggers (hb. Eggers, Eggers 2001); Monteverde, James, J. (US, REED, F, Morales 1991); Monteverde, James (F, Reyes 1982); Monteverde, 15 Jan 1965, James, W. 40c, det. Robinson (R, MO-5355415, Reed and Robinson 1971 as *Diplasiolejeunea brachyclada*; Dauphin 2005); Monteverde, 15 Jan 1965, James, W. 41c, det. Robinson (R, MO-5266352, Reed and Robinson 1971 as *Diplasiolejeunea brachyclada*; Dauphin 2005); Monteverde, 15 Jan 1965, James, W. 40h (R, Reed and Robinson 1971 as *Diplasiolejeunea brachyclada*; Dauphin 2005); S. loc. (Merwin et al. 2001). **SAN JOSÉ**: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, Chacón Holiday Camp to waterfall, Holz & Schäfer-Verwimp CR 99-1171 (Schäfer-Verwimp 2001); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, Los Robles, 4 Jan 2000, Schäfer-Verwimp & Holz SV/H-0473/C (Schäfer-Verwimp 2001); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,000 m, Eggers (hb. Eggers, Eggers 2001); Pérez Zeledón cantón, Cordillera de Talamanca, Quizarra east of San Isidro El General, ~700 m, 12 Jul 1985, Eggers CR 7/12 (Eggers et al. 2001); Pérez Zeledón cantón, Quizarra near San Isidro, 700 m, Eggers (hb. Eggers, Eggers 2001).

PANAMA. S. loc. (Eggers et al. 2004); S. loc., 970 m, *Schäfer-Verwimp & Verwimp* 30738 (GOET, Dong et al. 2012). **CHIRIQUÍ**: Boquete distrito, Bajo Mono, along Rio Caldera, 8°50.5'N, 82°28.9'W, 1,670–1,745 m, 5 Apr 2006, *Schäfer-Verwimp & Verwimp* 30932, 30951, 30963 (JE, Schäfer-Verwimp 2014); Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quijada del Diablo, 1,200–1,600 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°41.4'N, 82°13.7'W, 1,280 m, 30 Mar 2009, *Schäfer-Verwimp & Verwimp* 34469/A, 34509/A, 34515, 34524/A (JE, Schäfer-Verwimp 2014); Gualaca distrito, Reserva

Forestal Fortuna along road from Chiriquí to Chiriquí Grande, near southern edge of storage lake, 8°44.0'N, 82°14.5'W, 1,215 m, 30 Mar 2009, *Schäfer-Verwimp & Verwimp* 34489/A, 34505 (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Parque Internacional La Amistad, Las Nubes, sendero Panamá Verde, 8°53'37.4"N, 82°38'52.5"W, 2,218 m, Sep 2015–Jul 2016, Guerra-Batista et al. (Guerra-Batista et al. 2020). **COCLÉ**: Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 700–1,000 m, 31 Mar 2006, *Schäfer-Verwimp & Verwimp* 30791 (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, 8°38.3'N, 82°07.6'W, 850–870 m, 3 Apr 2009, *Schäfer-Verwimp & Verwimp* 30755, 34734/A, 34735/A (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, *Schäfer-Verwimp & Verwimp* 34150, 34152, 34160/B, 34170/A (JE, Schäfer-Verwimp 2014); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Rio Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, Sierra & López 672 680, 683 p.p., etc. (PMA, Sierra et al. 2019a). **DARIÉN**: Cerro Pirre (Stotler et al. 1998); Cerro Pirre, 100 m, Salazar Allen & Gradstein 9253 (PMA, Stotler et al. 1998); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, Gradstein & Salazar Allen (PMA, U, Gradstein and Salazar Allen 1992); S. loc. (Schäfer-Verwimp 2014). **PANAMA**: Panamá distrito, Cerro Jefe, along unpaved road, 9°13.4–5'N, 79°22.7–9'W, 750–1,000 m, 28 Mar 1906, *Schäfer-Verwimp & Verwimp* 30722/A, 30731, 30738 (JE, Schäfer-Verwimp 2014); Panamá distrito, River Chagres between junction with River Pequeni and Indio, 5 Dec 1934, Steyermark & Allen 16809 p.p., det. Dauphin Jun 2017 (MO-6699929!, this publication). **VERAGUAS**: Santa Fe distrito, between the village and Alto de Piedra, 8°31'N, 81°06'W, 635–600 m, 27 Mar 2009, *Schäfer-Verwimp & Verwimp* 34331 (JE, Schäfer-Verwimp 2014); Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, *Schäfer-Verwimp & Verwimp* 30802/A, 30809, 30820, etc. (JE, Schäfer-Verwimp 2014).

Also reported from West Tropical Africa, West-Central Tropical Africa, East Tropical Africa, Southern Africa, Western Indian Ocean, China, Eastern Asia, Indian Subcontinent, Indo-China, Malaysia, Papuaasia, Australia, Southwestern Pacific, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Diplasiolejeunea cubensis Tixier, *Bryophyt. Biblioth.* 27: 389, 1985 (Tixier 1985). Type: Cuba.

PANAMA. **CHIRIQUÍ**: Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, *Schäfer-Verwimp & Verwimp* 34573 p.p. (JE, Schäfer-Verwimp 2014). **COCLÉ**: Antón distrito, El Valle de Antón, Cerro Gaital, 8°37.4–8'N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34262/D (JE, Schäfer-Verwimp 2014).

Also reported from the Caribbean.

Diplasiolejeunea eggersii Pócs, *Bryologist* 109(3): 408, 2006 (Pócs 2006a). Holotype: Costa Rica, Alajuela, Cordillera Central, between Vara Blanca and Poás Volcano, pastures with scattered trees, at 1,970 m, epiphyllous, accompanied by *Diplasiolejeunea alata*, *Microlejeunea bullata*, *Lejeunea flava*, *Drepanolejeunea lichenicola*, *D. inchoata*, *Metzgeria* sp., etc., 31 Jan 1985, Eggers CR 1/200 (EGR, isotype hb. Eggers).

≡ *Diplasiolejeunea costaricensis* J. Eggers, *Trop. Bryol.* 20: 114, 2001 (Eggers 2001), nom. inval. (ICN2018 Art. 38.1(a); no description).

COSTA RICA. S. loc. (von Konrat et al. 2010; Schäfer-Verwimp 2014). **ALAJUELA:** Alajuela cantón, between Varoka Blanca and Poás Volcano, 1,600–1,970 m, 30 Jan 1981, Eggers CR 1/200 (EGR, hb. Eggers, Pócs 2006a; Söderström et al. 2012a as *Diplasiolejeunea costaricensis*); Poás, 1,950 m, Eggers (hb. Eggers, Eggers 2001 as *Diplasiolejeunea costaricensis*). **SAN JOSÉ:** S. loc., 1,600 m, Schäfer-Verwimp & Holz SV/H-0238 (GOET, Dong et al. 2012; Renner and de Lange 2020).

PANAMA. **CHIRIQUÍ:** Boquete distrito, Bajo Mono, along Rio Caldera, 8°50.5'N, 82°28.9'W, 1,670–1,745 m, 5 Apr 2006, Schäfer-Verwimp & Verwimp 30933 (JE, Schäfer-Verwimp 2014); S. loc., 1,670 m, Schäfer-Verwimp & Verwimp 30933 (GOET, Dong et al. 2012); Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, Schäfer-Verwimp & Verwimp 34599 (JE, Schäfer-Verwimp 2014).

Also reported from Northern South America.

Diplasiolejeunea grolleana Reyes Montoya, *Acta Bot. Acad. Sci. Hung.* 28(1/2): 175, 1983 (Reyes 1982). Type: Cuba.

COSTA RICA. S. loc. (Schäfer-Verwimp and Van Melick 2016; Ellis et al. 2017). **SAN JOSÉ:** Pérez Zeledón cantón, Cordillera de Talamanca, Quizarra east of San Isidro El General, ~700 m, 12 Jul 1985, Eggers CR 7/12 (Eggers et al. 2001); Pérez Zeledón cantón, Quizarrá near San Isidro, 700 m, Eggers (hb. Eggers, Eggers 2001).

Also reported from the Caribbean, Northern South America.

Diplasiolejeunea involuta S. Winkl., *Rev. Bryol. Lichénol.* 35(1/4): 320, 1968 (Winkler 1967) subsp. *involuta*. Type (cf. Söderström and Hentschel 2023: 7): El Salvador, Santa Ana, SE-hang des C. Miramundo bei der Hazienda Montecristo, Metapan, 23 May 1962, Winkler A/17/3 (TUB?, JE-04008786 <https://je.jacq.org/JE04008786>).

EL SALVADOR. S. loc. (León et al. 1998; Schäfer-Verwimp 2004; Schäfer-Verwimp and Pócs 2009; Ellis et al. 2015c; Robinson 2019). †**SAN SALVADOR:** S. loc., 2,350 m (Eggers 2001). Note: Eggers refers to Winkler (1967), so it is an error for Santa Ana. **SANTA ANA:** Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, 2,350 m, 22 May 1962, Winkler A/17/3 (ULM, TYPE, Winkler 1967; Morales and Gradstein 1995).

COSTA RICA. Cordillera de Talamanca (Holz and Gradstein 2005b; Holz 2006); S. loc. (León et al. 1998; Schäfer-Verwimp

2004; Gradstein and Holz 2005; Schäfer-Verwimp and Pócs 2009; Ellis et al. 2015c; Robinson 2019); S. loc., **Morales & Gradstein** 2397 (USJ, Kappelle 1996). **ALAJUELA:** Poás, 1,950 m, Eggers (hb. Eggers, Eggers 2001). **CARTAGO:** El Guarco cantón, 3 de Junio, 2,600 m, Gradstein & Morales 9392 (Dauphin 2005); El Guarco cantón, 3 de Junio, Pan-American Highway km 67, 2,600 m, 4 Nov 1989, Morales, Gradstein & Dauphin 2397 (Morales and Gradstein 1995); Jiménez cantón, Pejibaye, 3 de Junio, 2,600 m (Eggers 2001); S. loc., 2,500 m, Morales & Blanco 42423 (GOET, Dong et al. 2012); S. loc., 25 Jan 1990, Morales & Blanco 2412 (USJ, Morales and Gradstein 1995); S. loc., 6 Mar 1990, Morales, Martén & Rodríguez 2432 (USJ, Morales and Gradstein 1995); S. loc., Sep 1994, Gradstein & Mues 9684 (USJ, U, Morales and Gradstein 1995). **SAN JOSÉ:** Dota cantón, San Gerardo, Holz (Holz 2003); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 2,600–3,000 m (Eggers 2001); Pérez Zeledón cantón, Cerro de La Muerte, 3,400 m, 26 Dec 1999, Schäfer-Verwimp & Holz SV/H-0147/A (GOET, Schäfer-Verwimp 2001; Dong et al. 2012).

PANAMA. S. loc. (Ellis et al. 2015c). **BOCAS DEL TORO:** S. loc., 3,200 m, De Gracia et al. 376 (GOET, Dong et al. 2012).

Also reported from the Caribbean, Northern South America, Western South America.

Diplasiolejeunea johnsonii A. Evans, *Bull. Torrey Bot. Club* 39(12): 603, 1913 (Evans 1912c) var. *johnsonii*. Type: Jamaica.

GUATEMALA. **ALTA VERAPAZ:** S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008).

COSTA RICA. S. loc. (Schäfer-Verwimp 2004; Schäfer-Verwimp and Pócs 2009). **CARTAGO:** El Guarco cantón, 3 de Junio, Gradstein & Morales 8389 (U, USJ, Gradstein et al. 1994; Kappelle 1996); El Guarco cantón, 3 de Junio, Gradstein 8389 (Dauphin 2005); Paraíso cantón, Cerro Asunción, 3,325 m, Trujillo 55 (USJ, Gradstein et al. 1994; Dauphin 2005). **PUNTARENAS:** Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a); S. loc. (Merwin et al. 2001).

PANAMA. S. loc. (Schäfer-Verwimp and Pócs 2009). **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°44.3'N, 82°14.7'W, 1,100 m, 30 Mar 2009, Schäfer-Verwimp & Verwimp 34513/A (JE, Schäfer-Verwimp 2014); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,370–1,480 m, Schäfer-Verwimp & Verwimp 34372, 34388 (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Volcán, along road to Rio Serena at western edge of the village, 8°47.6'N, 82°39.4'W, 1,370 m, 1 Apr 2009, Schäfer-Verwimp & Verwimp 34609 (JE, Schäfer-Verwimp 2014); **NASO TJËR DI COMARCA:** Parque Internacional La Amistad, Cerro Fábrega, 9°07'05'N,

82°52'40"W, 3,335 m, *Dauphin et al. 1558a* (USJ, *Dauphin et al. 2006*; *Dauphin 2007*).

Also reported from Mexico, the Caribbean, Western South America.

Diplasiolejeunea johnsonii var. *mexicana* Jovet-Ast, *Rev. Bryol. Lichénol.* 29(1/2): 39, 1960 (Jovet-Ast 1960). Type: Mexico.

EL SALVADOR. CHALATENANGO: Citalá municipio, Cayacuanca, *Winkler C/1* (*Winkler 1967*).

Also reported from Mexico, Western South America.

Diplasiolejeunea latipuensis Tixier, *Cryptog. Bryol. Lichénol.* 16(3): 230, 1995 (Tixier 1995). Type: Guyana.

PANAMA. COCLÉ: Antón distrito, El Valle de Antón, ascent to "India Dormida," 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, *Schäfer-Verwimp & Verwimp 34160/A* (JE, *Schäfer-Verwimp 2014*).

Also reported from Northern South America, Brazil.

Diplasiolejeunea malleiformis (A.Evans) Tixier, *Bryophyt. Biblioth.* 27: 351, 1985 (Tixier 1985).

≡*Diplasiolejeunea pellucida* var. *malleiformis* A.Evans, *Bull. Torrey Bot. Club* 39(5): 215, 1912 (Evans 1912a). Type: Puerto Rico.

≡*Diplasiolejeunea pellucida* f. *malleiformis* (A.Evans) Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 175, 1951 (Herzog 1951), nom. inval. (ICN2018 Art. 41.5; basionym not cited).

HONDURAS. ATLÁNTIDA: Tela municipio, Lancetilla Valley, 20–600 m, *Standley 56802* (F, HAC, *Reyes 1982* as *Diplasiolejeunea pellucida* var. *malleiformis*); Tela municipio, Lancetilla Valley, 20–600 m, 6 Jul 1927–20 Mar 1928, *Standley 56755* (JE, US, *Herzog 1951* as *Diplasiolejeunea pellucida* f. *malleiformis*).

EL SALVADOR. S. loc. (*Reyes 1982* as *Diplasiolejeunea pellucida* var. *malleiformis*). SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler A/13/2, A/24/4, A/32/4, etc.* (*Winkler 1967* as *Diplasiolejeunea pellucida* var. *malleiformis*).

PANAMA. PANAMA WEST: La Chorrera distrito, Barro Colorado Island, 1 Aug 1950, *Chickering* (MICH, *Crum and Arzeni 1953* as *Diplasiolejeunea pellucida* var. *malleiformis*; *Stotler et al. 1998* as *Diplasiolejeunea pellucida* var. *malleiformis*).

Also reported from Mexico, the Caribbean, Western South America.

Diplasiolejeunea montecristensis S.Winkl., *Rev. Bryol. Lichénol.* 35(1/4): 321, 1968 (Winkler 1967). Holotype: El Salvador,

Santa Ana, SE-hang des C. Miramundo bei der Hazienda Montecristo, Metapan, *Winkler A/26/10* (TUB).

EL SALVADOR. S. loc. (*Dauphin et al. 1998*). SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler A/16/6, A/17/5* (*Winkler 1967*); Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, 2,350 m, 23 May 1962, *Winkler A/26/10* (ULM, TYPE, *Winkler 1967*).

COSTA RICA. CARTAGO: Pan-American Highway km 70, *Morales* (USJ, *Dauphin et al. 1998*; *Dauphin 2005*). PUNTARENAS: Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al. 2001a*).

Not found outside Central America.

Diplasiolejeunea pauckertii (Nees) Steph., *Sp. Hepat. (Stephani)* 5: 924, 1916 (Stephani 1916a).

≡*Lejeunea pauckertii* Nees, *Syn. Hepat.* 3: 392, 1845 (Gottsche et al. 1845a). Type: Peru.

GUATEMALA. ALTA VERAPAZ: Tukurú municipio, Chelémhá, 15°22'32"N, 90°05'05"W, 2,100–2,360 m, *Pérez* (*Pérez 2006*).

COSTA RICA. S. loc. (*Schäfer-Verwimp 2004*; *Dauphin 2005*; *Schäfer-Verwimp and Pócs 2009*). CARTAGO: S. loc., 2,460 m, *Schäfer-Verwimp & Holz SV/H-0418* (GOET, *Dong et al. 2012*). LIMÓN: Talamanca cantón, Telire, Parque Internacional La Amistad, Valle del Silencio, 9°06'58.47"N, 82°57'48.08"W, 12 Sep 2019, *Estrada et al. 6783*, det. G. Dauphin Mar 2021 (CR-4467656!, this publication).

PANAMA. CHIRIQUÍ: Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,480–2,600 m, 4 Apr 2006, *Schäfer-Verwimp & Verwimp 30893, 30908, 30921* (JE, *Schäfer-Verwimp 2014*); S. loc., 2,600 m, *Schäfer-Verwimp & Verwimp 30908* (GOET, *Dong et al. 2012*); S. loc., 2,600 m, *Schäfer-Verwimp & Verwimp 30921* (GOET, *Dong et al. 2012*); Barú Volcano National Park (*Rodríguez-Quiel et al. 2022*). NASO TJËR DI COMARCA: Cerro Fábrega, 3,335 m, 26 Mar 2004, *De Gracia et al. 338* (GOET, *Dong et al. 2012, 2013*; *Heinrichs et al. 2012c, 2014a, 2014b*; *Czumay et al. 2013*; *Schäfer-Verwimp et al. 2014*; *Bechteler et al. 2016a, 2016c*; *Zhu et al. 2017, 2018a, 2018b, 2019*; *Zhu and Shu 2018*; *Renner and de Lange 2020*; *Shu et al. 2022*).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Diplasiolejeunea pellucida (C.F.W.Meissn. ex Spreng.) Schiffn., *Hepat. (Engl.-Prantl)*: 121, 1893 (Schiffner 1893a).

≡*Jungermannia pellucida* C.F.W.Meissn. ex Spreng, *Syst. Veg. (ed. 16) [Sprengel]* 4(2): 325, 1827 (Sprengel 1827a). Type: India Occidentalis.

≡*Diplasiolejeunea inermis* Tixier, *Bryophyt. Biblioth.* 27: 364, 1985 (Tixier 1985), syn. fide *Dong et al. (2012)*. Type: Jamaica.

≡*Diplasiolejeunea caribea* Tixier, *Bryophyt. Biblioth.* 27: 377, 1985 (Tixier 1985), syn. fide *Gradstein (2021)*. Type: Guadeloupe.

GUATEMALA. S. loc. (*Lücking 1995*; *Bastos 2004*; *Schäfer-Verwimp 2004* as *Diplasiolejeunea inermis*). ALTA VERAPAZ: Cobán municipio, Dampine, 1,260–1,440 m, *Standley 69372* (NY, F, *Reyes 1982*); Panzós municipio, Cahabón and/or Senahú, 2012, *Pérez & López-Medina*, det. M. Pérez (*Pérez and López-Medina 2012*); S. loc., 2007, *Pérez*, det. Pérez (USCG, *Barillas de Klee et al. 2008*); Tactic municipio, SE of Tactic, 1,500 m, *Standley 10005* (F, *Reyes 1982*). BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal,

Freire et al. 69, 101, 146, 459, 465, 523, 526 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005); S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008). **HUEHUETENANGO**: S. loc., Pérez 1405 (USCG, Pérez 2009). **IZABAL**: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008).

HONDURAS. S. loc. (Jovet-Ast 1957; Lücking 1995; Oliveira-e-Silva and Yano 2000; Bastos 2004). **ATLÁNTIDA**: Tela municipio, Lancetilla Valley, Standley (Standley 1931); Tela municipio, Lancetilla Valley, 20–600 m, Standley 54812, 54936, 56249, etc. (JE, F, HAC, S, Herzog 1951; Reyes 1982; Tixier 1985).

EL SALVADOR. S. loc. (Reyes 1982; Miller et al. 1983; Lücking 1995; Bastos 2004). **SANTA ANA**: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, Winkler A/19/4, A/21/2, A/26/6, etc. (Winkler 1967).

COSTA RICA. S. loc. (Pagán 1939c; Jovet-Ast 1957; Cole 1982, 1983; Fulford 1987 as *Diplasiolejeunea pellucida* var. *pellucida*; Fulford and Sharp 1990; Gradstein and Costa 2003 as *Diplasiolejeunea inermis*; Bastos 2004; Schäfer-Verwimp 2004 as *Diplasiolejeunea inermis*; Dauphin 2005 as *Diplasiolejeunea inermis*); S. loc., Standley 44690 (JE, Zwickel 1932); S. loc., Standley 46485 (JE, Zwickel 1932). **ALAJUELA**: Poás, 1,950 m, Eggers (hb. Eggers, Eggers 2001). **CARTAGO**: Paraíso cantón, Orosi, Tapantí National Park, Morales 2188, 2250 p.p. (USJ, Morales 1991; Dauphin 2005); Paraíso cantón, Refugio de Fauna Silvestre de Tapanti, 1,400 m, Eggers (hb. Eggers, Eggers 2001); Rancho Naturalista, 900 m, Eggers (hb. Eggers, Eggers 2001); Turrialba cantón, Guayabo, 1,100 m, Eggers (hb. Eggers, Eggers 2001); Turrialba cantón, Tuis Valley, Rancho Naturalista, 900 m, 30 Jan 2001, Eggers CR 17/5 (Eggers et al. 2001). **GUANACASTE**: Caribbean slope N of Tenorio, 500 m, 3 Feb 1985, Eggers CR 3/49 (Eggers et al. 2001); Tenorio, 500 m, Eggers (hb. Eggers, Eggers 2001); Tilarán cantón, Arenal, Naranjos Agrios (JE, Reyes 1982). **HEREDIA**: Rancho Flores forest, Pittier 6041 p.p. (Stephani 1893c; Morales 1991; Dauphin 2005); San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, Standley 49802 (JE, Herzog 1951; Dauphin 2005); San Isidro cantón, Cerro de Caricias, Standley 51980 p.p. (JE, Zwickel 1932; Morales 1991; Dauphin 2005); San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, Standley 51988 p.p. (JE-04002124, Herzog 1951); San Isidro cantón, Yerba Buena (JE, Reyes 1982; Morales 1991; Eggers 2001); San Isidro cantón, Yerba Buena, 2,000 m, Standley 49802 p.p. (Herzog 1951; Morales 1991; Dauphin 2005); San Isidro cantón, Yerba Buena, 22–28 Feb 1926, Standley 49709a (JE, Zwickel 1932; Herzog 1951; Morales 1991; Dauphin 2005); San Miguel de Sarapiquí, 850 m, 30 Jan 1985, Eggers (hb. Eggers, Eggers 2001); Sarapiquí cantón, Caribbean slope 5 km above San Miguel, 850 m, 30 Jan 1985, Eggers CR 2/70, det. Pócs (EGR, Eggers et al. 2001); Sarapiquí cantón, Puerto Viejo, 100 m, Eggers, det. Pócs (hb. Eggers, Eggers 2001). **LIMÓN**: Braulio Carrillo National Park, 400–500 m (Eggers 2001); Pococí cantón, Braulio Carrillo National Park, Botarrama trail (Dauphin 2005 as *Diplasiolejeunea*

inermis); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, Lücking 91-23, 91-24, 91-25, etc. (hb. Lücking, Lücking 1995); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, Lücking 91-34 (hb. Lücking, Lücking 1995 as *Diplasiolejeunea inermis*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, Lücking (Lücking 1997 also as *Diplasiolejeunea inermis*); Pococí cantón, Tortuguero, 1–5 m, Eggers (hb. Eggers, Eggers 2001). **PUNTARENAS**: Buenos Aires cantón, Cobagra, Fernández 16502, 16503, 16506 (G, Reyes 1982); Buenos Aires cantón, Talamanca, Tonduz 15882 (FI, Reyes 1982; Morales 1991; Dauphin 2005); Golfito cantón, Esquinas, <100 m, Eggers (hb. Eggers, Eggers 2001); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde, 1,600 m, Eggers (hb. Eggers, Eggers 2001); Monteverde, 15 Jan 1965, James, W. 40h, det. Dauphin Jun 2017 (MO-5267127!, this publication); Osa cantón, Santo Domingo de Golfo Dulce, Pittier 15572, 15597, 15599, 15602, 15603 (FI, Reyes 1982; Morales 1991; Dauphin 2005); S. loc. (Merwin et al. 2001). **SAN JOSÉ**: Général (Tonduz 1896); Pérez Zeledón cantón, El General forest, 2,000–2,400 m, Pittier 6054 p.p. (Stephani 1893c; Morales 1991; Kappelle 1996; Dauphin 2005); Pérez Zeledón cantón, Quizarrá near San Isidro, 700 m, Eggers (hb. Eggers, Eggers 2001).

PANAMA. Canal Zone (Schäfer-Verwimp 2014); S. loc. (Jovet-Ast 1957; Lücking 1995; Stotler et al. 1998 as *Diplasiolejeunea pellucida* var. *pellucida*; Oliveira-e-Silva and Yano 2000). **BOCAS DEL TORO**: Bocas del Toro distrito, Salt Creek, 9°13'16.9"N, 82°13'03.0"W, 0 m, 16 Aug 2017, Dauphin 4627, det. Dauphin Aug 2017 (PMA, this publication); Bocas del Toro distrito, Salt Creek, Long Beach Trail, Aug 2017, Dauphin et al. 4640, 4642 (PMA, this publication); Salt Creek (9°17'39.7"N, 82°06'11.2"W) on Isla Bastimento, Aug 2017 (Salazar Allen et al. 2022). **CHIRIQUÍ**: Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,870–2,260 m, 6 Apr 2006, Schäfer-Verwimp & Verwimp 30982/A (JE, Schäfer-Verwimp 2014); Boquete distrito, Bajo Mono, along Rio Caldera, 8°50.5'N, 82°28.9'W, 1,670–1,745 m, 5 Apr 2006, Schäfer-Verwimp & Verwimp 30936/A (JE, Schäfer-Verwimp 2014); Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (Salazar Allen et al. 2021 as *Diplasiolejeunea caribea*); Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°44.3'N, 82°14.7'W, 1,100 m, 30 Mar 2009, Schäfer-Verwimp & Verwimp 34517 (JE, Schäfer-Verwimp 2014 as *Diplasiolejeunea caribea*); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, near southern edge of storage lake, 8°44.0'N, 82°14.5'W, 1,215 m, 30 Mar 2009, Schäfer-Verwimp & Verwimp 34489/C (JE, Schäfer-Verwimp 2014 as *Diplasiolejeunea*

caribea); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,650 m, *Schäfer-Verwimp & Verwimp* 34445/A (JE, *Schäfer-Verwimp* 2014); S. loc., 1,670 m, *Schäfer-Verwimp & Verwimp* 30936/A (GOET, Dong et al. 2012; Zhu et al. 2017, 2018a, 2018b, 2019; Zhu and Shu 2018; Shu et al. 2022). COCLÉ: Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 700–1,000 m, 31 Mar 2006, *Schäfer-Verwimp & Verwimp* 30769, det. A. Schäfer-Verwimp (JE, *Schäfer-Verwimp* 2014); Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, *Schäfer-Verwimp & Verwimp* 34147/A, 34171/A (JE, *Schäfer-Verwimp* 2014); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Rio Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López* 676, 684, 685, 686, etc. (PMA, *Sierra et al.* 2019a also as *Diplasiolejeunea caribea*). DARIÉN: Cerro Pirre (Stotler et al. 1998 as *Diplasiolejeunea pellucida* var. *pellucida*); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992); Cerro Pirre, along trail to Rancho Mojado, 400–500 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992); Cerro Pirre, between Pirre 1 and Pirre 2, *Salazar Allen & Gradstein* 9235 p.p. (PMA, *Stotler et al.* 1998 as *Diplasiolejeunea pellucida* var. *pellucida*); S. loc. (*Schäfer-Verwimp* 2014). PANAMA WEST: La Chorrera distrito, Barro Colorado Island, 1 Aug 1950, *Chickering* (MICH, *Crum and Arzeni* 1953; *Stotler et al.* 1998 as *Diplasiolejeunea pellucida* var. *pellucida*; *Dauphin et al.* 2022). PANAMA: Panamá distrito, Cerro Jefe, 9°13.4–5'N, 79°22.7–9'W, 750–1,000 m, 28 Mar 1906, *Schäfer-Verwimp & Verwimp* 30729, 30730 (JE, *Schäfer-Verwimp* 2014 as *Diplasiolejeunea caribea*).

COCOS I. Bahía Yglesias, 0–20 m, Apr 1992, *Lücking* 467, 470, 624, 689 (hb. Bernecker, *Bernecker-Lücking* 2000 as *Diplasiolejeunea inermis*); Colnett, 200–250 m, Apr 1992, *Lücking* 455, 625, 704 (USJ, *Bernecker-Lücking* 2000 as *Diplasiolejeunea inermis*); Cuenca de la Quebrada Alfaro, rumbo a Bahía Yglesias, 5°31'8.4"N, 87°03'14.9"W, 266 m, *Estrada et al.* 6168, det. G. Dauphin Apr 2021 (CR-4468360!, *this publication*); Cuenca de la Quebrada Pittier, rumbo a Bahía Yglesias, 5°31'81.5"N, 87°03'32.3"W, 285 m, 29 Nov 2013, *Estrada et al.* 6165, det. G. Dauphin May 2021 (CR-4468355!, *this publication*); Cuenca de la Quebrada Pittier, rumbo a Bahía Yglesias, 5°31'81.5"N, 87°03'32.3"W, 285 m, 29 Nov 2013, *Estrada et al.* 6166, det. G. Dauphin Apr 2021 (CR-4468357!, *this publication*); Fila entre Bahía Wafer y Chatham, sobre ladera que va hacia Bahía Weston, 5°32'54.8"N, 87°03'11.4"W, 216 m, *Estrada et al.* 6138, det. G. Dauphin Jul 2021 (CR-4468342!, *this publication*); Fila entre Bahía Wafer y Chatham, sobre ladera que va hacia Bahía Weston, 5°32'54.8"N, 87°03'11.4"W, 216 m, 26 Nov 2013, *Estrada et al.* 6137, det. G. Dauphin Apr 2021 (CR-4468340!, *this publication*); S. loc., *Pittier* (G-00047702 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=159230&lang=en>, *Evans* 1912a); S. loc., Jun 2016, *Sánchez* 2760, det. Dauphin 2016 (CR!, *this publication*); Yglesias A, 50–100 m, Apr 1992,

Lücking 326, 558, 629, 630, 671, 680, 681 (ULM, *Bernecker-Lücking* 2000 as *Diplasiolejeunea inermis*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Diplasiolejeunea pluridentata Schäf.-Verw., *Haussknechtia* 8: 71, 2001 (*Schäfer-Verwimp* 2001). Holotype: Costa Rica, San José, Dota, San Gerardo, Los Robles, 4 Jan 2000, *Schäfer-Verwimp & Holz* SV/ H-0486b (JE-04002281 <https://je.jacq.org/JE04002281>, isotypes in EGR, CR).

COSTA RICA. Cordillera de Talamanca (*Holz* 2003; *Holz and Gradstein* 2005b); S. loc. (*Nöske et al.* 2003; *Schäfer-Verwimp* 2004, 2014; *Gradstein and Uribe* 2016; *Gradstein* 2021). SAN JOSÉ: Dota cantón, Chacón Holiday Camp to waterfall, *Holz & Schäfer-Verwimp* CR 99-1171 (*Schäfer-Verwimp* 2001; *Dauphin* 2005); Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, San Gerardo, Los Robles, 12 Jun 1999, *Holz* CR 99-837 (GOET, CR, *Schäfer-Verwimp* 2001; *Dauphin* 2005); Dota cantón, San Gerardo, Los Robles, 2,330 m, 4 Jan 2000, *Schäfer-Verwimp & Holz* SV/ H-0473/H (*Schäfer-Verwimp* 2001; *Dauphin* 2005); Dota cantón, San Gerardo, Los Robles, 2,400 m, 4 Jan 2000, *Schäfer-Verwimp & Holz* SV/H-0486/B (TYPE, *Schäfer-Verwimp* 2001; *Kis* 2004; *Dauphin* 2005); La Quebrada, *Schäfer-Verwimp & Holz* SV/H-0253 (CR, *Schäfer-Verwimp* 2001; *Dauphin* 2005); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), *Schäfer-Verwimp & Holz* SV/H-0071b (*Dauphin* 2005); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,400 m, 26 Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0147/B (GOET, *Schäfer-Verwimp* 2001; *Dauphin* 2005; *Dong et al.* 2012).

PANAMA. CHIRIQUÍ: Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 2,050 m, 6 Apr 2006, *Schäfer-Verwimp & Verwimp* 31015 (JE, *Schäfer-Verwimp* 2014); Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (*Salazar Allen et al.* 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, near southern edge of storage lake, 8°44.0'N, 82°14.5'W, 1,215 m, 30 Mar 2009, *Schäfer-Verwimp & Verwimp* 34489/B (JE, *Schäfer-Verwimp* 2014).

Also reported from Western South America.

***Diplasiolejeunea pocsii* Reyes Montoya, *Acta Bot. Acad. Sci. Hung.* 28(1/2): 173, 1983 (Reyes 1982). Type: Cuba.

*COSTA RICA. S. loc., *Wilbraham* 300 (BM, *this publication*); S. loc., *Wilbraham* 310 (BM, *this publication*).

*PUNTARENAS: Buenos Aires cantón, Cordillera de Talamanca, Cerro Hoffmann (on the Pacific/Caribbean divide), 2,574 m, 9°5.819'N, 82°58.687'W, 18 Feb 2012, *Wilbraham* CR12-302, det. G. Dauphin Sep 2020 (CR-5152110!, *this publication*).

Also reported from the Caribbean, Western South America.

Diplasiolejeunea replicata (Spruce) Steph., *Sp. Hepat. (Stephani)* 5: 926, 1916 (Stephani 1916a).

=*Lejeunea replicata* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 302, 1884 (Spruce 1884). Type: Ecuador.

COSTA RICA. Cordillera de Talamanca (Holz and Gradstein 2005b; Holz 2006); S. loc. (Schäfer-Verwimp 2004; Gradstein and Holz 2005; Schäfer-Verwimp and Pócs 2009; Schäfer-Verwimp et al. 2013; Schäfer-Verwimp 2014). **CARTAGO:** Cordillera de Talamanca, Cerro de La Muerte, Páramo Buena Vista, km 85 of Pan-American Highway, 3,100 m, 9 Nov 1999, Holz CR 99-608 (CR, GOET, Holz et al. 2001; Dauphin 2005); El Guarco cantón, 3 de Junio, 2,460 m, 3 Jan 2000, Schäfer-Verwimp & Holz SV/H-0426, SV/H-0454/B (CR, hb. Schäfer-Verwimp, Holz et al. 2001; Dauphin 2005). **SAN JOSÉ:** Dota cantón, Los Robles, 2,400 m, 4 Jan 2000, Schäfer-Verwimp & Holz SV/H-0486/D (EGR, CR, JE, Schäfer-Verwimp 2001; Dauphin 2005); Dota cantón, San Gerardo, Holz (Holz 2003); Dota cantón, San Gerardo, “Los Robles,” 2,100 m, 28 Dec 1999, Schäfer-Verwimp & Holz SV/H-0246/C (CR, GOET, hb. Schäfer-Verwimp, Holz et al. 2001; Dauphin 2005; Dong et al. 2012); Dota cantón, San Gerardo, “Los Robles,” 2,400 m, 4 Jan 2000, Schäfer-Verwimp & Holz SV/H-0246/C (CR, hb. Schäfer-Verwimp, Holz et al. 2001); Dota cantón, San Gerardo, Río Savegre Valley, 1,950 m, 24 Dec 1999, Schäfer-Verwimp & Holz SV/H-0053/B (CR, GOET, hb. Schäfer-Verwimp, Holz et al. 2001; Dauphin 2005); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,300 m, 26 Dec 1999, Schäfer-Verwimp & Holz SV/H-0179/B (CR, hb. Schäfer-Verwimp, Holz et al. 2001; Dauphin 2005).

PANAMA. **CHIRIQUÍ:** Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,880 m, 6 Apr 2006, Schäfer-Verwimp & Verwimp 30983 (JE, Schäfer-Verwimp 2014); Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,480–2,750 m, 4 Apr 2006, Schäfer-Verwimp & Verwimp 30894, 30899, 30900, 30909, 30919 (JE, Schäfer-Verwimp 2014); Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,600 m, 4 Apr 2006, Schäfer-Verwimp & Verwimp 30920 (JE, Schäfer-Verwimp 2014); S. loc., 1,880 m, Schäfer-Verwimp & Verwimp 30983 (GOET, Dong et al. 2012).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Diplasiolejeunea unidentata (Lehm. et Lindenb.) Schiffn., *Bot. Jahrb. Syst.* 23(5): 583, 1897 (Schiffner 1897).

=*Jungermannia unidentata* Lehm. et Lindenb., *Nov. Stirp. Pug.* 6: 48, 1834 (Lehmann 1834). Type: St. Vincent.

=*Diplasiolejeunea rudolphiana* Steph., *Hedwigia* 35(3): 79, 1896 (Stephani 1896), syn. fide Gradstein (2021). Type: Brazil.

GUATEMALA. **ALTA VERAPAZ:** Panzós municipio, Cahabón and/or Senahú, 2012, Pérez & López-Medina, det. M. Pérez (Pérez and López-Medina 2012 as *Diplasiolejeunea rudolphiana*). **BAJA VERAPAZ:** S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008 as *Diplasiolejeunea rudolphiana*). **EL PETÉN:** S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008 as *Diplasiolejeunea rudolphiana*).

HUEHUETENANGO: Barillas municipio, San José Maxbal, Laguna Maxbal, 15°56'23"N, 91°18'19"W, Pérez 1450 (USCG, Pérez 2009 as *Diplasiolejeunea rudolphiana*). **IZABAL:** S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008 as *Diplasiolejeunea rudolphiana*).

BELIZE. S. loc. (Fulford 1938 as *Diplasiolejeunea rudolphiana*; Schuster 1956b, 1980d, both as *Diplasiolejeunea rudolphiana*; Jovet-Ast and Tixier 1962 as *Diplasiolejeunea rudolphiana*; Whittemore and Allen 1996 as *Diplasiolejeunea rudolphiana*; Zhu and So 2001 as *Diplasiolejeunea rudolphiana*). ***TOLEDO:** Columbia River Forest Reserve, Little Quartz Ridge, 16°23'58"N, 89°06'41"W, 940 m, 19 Feb 1997, Allen 18953, det. Dauphin Jun 2017 (MO-5228072!, this publication); Punta Gorda, Feb 1933, White 110, det. Fulford 1937 (MO-5375419!, this publication); Punta Gorda, Feb 1933, White 82, det. Fulford 1937 (MO-5247341!, this publication).

HONDURAS. S. loc. (Frye and Clark 1947 as *Diplasiolejeunea rudolphiana*; Fulford et al. 1970; Bastos 2004 as *Diplasiolejeunea rudolphiana*); S. loc., Herzog (JE, Reyes 1982 as *Diplasiolejeunea rudolphiana*). **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, 20–600 m, Standley 55354 p.p. (Herzog 1951 as *Diplasiolejeunea rudolphiana*; Reyes 1982 as *Diplasiolejeunea rudolphiana*); Tela municipio, Lancetilla, Standley 5536/a (F, Reyes 1982 as *Diplasiolejeunea rudolphiana*). **CORTÉS:** San Francisco de Yojoa municipio, Rio Lindo, Morton 7879 (F, Reyes 1982 as *Diplasiolejeunea rudolphiana*).

EL SALVADOR. S. loc. (Reyes 1982; Bastos 2004). **SANTA ANA:** Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, Winkler B/6/d/4 (Winkler 1967).

***NICARAGUA.** ***BOACO:** Camoapa municipio, 5 km N of El Zancudo empalme, road from Cuapa to Camoapa, 12°20'02"N, 85°23'57"W, 535 m, 10 Dec 2012, Stevens 33360 p.p., det. Dauphin May 2017 (MO-6699937! <http://tropicos.org/specimen/100988177>, this publication).

COSTA RICA. **ALAJUELA:** Grecia, 700 m (Eggers 2001); Río Cuatre cantón, Laguna Hule, 700 m, Dauphin & Gonzáles 2145 (CR, USJ, Dauphin et al. 1998; Dauphin 2005). **CARTAGO:** Turrialba cantón, CATIE, Bayer 2220 p.p. (Dauphin 2005 as *Diplasiolejeunea rudolphiana*). **GUANACASTE:** La Cruz cantón, Guanacaste National Park, Cerros Santa Elena, 10°53'24"N, 85°50'55"W, 700 m, 27 Aug 2003, Dauphin et al. 3346.3 (CR, Dauphin and Grayum 2005 as *Diplasiolejeunea rudolphiana*, Dauphin 2005 as *Diplasiolejeunea rudolphiana*); Tenorio, 500 m, Eggers (hb. Eggers, Eggers 2001). **HEREDIA:** San Miguel de Sarapiquí, 850 m, 30 Jan 1985, Eggers (hb. Eggers, Eggers 2001).

PANAMA. Canal Zone (Schäfer-Verwimp 2014 also as *Diplasiolejeunea rudolphiana*); S. loc. (G, Stephani 1916a as *Diplasiolejeunea rudolphiana*; Frye and Clark 1947 as *Diplasiolejeunea rudolphiana*; Schuster 1956b, 1980d as *Diplasiolejeunea rudolphiana*; Jovet-Ast and Tixier 1962 as *Diplasiolejeunea rudolphiana*; Reyes 1982 as *Diplasiolejeunea rudolphiana*; Fulford 1987 as *Diplasiolejeunea rudolphiana*; Stotler et al. 1998 as *Diplasiolejeunea rudolphiana*; Zhu and So 2001 as *Diplasiolejeunea*

rudolphiana; Bastos 2004 as *Diplasiolejeunea rudolphiana*). **CHIRIQUÍ**: Boquete distrito, Bajo Mono, along Rio Caldera, 8°50.5'N, 82°28.9'W, 1,670–1,745 m, 5 Apr 2006, *Schäfer-Verwimp & Verwimp* 30964 (JE, Schäfer-Verwimp 2014); Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quijada del Diablo, 1,200–1,600 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021 also as *Diplasiolejeunea rudolphiana*); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°41.4'N, 82°13.7'W, 1,280 m, 30 Mar 2009, *Schäfer-Verwimp & Verwimp* 34469/B, 34513/C (JE, Schäfer-Verwimp 2014); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,350 m, *Schäfer-Verwimp & Verwimp* 34342, 34351/E, 34364, det. A. Schäfer-Verwimp (Schäfer-Verwimp 2014 as *Diplasiolejeunea rudolphiana*). **COCLÉ**: Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, *Schäfer-Verwimp & Verwimp* 34170 (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, *Schäfer-Verwimp & Verwimp* 34171/C (JE, Schäfer-Verwimp 2014); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Rio Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López* 725 (PMA, Sierra et al. 2019a). **DARIÉN**: Cerro Pirre (Stotler et al. 1998 as *Diplasiolejeunea rudolphiana*); Cerro Pirre, between Pirre 1 and Pirre 2, 50 m, *Salazar Allen & Gradstein* 9204 (PMA, Stotler et al. 1998 as *Diplasiolejeunea rudolphiana*); Cerro Pirre, Trail El Real–Pirre, along Río Pirre, ~50 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992 as *Diplasiolejeunea rudolphiana*); S. loc. (Schäfer-Verwimp 2014 as *Diplasiolejeunea rudolphiana*). **PANAMA WEST**: La Chorrera distrito, Barro Colorado Island, Quebrada R. Shannon, *Marino* 2, 36, 8 (PMA, Stotler et al. 1998; *Dauphin et al.* 2022); La Chorrera distrito, Barro Colorado Island, Shannon Creek and ridge top, 1 Dec 1990, *Marino & Salazar Allen* (STRI, Marino and Salazar Allen 1992); La Chorrera distrito, Barro Colorado Island, Zetek Trail, 7 Jan 1950, *Arzeni*, det. *Dauphin* Jun 2017 (MO-662655!, this publication). **PANAMA**: Panamá distrito, Canal Zone Forest Preserve, Aug 1950, *Chickering* (MICH, Crum and Arzeni 1953 as *Diplasiolejeunea rudolphiana*; Stotler et al. 1998 as *Diplasiolejeunea rudolphiana*). **VERAGUAS**: S. loc., 850 m, *Schäfer-Verwimp & Verwimp* 30843 (GOET, Dong et al. 2012 as *Diplasiolejeunea rudolphiana*); Santa Fe distrito, base of Cerro Tute, 8°30'N, 81°06'W, 710–890 m, 26 Mar 2009, *Schäfer-Verwimp & Verwimp* 34280, 34282/A (JE, Schäfer-Verwimp 2014 as *Diplasiolejeunea rudolphiana*); Santa Fe distrito, between the village and Alto de Piedra, 8°31'N, 81°06'W, 635–600 m, 27 Mar 2009, *Schäfer-Verwimp & Verwimp* 34330/C (JE, Schäfer-Verwimp 2014); Santa Fe distrito, Rio Santa María, 8°32'N, 81°06'W, 400–450 m, 1 Apr 2006, *Schäfer-Verwimp & Verwimp* 30798 (JE, Schäfer-Verwimp 2014 as *Diplasiolejeunea rudolphiana*); Santa Fe distrito, trail to Cerro

del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, *Schäfer-Verwimp & Verwimp* 30814, 30822, 30843, 30851, 30860 (JE, Schäfer-Verwimp 2014).

Also reported from Western Indian Ocean, China, Indian Subcontinent, Indo-China, Malesia, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

***Diplophyllum* (Dumort.) Dumort., *Recueil Observ. Jungerm.*: 15, 1835 (Dumortier 1835).**

Diplophyllum obtusatum (R.M.Schust.) R.M.Schust., *Hepat. Anthocer. N. Amer.* 3: 215, 1974 (Schuster 1974).

≡ *Diplophyllum apiculatum* var. *obtusatum* R.M.Schust., *Amer. Midl. Naturalist* 49(2): 432, 1953 (Schuster 1953). Type: USA, Minnesota.

GUATEMALA. ALTA VERAPAZ: Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, 2,300–2,500 m, 2005, *Pérez* 71 (USCG, Pérez 2006, 2009).

COSTA RICA. Cordillera de Talamanca (*Holz and Gradstein* 2005b); S. loc. (Engel and Smith Merrill 1998; Gradstein et al. 2001b; Gradstein and Holz 2005; Schäfer-Verwimp and Pócs 2009; Schäfer-Verwimp et al. 2019; Gradstein 2021). **CARTAGO**: Reserva Forestal de Río Macho, 9°40'50"N, 83°58'50"W, 2 Nov 1995, *Dauphin* 2088 (CR, MO, *Dauphin* 2005); Reserva Forestal Río Macho, 2,500 m, *Gradstein & Morales* 9385 (CR, U, USJ, Gradstein et al. 1994; Kappelle 1996; *Dauphin* 2005). **SAN JOSÉ**: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, *Holz et al.* 2002); Dota cantón, San Gerardo (*Dauphin* 2005); Pérez Zeledón cantón, Rivas, Chirripó National Park, Fila Cementerio de La Máquina, *Dauphin et al.* 3591 (CR!, this publication).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Canada, North-Central USA, Southeastern USA, the Caribbean, Northern South America, Western South America.

***Drepanolejeunea* (Spruce) Steph., *Hedwigia* 30(5): 209, 1891 (Stephani 1891a).**

Drepanolejeunea aculeata Bischl., *Rev. Bryol. Lichénol.* 33(1/2): 68, 1964 (Bischler 1964). Type: Brazil.

GUATEMALA. ?ALTA VERAPAZ: Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, 2,100–2,360 m, *Pérez* (Pérez 2006 as *Drepanolejeunea* cf. *aculeata*). Note: We are not aware of any positively identified specimen from Alta Verapaz. **BAJA VERAPAZ**: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al.* 2005).

COSTA RICA. ALAJUELA: San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 800 m, 5 Jul 2007, *Norris* 110002f (UC, Norris et al. 2017).

Also reported from Western South America, Brazil.

Drepanolejeunea andina Herzog, *Svensk Bot. Tidskr.* 51(1): 196, 1957 (Herzog 1957b). Type: Ecuador.

COSTA RICA. S. loc. (Gradstein 2021). **SAN JOSÉ:** Pérez Zeledón cantón, Cordillera de Talamanca, Cerro de la Muerte, 9°34'N, 83°45'W, 3,400 m, 26 Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0149/B, SV/H-0179/A (CR, JE, Ellis et al. 2018b).

Also reported from Northern South America, Western South America.

Drepanolejeunea anoplantha (Spruce) Steph., *Sp. Hepat. (Stephani)* 5: 325, 1913 (Stephani 1913).

≡ *Lejeunea anoplantha* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 189, 1884 (Spruce 1884). Type: Peru.

= *Drepanolejeunea subulata* Steph., *Hedwigia* 35(3): 83, 1896 (Stephani 1896), syn. fide Bischler (1964). Type: Puerto Rico.

GUATEMALA. **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 509 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

***EL SALVADOR.** ***SANTA ANA:** Metapán municipio, Montecristo, quebrada Las Huertas, 2,030 m, 12 Nov 2014, *Búcaro H305* (MHES!, this publication).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Schäfer-Verwimp and Pócs 2009; Schäfer-Verwimp 2014). **ALAJUELA:** Poás Volcano, 17 Jan 1972, *Morales & Lacayo* 506 (USJ, Morales and Griffin 1983 as *Drepanolejeunea subulata*; Morales 1991; Dauphin 2005). **SAN JOSÉ:** Dota cantón, "Los Robles" (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin 2005).

PANAMA. **CHIRIQUÍ:** Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, *Schäfer-Verwimp & Verwimp* 34558/B (JE, Schäfer-Verwimp 2014).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Drepanolejeunea appalachiana R.M.Schust., *J. Elisha Mitchell Sci. Soc.* 83(4): 219, 1967 (Schuster 1967). Type: USA.

GUATEMALA. **ALTA VERAPAZ:** S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008).

Also reported from Southeastern USA, the Caribbean.

Drepanolejeunea araucariae Steph., *Hedwigia* 35(3): 80, 1896 (Stephani 1896) var. *araucariae*. Type: Brazil.

= *Drepanolejeunea elegantissima* Steph., *Sp. Hepat. (Stephani)* 5: 331, 1913 (Stephani 1913), syn. fide Bischler (1964). Lectotype (Bischler 1964: 129 as "type"): Guatemala, s.d., s. coll., s.n., ex hb. Jack, in hb. G (G-00069287).

GUATEMALA. S. loc. (TYPE of *Drepanolejeunea elegantissima*, Stephani 1913 as *Drepanolejeunea elegantissima*; Bischler 1964; Bonner 1965 as *Drepanolejeunea elegantissima*;

Winkler 1967, Schuster 1996a; Bastos 2004; Schäfer-Verwimp and Pócs 2009). **ALTA VERAPAZ:** Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, Pérez 135 (USCG, Pérez 2009); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Drepanolejeunea* cf. *araucariae*). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). ***CHIMALTENANGO:** Acate-nango municipio, Volcán Acatenango road Parramos to Yepo-capá, above Chichoy Bajo, ~8.65 km W of San Miguel Dueñas, 14°32'20.8"N, 90°52'35.9"W, 9 Dec 2013, *Quedensley* 13020, det. Dauphin Sep 2017 (MO, W-0089059!, this publication). **IZABAL:** Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, *Ramírez* (USCG, BIGU, Ramírez 2007). **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, Ramírez 2007).

EL SALVADOR. **AHUACHAPÁN:** Tacuba, Winkler (Winkler 1967). **SANTA ANA:** Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, Winkler A/32/8/6, A/32/β/2 (Winkler 1967).

PANAMA. **CHIRIQUÍ:** Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,350–2,750 m, 4 Apr 2006, *Schäfer-Verwimp & Verwimp* 30887, 30904/A, 30910 (JE, Schäfer-Verwimp 2014); Barú Volcano National Park (Rodríguez-Quiel et al. 2022).

Also reported from the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

***Drepanolejeunea aurita* Bischl., *Rev. Bryol. Lichénol.* 33(1/2): 146, 1964 (Bischler 1964). Type: Colombia.

***PANAMA.** ***BOCAS DEL TORO:** Cerro Fábrega, 9°05'45"N, 82°53'10"W, 12 Feb 1995, *Dauphin* 1553A, det. Dauphin Oct 2020 (CR-1578118!, this publication).

Also reported from Western South America.

Drepanolejeunea bidens (Prantl) A.Evans, *Bull. Torrey Bot. Club* 30(1): 29, 1903 (Evans 1903a).

≡ *Lejeunea bidens* Prantl, *Hedwigia* 29: xiv, 1890 (Prantl 1890). Type: Peru.

GUATEMALA. ?**ALTA VERAPAZ:** Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, 2,100–2,360 m, Pérez (Pérez 2006 as *Drepanolejeunea* cf. *bidens*). Note: We are not aware of any positively identified specimen from Alta Verapaz. ?**EL PROGRESO:** S. loc., 2007, Pérez (USCG, Barillas de Klee et al. 2008 as *Drepanolejeunea* cf. *bidens*). Note: We are not aware of any positively identified specimen from El Progreso. **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, Ramírez 2007).

BELIZE. S. loc. (Fulford 1938; Frye and Clark 1947; Jovet-Ast 1960; Bischler 1964; Whittemore and Allen 1996).

***HONDURAS.** S. loc. (Winkler 1967; Fulford and Sharp 1990). ***OLANCHO:** Catcamas municipio, Sierra de Algalta, Montaña Babilonia, 13 km NNW of Catcamas, 14°57'N, 85°55'W, 2,354 m, 2 Jun 1992, *Allen* 12726, det. Dauphin Jun

2017 (MO-5228038! <http://tropicos.org/specimen/90102213>, this publication).

EL SALVADOR. SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler A/2/1, A/22/3, A/22/4, etc.* (Winkler 1967).

NICARAGUA. S. loc. (Winkler 1967). **ATLÁNTICO SUR:** Decembocadura Río Grande municipio, Karawala River, *Hamilton* (YU, Bischler 1964).

COSTA RICA. S. loc. (Winkler 1967). **GUANACASTE:** La Cruz cantón, Guanacaste National Park, Cerros Santa Elena, ridge above Playa Respingue, 650–700 m, 27 Aug 2003, *Dauphin et al.* 3317 (CR, Dauphin 2005; Dauphin and Grayum 2005). **PUNTARENAS:** Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, Reserva Biológica Santa Elena, 10°20'N, 84°48'W, 26 Mar 1992, *Lyon* 546 p.p., det. Dauphin Jun 2017 (MO-6699949!, this publication); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995 as *Drepanolejeunea* cf. *bidens*); S. loc. (Merwin et al. 2001 as *Drepanolejeunea* cf. *bidens*).

PANAMA. Canal Zone (Schäfer-Verwimp 2014); S. loc. (Jovet-Ast 1960; Bischler 1964; Winkler 1967). **CHIRIQUÍ:** Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,110 m, 4 Apr 2006, *Schäfer-Verwimp & Verwimp* 30870 (JE, Schäfer-Verwimp 2014); Boquete distrito, Bajo Mono, along Río Caldera, 8°50.5'N, 82°28.9'W, 1,670–1,745 m, 5 Apr 2006, *Schäfer-Verwimp & Verwimp* 30934/A (JE, Schäfer-Verwimp 2014); Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°44.3'N, 82°14.7'W, 1,100 m, 30 Mar 2009, *Schäfer-Verwimp & Verwimp* 34389/A, 34427/B, 34512/B, 34524/B (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Volcán, road to Río Sereno, 8°49.5'N, 82°41.5'W, 1,580 m, 2 Apr 2009, *Schäfer-Verwimp & Verwimp* 34665 (JE, Schäfer-Verwimp 2014). **COCLÉ:** Antón distrito, El Valle de Antón, along road to Mato Ahogado, 8°37.05'N, 82°06.60'W, 670 m, 4 Apr 2009, *Schäfer-Verwimp & Verwimp* 34759/B (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, *Schäfer-Verwimp & Verwimp* 34138/B (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, Golden Frog Inn and near surroundings, 8°36.6'N, 80°06.6'W, 640–650 m, 7 Apr 2006, *Schäfer-Verwimp & Verwimp* 31059, 31060/C (JE, Schäfer-Verwimp 2014). **DARIÉN:** Cerro Pirre (Stotler et al. 1998); Cerro Pirre, 800–1,150 m, *Salazar Allen & Gradstein* 9249 (PMA, Stotler et al. 1998); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992); S. loc. (Schäfer-Verwimp 2014). **PANAMA WEST:** La Chorrera distrito, Barro Colorado Island, 1 Aug 1950, *Chickering* (MICH, Crum and Arzeni 1953;

Stotler et al. 1998; Dauphin et al. 2022). **VERAGUAS:** Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, *Schäfer-Verwimp & Verwimp* 30812, 34329 (JE, Schäfer-Verwimp 2014).

Also reported from Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Drepanolejeunea biocellata A.Evans, *Bull. Torrey Bot. Club* 30(1): 22, 1903 (Evans 1903a). Type: Puerto Rico.

GUATEMALA. ALTA VERAPAZ: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008); Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, 2,100–2,360 m, Pérez (Pérez 2006 as *Drepanolejeunea* cf. *biocellata*). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 523a (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). **EL PROGRESO:** San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007).

HONDURAS. S. loc. (Winkler 1967). **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, 20–600 m, 6 Jul 1927–20 Mar 1928, *Standley* 56810 p.p. (JE, US, Zwickel 1932; Herzog 1951).

EL SALVADOR. SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler A/24/2A/30/1, A/24/5, A/31/4, A/32/1, B/2/c/3, B/4/a/2, B/4/f/2* (Winkler 1967).

COSTA RICA. S. loc. (Cole 1982, 1983). **PUNTARENAS:** Monteverde (Morales 1991); Monteverde, 15 Jan 1965, *James*, W. 40i (R, MO-5378085, Reed and Robinson 1971; Dauphin 2005); Monteverde, 15 Jan 1965, *James*, W. 41a (R, Reed and Robinson 1971; Dauphin 2005). **SAN JOSÉ:** Acosta cantón, El Cornelio, 1,350 m, *Dauphin et al.* 2945 p.p., det. Ilkiu-Borges (NY, Dauphin 2005).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Drepanolejeunea campanulata (Spruce) Steph., *Sp. Hepat.* (Stephani) 5: 328, 1913 (Stephani 1913).

≡ *Lejeunea campanulata* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 192, 1884 (Spruce 1884). Type: Ecuador.

EL SALVADOR. SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler A/11/3, A/26/4, B/2/c/1, B/3/β/5, B/4/c/2, B/6/c/6* (Winkler 1967).

COSTA RICA. GUANACASTE: Liberia cantón, Rincón de La Vieja National Park, Río Blanco, 700 m, *Morales* 2441 (Dauphin 2005); Liberia cantón, Rincón de La Vieja National Park, Río Blanco, 700 m, 24 Apr 1994, *Obando* (U, USJ, Gradstein et al. 1994; Dauphin 2005). **PUNTARENAS:** Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a).

PANAMA. †BOCAS DEL TORO: S. loc. (Schäfer-Verwimp 2014). Note: This must refer to the “new” comarca Naso Tjër Di.

CHIRIQUÍ: Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,870–2,260 m, 6 Apr 2006, *Schäfer-Verwimp & Verwimp* 30991 (JE, *Schäfer-Verwimp* 2014). **NASO TJEËR DI COMARCA:** Cerro Fábrega, *Guerrero* 129 (PMA, *Dauphin* 2007). **VERAGUAS:** Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, *Schäfer-Verwimp & Verwimp* 30807/B (JE, *Schäfer-Verwimp* 2014).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

*****Drepanolejeunea crassiretis* A.Evans, *Bull. Torrey Bot. Club* 30(1): 25, 1903 (Evans 1903a). Type: Puerto Rico.**

?GUATEMALA. ?ZACAPA: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007 as *Drepanolejeunea* aff. *crassiretis*).

***COSTA RICA. *PUNTARENAS:** Coto Brus, San Vito, Fila Cruces, 8°57'20"N, 83°04'20"W, 8 Jun 1995, *Dauphin & Chacón* 1757, det. G. Dauphin Oct 2020 (CR-1577815!, *this publication*).

Previously only reported with doubt from Central America but here confirmed. Also reported from the Caribbean, Northern South America, Western South America, Brazil.

***Drepanolejeunea crucianella* (Taylor) A.Evans, *Bull. Torrey Bot. Club* 30(1): 33, 1903 (Evans 1903a).**

≡*Lejeunea crucianella* Taylor, *London J. Bot.* 5: 393, 1846 (Taylor 1846a). Type: Guyana.

≡*Drepanolejeunea trifida* Steph., *Sp. Hepat. (Stephani)* 5: 340, 1913 (Stephani 1913), syn. fide Bischler (1964). Type: Suriname.

HONDURAS. S. loc. (Ilkiu-Borges 2000; Ilkiu-Borges and Lisbôa 2002b; Bastos 2004). **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, 20–600 m, Dec 1927–Mar 1928, *Standley* 55622 p.p. (JE, *Herzog* 1951; Bischler 1964).

COSTA RICA. S. loc. (Ilkiu-Borges 2000; Ilkiu-Borges and Lisbôa 2002b; Bastos 2004). **CARTAGO:** Paraíso cantón, Orosi, Tapantí National Park, *Morales* 1810 (*Morales* 1991; *Dauphin* 2005). **LIMÓN:** Siquirres cantón, Cairo, Finca Hamburgo, *Standley & Valerio* 48775a (*Morales* 1991); Siquirres cantón, Cairo, Finca Hamburgo, on the Río Reventazón below Cairo, 55 m, *Standley* 48775a (*Herzog* 1951 as *Drepanolejeunea trifida*; Bischler 1964; *Dauphin* 2005).

PANAMA. Canal Zone (*Schäfer-Verwimp* 2014). **COCLÉ:** Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 700–1,000 m, 31 Mar 2006, *Schäfer-Verwimp & Verwimp* 30771 (JE, *Schäfer-Verwimp* 2014); Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8'N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34263/B (JE, *Schäfer-Verwimp* 2014). **DARIÉN:** S. loc. (*Schäfer-Verwimp* 2014). Note: We are not aware of any firsthand report from Darién. **?PANAMA:** Panamá distrito, Cerro Jefe, *Spörle* 5243b (PMA, *Spörle* 1990 as *Drepanolejeunea* cf. *crucianella*); Panamá distrito, Cerro Jefe, along creek of Río San Cristóbal, *Salazar Allen et al.* 5243

(PMA, Stotler et al. 1998 as *Drepanolejeunea* cf. *crucianella*). Note: We are not aware of any positively identified specimen from Panama province.

COCOS I. Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 15 Feb 1994, *Dauphin* 965 (USJ, *Dauphin* 1995, 1999, 2005); Cerro Yglesias, 5°32'57"N, 87°03'56"W, Jun 2016, *Sánchez*, det. *Dauphin* Aug. 2016 (CR!, *this publication*); Río Genio, 5°32'57"N, 87°03'56"W, 0–50 m, Apr 1992, *Lücking* 517 (USJ, *Bernecker-Lücking* 2000); Yglesias D, 350–500 m, Apr 1992, *Lücking* 583, 584, 587, 642 (USJ, *Bernecker-Lücking* 2000).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

***Drepanolejeunea dissitifolia* A.Evans, *Bull. Torrey Bot. Club* 30(1): 28, 1903 (Evans 1903a). Type: Puerto Rico.**

EL SALVADOR. SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler* B/1/h/3, B/2/e/y/5, etc. (*Winkler* 1967).

PANAMA. DARIÉN: Cerro Pirre (Stotler et al. 1998); Cerro Pirre, *Salazar Allen & Gradstein* 9236 (PMA, *Stotler et al.* 1998); Cerro Pirre, around INRENARE field station, ~100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992).

Also reported from the Caribbean, Northern South America, Brazil.

***Drepanolejeunea evansii* Bischl., *Rev. Bryol. Lichénol.* 35(1/4): 136, 1967 (Bischler 1967b).**

≡*Drepanolejeunea evansii* Bischl., *Rev. Bryol. Lichénol.* 33(1/2): 75, 1964 (Bischler 1964), nom. inval. (ICN2018 Art. 39.1; no Latin description). Type: Puerto Rico.

GUATEMALA. ALTA VERAPAZ: S. loc., 2007, *Pérez*, det. *Pérez* (USCG, *Barillas de Klee et al.* 2008). **BAJA VERAPAZ:** S. loc., 2007, *Pérez*, det. *Pérez* (USCG, *Barillas de Klee et al.* 2008). **HUEHUETENANGO:** S. loc., 2007, *Pérez*, det. *Pérez* (USCG, *Barillas de Klee et al.* 2008). **SAN MARCOS:** S. loc., 2007, *Pérez*, det. *Pérez* (USCG, *Barillas de Klee et al.* 2008).

EL SALVADOR. SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler* A/29/1, B/4/d/8 (*Winkler* 1967).

Also reported from the Caribbean, Northern South America, Western South America.

***Drepanolejeunea fragilis* Bischl., *Rev. Bryol. Lichénol.* 35(1/4): 137, 1967 (Bischler 1967b).**

≡*Drepanolejeunea fragilis* Bischl., *Rev. Bryol. Lichénol.* 33(1/2): 123, 1964 (Bischler 1964), nom. inval. (ICN2018 Art. 39.1; no Latin description). Type: Puerto Rico.

GUATEMALA. S. loc. (Fulford et al. 1970). **ALTA VERAPAZ:** Tucurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, 2,100–2,360 m, *Pérez* (*Pérez* 2006).

EL SALVADOR. SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler* A/32/8/7 (*Winkler* 1967).

COSTA RICA. S. loc. (Fulford et al. 1970; Schäfer-Verwimp 2014). **GUANACASTE:** La Cruz cantón, Guanacaste National Park, Cerros Santa Elena, 10°53'24"N, 85°50'55"W, 650–700 m, 27 Aug 2003, *Dauphin et al.* 3323 (CR, *Dauphin* 2005; *Dauphin and Grayum* 2005). **PUNTARENAS:** Osa cantón, Península de Osa, Boscosa, 150 m, *Gradstein & Dauphin* 9303a (U, USJ, *Gradstein et al.* 1994; *Dauphin* 2005).

PANAMA. †**BOCAS DEL TORO:** S. loc. (Schäfer-Verwimp 2014). Note: This must refer to the “new” comarca Naso Tjër Di. **COCLÉ:** Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, *Schäfer-Verwimp & Verwimp* 34163/B (JE, *Schäfer-Verwimp* 2014); Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8'N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34262/F (JE, *Schäfer-Verwimp* 2014); Antón distrito, El Valle de Antón, Golden Frog Inn and near surroundings, 8°36.6'N, 80°06.6'W, 640–650 m, 7 Apr 2006, *Schäfer-Verwimp & Verwimp* 31035 (JE, *Schäfer-Verwimp* 2014). **NASO TJËR DI COMARCA:** Cerro Fábrega, *Guerrero* 146 (PMA, *Dauphin* 2007). **VERAGUAS:** Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, *Schäfer-Verwimp & Verwimp* 30806 (JE, *Schäfer-Verwimp* 2014).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Drepanolejeunea granatensis (Prantl) Bischl., *Rev. Bryol. Lichénol.* 33(1/2): 150, 1964 (Bischler 1964).

≡ *Lejeunea granatensis* Prantl, *Hedwigia* 31: xvii, 1892 (Prantl 1892). Type: Colombia.

COSTA RICA. **SAN JOSÉ:** Pérez Zeledón cantón, Cordillera de Talamanca, Cerro de la Muerte, 9°34'N, 83°45'W, 3,400 m, 26 Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0142, SV/H-0149/C, SV/H-0165 (CR, JE, *Ellis et al.* 2019c).

Also reported from Mexico, Northern South America, Western South America, Brazil.

Drepanolejeunea hamulata Steph., *Sp. Hepat. (Stephani)* 5: 331, 1913 (Stephani 1913). Lectotype: Cuba.

COSTA RICA. S. loc. (*Stephani* 1913; *Bonner* 1965). **CARTAGO:** Jiménez cantón, Río Naranjo, Mar 1893, *Tonduz* 15571 (M, YU, NY, *Zwicker* 1932).

Also reported from the Caribbean.

Drepanolejeunea inchoata (C.F.W.Meissn.) Steph., *Primit. fl. costar.*: 115, 1893 (Stephani 1893c) var. *inchoata*.

≡ *Jungermannia inchoata* C.F.W.Meissn., *Nov. Stirp. Pug.* 5: 19, 1833 (Lehmann 1833). Type: Caribbean Islands.

GUATEMALA. S. loc. (Fulford 1987). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 523b (USCG, *Freire et al.* 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al.* 2005). **IZABAL:** S. loc., 2007, *Pérez*, det. *Pérez* (USCG, *Barillas de Klee et al.* 2008).

EL SALVADOR. S. loc. (Lücking 1995). **SANTA ANA:** Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler* A/10/1, A/10/4, A/11/4, etc. (*Winkler* 1967).

COSTA RICA. Cordillera de Talamanca (*Holz* 2003; *Holz and Gradstein* 2005b); S. loc. (*Evans* 1903a; *Pagán* 1942b; *Jovet-Ast* 1957; *Bischler* 1964; *Winkler* 1967; *Fulford* 1987; *Fulford and Sharp* 1990). **ALAJUELA:** Alajuela cantón, between Vara Blanca and Poás Volcano, 31 Jan 1985, *Eggers* CR 1/200 (*Pócs* 2006a); Poás, 1,950 m, *Eggers* (hb. *Eggers, Eggers* 2001). **CARTAGO:** Turrialba cantón, Guayabo, 1,100 m, *Eggers* (hb. *Eggers, Eggers* 2001). **GUANACASTE:** Tenorio, 500 m, *Eggers* (hb. *Eggers, Eggers* 2001). **HEREDIA:** Heredia cantón, Vara Blanca, 1,380 m, *Eggers* (hb. *Eggers, Eggers* 2001); San Isidro cantón, Cerro de Caricias, *Standley* 51980 p.p. (JE, *Zwicker* 1932); San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, *Standley* 51988 p.p. (JE-04002124, *Zwicker* 1932; *Herzog* 1951); San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, *Standley* 51988a (JE, *Bischler* 1964); San Isidro cantón, Cerro de Caricias, N of San Isidro, 2,000–2,400 m, 11 Mar 1926, *Standley & Valerio* 51980 p.p. (JE, US, *Bischler* 1964; *Morales* 1991; *Dauphin* 2005); San Isidro cantón, Yerba Buena, 2,000 m, 22–28 Feb 1926, *Standley* 33146a (JE, *Zwicker* 1932; *Bischler* 1964; *Morales* 1991); San Isidro cantón, Yerba Buena, 22–28 Feb 1926, *Standley* 49709a (JE, *Herzog* 1951; *Bischler* 1964; *Morales* 1991; *Dauphin* 2005); San Miguel de Sarapiquí, 850 m, 30 Jan 1985, *Eggers* (hb. *Eggers, Eggers* 2001). **LIMÓN:** Braulio Carrillo National Park, 400–500 m (*Eggers* 2001); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 91-36, 92-212, 92-335, etc. (hb. *Lücking, Lücking* 1995); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (*Lücking* 1997). **PUNTARENAS:** Golfito cantón, Esquinas, <100 m, *Eggers* (hb. *Eggers, Eggers* 2001); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (*Sonnleitner et al.* 2009); Monteverde, <1,500 m (*Dauphin* 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a); Monteverde cantón, trail from Cerro Amigos to Canadian Research Station, 10°18'N, 84°48'W, 27 Feb 1992, *Lyon* 106, det. *Dauphin* Jun 2017 (MO-4411683!, **this publication**); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, *Gradstein et al.* (U, *Sillett et al.* 1995); Monteverde, 1,600 m, *Eggers* (hb. *Eggers, Eggers* 2001); S. loc. (*Merwin et al.* 2001). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, *Holz et al.* 2002); Dota cantón, San Gerardo (*Dauphin* 2005); Général (*Tonduz* 1896); Moravia cantón, La Palma, ~1,600 m, *Standley* 33146 p.p. (S, *Herzog* 1951; *Morales* 1991; *Dauphin* 2005); Moravia cantón, La Palma, 1,600 m, 3 Feb 1924, *Standley* (S, *Bischler* 1964); Pérez Zeledón cantón, El General forest, *Pittier* 6002, 6052, 6053 (G, *Stephani* 1893c; *Morales* 1991; *Dauphin*

2005); Tarrazú cantón, La Palma Forest, Feb 1891, *Pittier* 6002 (G-5273, *Bischler* 1964).

PANAMA. S. loc. (Lücking 1995). **CHIRIQUÍ:** Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,870–2,260 m, 6 Apr 2006, *Schäfer-Verwimp & Verwimp* 30978 (JE, *Schäfer-Verwimp* 2014); Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,750 m, 4 Apr 2006, *Schäfer-Verwimp & Verwimp* 30901 (JE, *Schäfer-Verwimp* 2014); Boquete distrito, Bajo Mono, along Rio Caldera, 8°50.5'N, 82°28.9'W, 1,670–1,745 m, 5 Apr 2006, *Schäfer-Verwimp & Verwimp* 30939/A, 30950, 30968 (JE, *Schäfer-Verwimp* 2014); Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, *Schäfer-Verwimp & Verwimp* 34575/C (JE, *Schäfer-Verwimp* 2014); Tierras Altas distrito, Parque Internacional La Amistad, Las Nubes, sendero Panamá Verde, 8°53'37.4"N, 82°38'52.5"W, 2,218 m, Sep 2015–Jul 2016, *Guerra-Batista et al.* (*Guerra-Batista et al.* 2020). **COCLÉ:** Antón distrito, El Valle de Antón, Alto de La Mesa, 8°38'N, 80°07'W, 800–850 m, 30 Mar 2006, *Schäfer-Verwimp & Verwimp* 30744 (JE, *Schäfer-Verwimp* 2014); Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, *Schäfer-Verwimp & Verwimp* 34117 (JE, *Schäfer-Verwimp* 2014); Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8'N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34259/B, 34262/B, 34263/B (JE, *Schäfer-Verwimp* 2014); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Rio Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López* 662, 663, etc. (PMA, *Sierra et al.* 2019a). **DARIÉN:** Cerro Pirre (Stotler et al. 1998); Cerro Pirre, *Salazar Allen & Gradstein* 9284 (PMA, *Stotler et al.* 1998); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992); S. loc. (*Schäfer-Verwimp* 2014). **VERAGUAS:** Santa Fe distrito, along road to Guabal on the Caribbean coast, 8°31.9–33.9'N, 81°08.8–11.3'W, 27 Mar 2009, *Schäfer-Verwimp & Verwimp* 34304/A, det. A. *Schäfer-Verwimp* (JE, *Schäfer-Verwimp* 2014); Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, *Schäfer-Verwimp & Verwimp* 30807/A (JE, *Schäfer-Verwimp* 2014).

COCOS I. Río Genio, 5°32'57"N, 87°03'56"W, 0–50 m, Apr 1992, *Lücking* 517 (ULM, *Bernecker-Lücking* 2000); Río Genio, 5°32'57"N, 87°03'56"W, 0–50 m, Apr 1992, *Lücking* 536 (USJ, *Bernecker-Lücking* 2000); S. loc. (Miller et al. 1983; Dauphin 1995, 1999; Lücking 1995); S. loc., 50 m, 1902, *Pittier* (G, *Bischler* 1964); Yglesias A, 50–100 m, Apr 1992, *Lücking* 563 (hb. *Bernecker, Bernecker-Lücking* 2000); Yglesias C, 250–350 m, Apr 1992, *Lücking* 580 (USJ, *Bernecker-Lücking* 2000).

Also reported from the Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Drepanolejeunea infundibulata (Spruce) A.Evans, *Bull. Torrey Bot. Club* 30(1): 35, 1903 (Evans 1903a).

=*Lejeunea infundibulata* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 191, 1884 (Spruce 1884). Type: Ecuador.

=*Drepanolejeunea bidens* (Prantl) A.Evans f. *denticulata* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 145, 1951 (Herzog 1951), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide *Bischler* (1964). Original material (see also *Bischler* 1964 as “type”): Costa Rica, Heredia, Yerba Buena, Standley 49709 p.p. (JE-04010818 <https://je.jacq.org/JE04010818>).

EL SALVADOR. S. loc. (Lücking 1995). **SANTA ANA:** Metapán municipio, SE-hang des Cerro Miramundo bei der Hacienda Montecristo, *Winkler A/31/4* (*Winkler* 1967).

COSTA RICA. S. loc. (Fulford 1987; Fulford and Sharp 1990). **CARTAGO:** Paraíso cantón, Refugio de Fauna Silvestre de Tapanti, 1,400 m, *Eggers* (hb. *Eggers, Eggers* 2001). **GUANACASTE:** Tenorio, 500 m, *Eggers* (hb. *Eggers, Eggers* 2001). **HEREDIA:** Heredia cantón, Vara Blanca, 1,380 m, *Eggers* (hb. *Eggers, Eggers* 2001); San Isidro cantón, Cerro de Caricias, *Standley* 49788a (JE, *Zwicker* 1932; *Herzog* 1951; *Morales* 1991; *Dauphin* 2005); San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, *Standley* 49802 (JE, *Zwicker* 1932); San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, *Standley* 51988 p.p. (JE-04002124, *Zwicker* 1932; *Herzog* 1951; *Morales* 1991; *Dauphin* 2005); San Isidro cantón, Yerba Buena, *Pittier* 6053 (BM, *Morales* 1991); San Isidro cantón, Yerba Buena, *Standley* 49709 p.p. (JE, **TYPE** of *Drepanolejeunea bidens* f. *denticulata*, *Herzog* 1951 as *Drepanolejeunea bidens* f. *denticulata*, *Bischler* 1964; *Bonner* 1965 as *Drepanolejeunea bidens* f. *denticulata*; *Morales* 1991; *Dauphin* 2005); San Miguel de Sarapiquí, 850 m, 30 Jan 1985, *Eggers* (hb. *Eggers, Eggers* 2001). **LIMÓN:** Braulio Carrillo National Park, 400–500 m (*Eggers* 2001); Pococí cantón, Braulio Carrillo National Park, Botarrama trail (Dauphin 2005); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, *Dauphin* 2967 p.p., det. Ilkui-Borges (NY, *Dauphin* 2005); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 91-66, 91-68, 91-70, etc. (hb. *Lücking, Lücking* 1995); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (*Lücking* 1997). **PUNTARENAS:** Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (*Sonnleitner et al.* 2009); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 80–140 m (GOET, *Wanek and Pörtl* 2008); Monteverde, 1,600 m, *Eggers* (hb. *Eggers, Eggers* 2001). **SAN JOSÉ:** Dota cantón, San Gerardo, Los Robles, 4 Jan 2000, *Schäfer-Verwimp & Holz* SV/H-0473/C (*Schäfer-Verwimp* 2001); La Quebrada, *Schäfer-Verwimp & Holz* SV/H-0253 (CR, *Schäfer-Verwimp* 2001); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,000 m, *Eggers* (hb. *Eggers, Eggers* 2001).

PANAMA. **CHIRIQUÍ:** Tierras Altas distrito, Parque Internacional La Amistad, Las Nubes, sendero Panamá Verde, 8°53'37.4"N, 82°38'52.5"W, 2,218 m, Sep 2015–Jul 2016, *Guerra-Batista et al.* (*Guerra-Batista et al.* 2020).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Drepanolejeunea integerrima Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 146, 1951 (Herzog 1951). Type: Honduras, Atlántida, Lancetilla Valley, near Tela, Dec 1927–Mar 1928, *Standley* 56755 p.p. (US-04659783 <http://n2t.net/ark:/65665/38261d299-4865-46b1-afaf-488afb77377e>).

HONDURAS. ATLÁNTIDA: Tela municipio, Lancetilla Valley, 20–600 m, 6 Jul 1927–20 Mar 1928, *Standley* 56755 p.p., 56807 (US, JE, Bischler 1964; Bonner 1965; Herzog 1951, TYPE).

Not found outside Central America.

Drepanolejeunea lichenicola (Spruce) Steph., *Sp. Hepat. (Stephani)* 5: 335, 1913 (Stephani 1913).

≡ *Lejeunea lichenicola* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 191, 1884 (Spruce 1884). Type: Ecuador.

≡ *Drepanolejeunea bispinulosa* A.Evans., *Bull. Torrey Bot. Club* 30(1): 32, 1903 (Evans 1903a), syn. fide Bischler (1964). Type: Puerto Rico.

GUATEMALA. S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008 as *Drepanolejeunea* cf. *lichenicola*). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 459 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

EL SALVADOR. S. loc. (Lücking 1995; Schäfer-Verwimp 1999; Schäfer-Verwimp and Pócs 2009). **CHALATENANGO:** San Ignacio municipio, Cerro el Pittal, *Winkler C/2* (Winkler 1967). **SANTA ANA:** Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler A/20/1, A/22/5, A/26/9, etc.* (Winkler 1967).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Winkler 1967; Jovet-Ast 1957 as *Drepanolejeunea bispinulosa*; van Zanten and Gradstein 1987; Fulford and Sharp 1990; Gradstein and Schäfer-Verwimp 1999; Holz 2005; Schäfer-Verwimp and Pócs 2009). **ALAJUELA:** Alajuela cantón, between Vara Blanca and Poás Volcano, 31 Jan 1985, *Eggers* CR 1/200 (Pócs 2006a); Poás, 1,950 m, *Eggers* (hb. Eggers, Eggers 2001). ***CARTAGO:** El Guarco cantón, 3 de Junio, Pan-American Highway km 67, 3 Jan 2000, *Schäfer-Verwimp & Holz* SV/H-0467B, det. Dauphin Jun 2017 (MO-5271173!, this publication). **GUANACASTE:** Tenorio, 500 m, *Eggers* (hb. Eggers, Eggers 2001). **HEREDIA:** Heredia cantón, Vara Blanca, 1,380 m, *Eggers* (hb. Eggers, Eggers 2001); San Miguel de Sarapiquí, 850 m, 30 Jan 1985, *Eggers* (hb. Eggers, Eggers 2001); San Rafael cantón, road between San Rafael and Rio Las Vueltas, Rio Patria above bridge, 10°05'N, 84°04'W, 4 Sep 1979, *Stevens* 13943, det. Whittemore Aug 1990 (MO-3674642!, this publication). **LIMÓN:** Braulio Carrillo National Park, 400–500 m (Eggers 2001); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 92-342, 92-430, 92-434, 92-473 (hb. Lücking, Lücking 1995); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (Lücking 1997); Pococí cantón, Tortuguero, 1–5 m, *Eggers* (hb. Eggers, Eggers 2001). **PUNTARENAS:** Golfito cantón, Piedras Blancas

National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde, 1,600 m, *Eggers* (hb. Eggers, Eggers 2001); S. loc. (Merwin et al. 2001). **SAN JOSÉ:** Acosta cantón, El Cornelio, 1,350 m, *Dauphin et al.* 2945 p.p., det. Ilkui-Borges (NY, Dauphin 2005); Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, Los Robles, 2,400 m, 4 Jan 2000, *Schäfer-Verwimp & Holz* SV/H-0486/B (Schäfer-Verwimp 2001); Moravia cantón, La Palma, 1,600 m, *Standley* 37971a (JE, S, Herzog 1951 as *Drepanolejeunea bispinulosa*); Moravia cantón, La Palma, 500–2,500 m, 17 Mar 1924, *Standley* 37971 p.p. (JE, S, Bischler 1964; Morales 1991; Dauphin 2005); Pérez Zeledón cantón, Quizarra near San Isidro, 700 m, *Eggers* (hb. Eggers, Eggers 2001).

PANAMA. S. loc. (Lücking 1995; Schäfer-Verwimp 1999; Schäfer-Verwimp and Pócs 2009). **CHIRIQUÍ:** Boquete distrito, Palo Alto, Boquete, *Salazar Allen et al.* 767 (PMA, Stotler et al. 1998); S. loc. (Schäfer-Verwimp 2014). **COCLÉ:** Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 750 m, 31 Mar 2006, *Schäfer-Verwimp & Verwimp* 30770 (JE, Schäfer-Verwimp 2014). **DARIÉN:** Cerro Pirre (Stotler et al. 1998); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992); S. loc. (Schäfer-Verwimp 2014).

COCOS I. Cerro Pelón, 5°32'57"N, 87°03'56"W, 500 m, *Dauphin* A-7, det. G. Dauphin Feb 2021 (USJ-47535!, this publication); Cerro Pelón, 5°32'57"N, 87°03'56"W, 500 m, 15 Feb 1994, *Dauphin* A-7 (USJ, Dauphin 1995, 1999, 2005); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 21 Jan 1990, *Dauphin* 972 p.p., det. G. Dauphin Apr 2021 (USJ-47642!, this publication); S. loc. (Dauphin 1995).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Drepanolejeunea mosenii (Steph.) Bischl., *Rev. Bryol. Lichénol.* 35(1/4): 118, 1968 (Bischler 1967a).

≡ *Leptolejeunea mosenii* Steph., *Sp. Hepat. (Stephani)* 5: 372, 1913 (Stephani 1913). Type: Brazil.

≡ *Leptolejeunea stenophylla* f. *latifolia* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 146, 1951 (Herzog 1951), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Bischler (1967a). Original material: Honduras, Lancetilla Valley, near Tela, 6 Dec 1927–20 Mar 1928, *Standley* 56755 (JE, US).

GUATEMALA. S. loc. (Lücking 1995; Bastos 2004; Mello et al. 2011). **ALTA VERAPAZ:** Panzós municipio, Cahabón and/or Senahú, 2012, Pérez & López-Medina, det. M. Pérez (Pérez and López-Medina 2012); S. loc., Pérez 319 (USCG, Pérez 2009); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la

Conservación del Quetzal, Freire et al. 69, 492 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). **ESCUINTLA**: Below Las Lajas, 900–1,200 m, 2 Sep 1939, Standley 64855 (NY, Bischler 1967a). **ZACAPA**: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007).

BELIZE. **CAYO**: Mountain Pine Ridge, Cave Rio Frio, 600 m, 1996, Eggers BEZ 2/31 (hb. Eggers, O'Shea et al. 1997).

HONDURAS. S. loc. (Lücking 1995; Bastos 2004; Mello et al. 2011). **ATLÁNTIDA**: Tela municipio, Lancetilla Valley, 20–600 m, 6 Jul 1927–20 Mar 1928, Standley 56755 p.p., 56807 (US, JE, TYPE of *Leptolejeunea stenophylla* f. *latifolia*, Herzog 1951 as *Leptolejeunea stenophylla* f. *latifolia*); Tela municipio, Lancetilla Valley, 20–600 m, 6 Jul 1927–20 Mar 1928, Standley 56719, 56755, 56758, 56761, 56788, 56810 p.p. (JE, US, Bischler 1967a); Tela municipio, Lancetilla Valley, 20–600 m, 6 Jul 1927–20 Mar 1928, Standley 56807 (JE, US, Bischler 1967a; Geissler and Bischler 1985 as *Leptolejeunea stenophylla* f. *latifolia*).

COSTA RICA. **ALAJUELA**: Poás, 1,950 m, Eggers (hb. Eggers, Eggers 2001). **GUANACASTE**: Tenorio, 500 m, Eggers (hb. Eggers, Eggers 2001). **HEREDIA**: Heredia cantón, Vara Blanca, 1,380 m, Eggers (hb. Eggers, Eggers 2001); San Miguel de Sarapiquí, 850 m, 30 Jan 1985, Eggers (hb. Eggers, Eggers 2001). **LIMÓN**: Braulio Carrillo National Park, 400–500 m (Eggers 2001); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Lücking 92-73 (USJ, Gradstein et al. 1994; Dauphin 2005); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, Lücking 91-75, 92-217, 92-253, etc. (hb. Lücking, Lücking 1995); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, Lücking (Lücking 1997). **PUNTARENAS**: Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009).

PANAMA. S. loc. (PR, Bischler 1967a; Lücking 1995; Stotler et al. 1998; Bastos 2004; Mello et al. 2011). **CHIRIQUÍ**: Tierras Altas distrito, Laguna de El Volcán, 8°46.1'N, 82°40.4'W, 1,370 m, 1 Apr 2009, Schäfer-Verwimp & Verwimp 34641/A (JE, MO-6690417, Schäfer-Verwimp 2014); Tierras Altas distrito, Laguna de El Volcán, 8°46.1'N, 82°40.4'W, 1,370 m, 1 Apr 2009, Schäfer-Verwimp & Verwimp 34648 (JE, MO-6690417, Schäfer-Verwimp 2014); Tierras Altas distrito, Parque Internacional La Amistad, Las Nubes, sendero Panamá Verde, 8°53'37.4"N, 82°38'52.5"W, 2,218 m, Sep 2015–Jul 2016, Guerra-Batista et al. (Guerra-Batista et al. 2020).

Also reported from Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Drepanolejeunea orthophylla (Nees et Mont.) Bischl., *Rev. Bryol. Lichénol.* 35(1/4): 102, 1968 (Bischler 1967a) subsp. *orthophylla*.

≡*Lejeunea orthophylla* Nees et Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 19: 265, 1843 (Montagne 1843). Type: French Guiana.

≡*Lejeunea stenophylla* Lindenb. et Gottsche, *Syn. Hepat.* 5: 769, 1847 (Gottsche et al. 1847), syn. fide Bischler (1967a). Type: Mexico.

≡*Leptolejeunea stenophylla* (Lindenb. et Gottsche) Schiffn., *Hepat. (Engl.-Prantl)*: 117, 1893 (Schiffner 1893a).

GUATEMALA. S. loc. (Fulford and Sharp 1990; Oliveira-Silva and Yano 2000). **ALTA VERAPAZ**: E of Tactic Road to Tamakú, 1,500–1,650 m, 9 Apr 1939, Standley 71216, 71308 (NY, Bischler 1967a); San Pedro Carchá municipio, Region of Cocolá, NE of Carchá, 2 Apr 1939, Standley 70331 (NY, Bischler 1967a). **BAJA VERAPAZ**: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 465, 470 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). **IZABAL**: Los Amates municipio, near Quiriguá, 72–150 m, 26–27 Apr 1939, Standley 72521 (NY, Bischler 1967a). **SAN MARCOS**: Río Ixpal, below Rodeo, 750 m, 14 Mar 1939, Standley 68728 (FH, NY, Bischler 1967a).

HONDURAS. S. loc. (Jovet-Ast 1957 as *Leptolejeunea stenophylla*; Winkler 1967 as *Leptolejeunea stenophylla*). **ATLÁNTIDA**: Tela municipio, Lancetilla Valley, Standley (Standley 1931 as *Leptolejeunea stenophylla*); Tela municipio, Lancetilla Valley, 20–600 m, 6 Jul 1927–20 Mar 1928, Standley 56807 (JE, US, Zwickel 1932 as *Leptolejeunea stenophylla*; Herzog 1951 as *Leptolejeunea stenophylla*).

EL SALVADOR. **SANTA ANA**: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, Winkler C/3 (Winkler 1967 as *Leptolejeunea stenophylla*).

COSTA RICA. S. loc. (Fulford and Sharp 1990; Oliveira-Silva and Yano 2000). **CARTAGO**: Jiménez cantón, Río Naranjo, Mar 1893, Tonduz 15571 (M, YU, NY, Bischler 1967a; Morales 1991; Dauphin 2005); Jiménez cantón, Río Naranjo, Mar 1893, Tonduz 15616 (G, Bischler 1967a; Morales 1991; Dauphin 2005); Jiménez cantón, Río Naranjo, Mar 1893, Tonduz (B, M, Bischler 1967a; Dauphin 2005).

PANAMA. **CHIRIQUÍ**: Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,580 m, Schäfer-Verwimp & Verwimp 34400 (JE, Schäfer-Verwimp 2014).

Also reported from Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Drepanolejeunea pinnatiloba Schiffn., *Bot. Jahrb. Syst.* 23(5): 591, 1897 (Schiffner 1897). Type: Cuba.

PANAMA. S. loc. (Reis et al. 2020). **DARIÉN**: Cerro Pirre (Stotler et al. 1998); Cerro Pirre, 1,200–1,300 m, Salazar Allen & Gradstein 9281 (PMA, Stotler et al. 1998); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, Gradstein & Salazar Allen (PMA, U, Gradstein and Salazar Allen 1992).

?**COCOS I.** S. loc. (Dauphin 1995). Note: We are not aware of any firsthand report from Costa Rica.

Also reported from the Caribbean, Northern South America, Brazil.

Drepanolejeunea ramentiflora Steph., *Sp. Hepat. (Stephani)* 5: 338, 1913 (Stephani 1913). Lectotype (Bischler 1964: 62): Costa Rica, s.d., *Pittier & Durand s.n.* (G-00069280 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=115131&lang=en>).

COSTA RICA. S. loc. (Stephani 1913; Gradstein et al. 2001b; Gradstein and Uribe 2016; Gradstein 2021; Pócs et al. 2022); S. loc., *Pittier & Durand* (G, TYPE, Bischler 1964; Bonner 1965; Morales 1991; Dauphin 2005).

Also reported from the Caribbean(?), Western South America.

Drepanolejeunea spinosa Herzog, *Feddes Repert. Spec. Nov. Regni Veg.* 57(1/2): 185, 1955 (Herzog 1955a). Type: Colombia.

EL SALVADOR. SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler A/24/2* (Winkler 1967).

PANAMA. COCLÉ: Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8°N, 80°06.9–7.0°W, 900–1,005 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp 34220/A, 34263/H* (JE, Schäfer-Verwimp 2014).

Also reported from Northern South America, Western South America.

Drepanolejeunea submuricata R.M.Schust., *Phytotaxa* 208(1): 98, 2015 (Pócs et al. 2015b).

≡*Drepanolejeunea submuricata* R.M.Schust., *Nova Hedwigia* 62(1/2): 34, 1996 (Schuster 1996a), nom. inval. (ICN2018 Art. 40.7; no herbarium indicated). Type: Dominica.

COSTA RICA. S. loc. (Lavocat Bernard et al. 2009; Schäfer-Verwimp and Pócs 2009; Schäfer-Verwimp and Reiner-Drehwald 2009 as *Drepanolejeunea submuricata*; Schäfer-Verwimp 2014; Schäfer-Verwimp and Van Melick 2016). **CARTAGO:** Paraíso cantón, Tapantí National Park, Orosi Valley, ~9°46'N, 83°48'W, 600 m, 30 Dec 1999, *Schäfer-Verwimp & Holz SV/H-0365/A* (CR, JE, Blockeel et al. 2009).

PANAMA. CHIRIQUÍ: Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,900 m, 6 Apr 2006, *Schäfer-Verwimp & Verwimp 30993/A* (JE, Schäfer-Verwimp 2014). **COCLÉ:** Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8°N, 80°06.9–7.0°W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp 34222, 34244/B, 34259/A* (JE, Schäfer-Verwimp 2014). **PANAMA:** Panamá distrito, Cerro Jefe, along unpaved road. 9°13.4–5°N, 79°22.7–9°W, 750–1,000 m, 28 Mar 1906, *Schäfer-Verwimp & Verwimp 30737* (JE, Schäfer-Verwimp 2014).

Also reported from the Caribbean, Northern South America, Western South America.

Drepanolejeunea trigonophylla Steph., *Hedwigia* 35(3): 85, 1896 (Stephani 1896). Type: Guadeloupe, Martinique.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 146 (USCG, Freire et al. 2013); Purhulhá municipio,

Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

EL SALVADOR. SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler A/24/4* (Winkler 1967).

Also reported from the Caribbean, Western South America.

***Dumortiera* Nees, *Nova Acta Phys.-Med. Acad. Caes. Leop.-Carol. Nat. Cur.* 12(1): 410, 1824 (Reinwardt et al. 1824b).**

Dumortiera hirsuta (Sw.) Nees, *Nova Acta Phys.-Med. Acad. Caes. Leop.-Carol. Nat. Cur.* 12(1): 410, 1825 (Reinwardt et al. 1824b) subsp. *hirsuta*.

≡*Marchantia hirsuta* Sw., *Prodr. (Swartz)*: 145, 1788 (Swartz 1788). Type: Jamaica.

≡*Dumortiera hirsuta* (Sw.) Nees var. *glabrocapitata* Steph., *Prim. flor. costar.*: 113, 1893 (Stephani 1893c), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Costa Rica, San José, Carillo, *Pittier 6016*.

GUATEMALA. S. loc. (Evans 1919b; Svihla 1942; Schuster 1992c; Yano and Luizi-Ponzo 2011 as *Dumortiera hirsuta* var. *hirsuta*). **ALTA VERAPAZ:** S. loc., Pérez 189 (USCG, Pérez 2009); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 428, 440 (USCG, Freire et al. 2013). **CHIMALTENANGO:** S. loc., Standley 64349 (NY, Pérez 2009). **QUETZALTENANGO:** S. loc., Standley 67502 (NY, Pérez 2009); Zunil municipio, Fuentes Georginas, 4 km S of Zunil, NW slopes of Volcán Zunil, 14°45'4.0"N, 91°28'35.8"W, 2 Jan 2006, *Quedensley 3828*, det. Dauphin Sep 2017 (MO, W-0089060!, this publication).

***BELIZE.** ***CAYO:** Monkey Tail Branch from Las Cuevas to the confluence with the Raspaculo Branch, 16°45'N, 88°56'W, 12 Dec 1996, *Allen 18292*, det. Whittemore 2000 (MO-5215161! <http://tropicos.org/specimen/90088070>, this publication). ***TOLEDO:** Columbia River Forest Reserve, Camp 2, 16°22'59"N, 89°07'17"W, 11 Feb 1997, *Allen 18583*, det. Whittemore 2000 (MO-5215172! <http://tropicos.org/specimen/90088081>, this publication).

HONDURAS. S. loc. (Evans 1919b; Svihla 1942; Miller et al. 1983 as *Dumortiera hirsuta* var. *hirsuta*). ***ATLÁNTIDA:** El Porvenir municipio, Pico Bonito National Park, along stream entering Rio Bonito, 15°38–39'N, 86°51–52'W, 25 Apr 1996, *Allen 17592*, det. Whittemore 1996 (MO-44685, this publication). ***COMAYAGUA:** Rio Selguapa, ~4 km SE of Siguatepeque, 14°34'N, 87°48'W, 8 May 1992, *Allen 11762*, det. Whittemore 1993 (MO-3967040!, this publication). ***LEMPIRA:** Gracias municipio, Montaña de Celaque, SE portion of massif, 14°33'N, 85°39'W, 3 Jun 1992, *Allen 12794*, det. Whittemore 1992 (MO-3964986!, this publication). ***OLANCHO:** Catacamas municipio, Sierra de Algata, Montaña Babilonia, ridge above La Chorrera 15 km NNW, 14°59'N, 85°56'W, 23 May 1991, *Davidse & Zúñiga 35592*, det. Whittemore 1992 (MO-3959668!, this publication). ***SANTA BÁRBARA:** Base of E slope of Mount Santa Bárbara, ~7 km N of El Mochito, 14°55'N, 88°07'W, 24

Nov 1991, *Allen* 11690, det. Whittemore 1992 (MO-3965017!, *this publication*).

EL SALVADOR. AHUACHAPÁN: S. loc. (Standley and Calderón 1925).

NICARAGUA. S. loc. (Schuster 1992c; Yano and Luizi-Ponzo 2011 as *Dumortiera hirsuta* var. *hirsuta*). *ATLÁNTICO SUR: Nueva Guinea municipio, 6.3 km S of bridge at Colonia Jun, 11°36'–37'N, 84°22'W, 13–14 Feb 1978, *Stevens* 6406, det. Brinda & Dauphin May 2017 (MO-3669090!, *this publication*). CHINANDEGA: Volcán El Viejo, *Baker* 2179 (W, *Bischler-Causse et al.* 2005). *CHONTALES: Cuapa municipio, 2.2 km NW of Rio Cuapa bridge below Cuapa, 12°18'04"N, 85°19'08"W, 17 Jan 2015, *Stevens & Montiel* 35713, det. Whittemore 1997 (MO-6494927!, *this publication*). *MATAGALPA: La Dalia municipio, Macizos de Peñas Blancas, top and N slope of steep ridge SW of finca El Cielo, 13°15'N, 85°41'W, 13–18 Jan 1979, *Stevens* 11314, det. Whittemore 1997 (MO-4435996!, *this publication*). *NUEVA SEGOVIA: Murra municipio, near Quebrada Negra, 13°49'04"N, 85°58'55"W, 11 Jan 2015, *Stevens & Montiel* 35601, det. Whittemore 1997 (MO-6494928!, *this publication*).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Haupt 1942; Cole 1984; Dauphin 2005; Gradstein and Holz 2005); S. loc., *Endres* 65 (W, *Bischler-Causse et al.* 2005). ALAJUELA: Alajuela cantón, Poás Volcán, E slope (Morales 1991); Alajuela cantón, Poás Volcán, E slope, 6,000 ft (1,829 m), 25 Jul 1940, *Haupt* (Haupt 1942); Alajuela cantón, Poás Volcán, E slope, 6,000 ft (1,829 m), 2 Aug 1940, *Haupt* (Haupt 1942); S. loc., *Salazar Allen et al.* 20571 (PMA, *Forrest et al.* 2011); S. loc., *Salazar Allen et al.* 20574 (PMA, *Forrest et al.* 2011); San Ramón cantón, San Ramón, Reserva Biológica Alberto Brenes, *Fuentes* 821 (CR, *Dauphin* 2005); Upala cantón, Guanacaste National Park, Sector Santa María, Quebrada Provisión, *Dauphin* 2313 (CR, *Dauphin* 2005). CARTAGO: Oreamuno cantón, Irazú Volcán, Pacific side, 6 Jul 1941, *Svihla* 41-458 p.p. (*Svihla* 1942; *Morales* 1991; *Dauphin* 2005); Paraíso cantón, Orosi, Río Grande de Orosi, *Jiménez* 1629 (CR, *Dauphin* 2005; *Morales* 1991); Paraíso cantón, Valle del Río Grande de Orosi, cerca del puente colgante sobre el Río Grande de Orosi, en la carretera 224 de Purisil hacia el Parque Nacional Tapantí National Park, 9°46'00"N, 83°48'10"W, 1,200 m, Mar 2001–Feb 2002, *Salazar Allen et al.* (Salazar Allen et al. 2004); S. loc., *Salazar Allen et al.* 17042, 17043, 17045, 17101, 20620, 20633 (PMA, *Forrest et al.* 2011). GUANACASTE: Bagaces cantón, Guanacaste National Park, Sector Santa María, La Casona, *Dauphin* 2417 (CR, *Dauphin* 2005). HEREDIA: Braulio Carrillo National Park, area Zurquí, *Gómez-Pignataro* 20105 (U, *Bischler-Causse et al.* 2005); S. loc., *Salazar Allen et al.* 17056 (PMA, *Forrest et al.* 2011). LIMÓN: Pococí cantón, Río Toro Amarillo, 2 km W de Guápiles, *Woodruff*, det. Griffin (FLAS, *Morales* 1991; *Dauphin* 2005). PUNTARENAS: Coto Brus cantón, Cerro Echandi, *Gómez-Pignataro et al.* 21847 (U, *Bischler-Causse et al.* 2005); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 80–140 m (GOET, *Wanek and Pörtl* 2008); Monteverde (*Morales* 1991); Monteverde cantón, Eatons path, 4,500 ft (1,372 m), 9 Mar 1969, *James*, W. 1969-88 (R,

Reed and Robinson 1971; *Dauphin* 2005). SAN JOSÉ: Aserri cantón, Tablazo Mountains, SW of Cartago, 5,500 ft (1,676 m), 9 Aug 1940, *Haupt* (Haupt 1942); Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, *Holz et al.* 2002); Dota cantón, Copey, *Schäfer-Verwimp* 266 (CR, *Dauphin* 2005); Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, San Gerardo (*Dauphin* 2005); El Tablazo, Corillo, *Pittier* 6016 (PC, TYPE of *Dumortiera hirsuta* var. *glabrocapitata*, *Stephani* 1893c as *Dumortiera hirsuta* var. *glabrocapitata*; *Morales* 1991; *Bischler-Causse et al.* 2005; *Dauphin* 2005); S. loc., *Holz* 400 (E, *Forrest et al.* 2011).

PANAMA. S. loc. (*Evans* 1919b; *Schuster* 1992c; *Stotler et al.* 1998; Yano and Luizi-Ponzo 2011 as *Dumortiera hirsuta* var. *hirsuta*). BOCAS DEL TORO: Changuinola distrito, lower Changuinola River, *Lewis et al.* 900 (MO, *Stotler et al.* 1998). CHIRIQUÍ: Boquete distrito, Holcomb Trail, *Cornman* 3134, 3135 (F, MO, *Stotler et al.* 1998); Boquete, 5 Sep 1940, *Svihla* 40-403 (*Svihla* 1942; *Stotler et al.* 1998); Gualaca distrito, Fortuna Forest Reserve, Institute of Hydraulic Resources and Electricity's plant nursery, 1,100 m (*Salazar Allen et al.* 2021); Gualaca distrito, Fortuna Forest Reserve, NE of camping site, 900–1,200 m (*Salazar Allen et al.* 2021); Gualaca distrito, Fortuna Forest Reserve, NW of camping site, 1,000–1,200 m (*Salazar Allen et al.* 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Arena, 920–1,100 m (*Salazar Allen et al.* 2021); Gualaca distrito, Fortuna, 1,000 m, *Salazar Allen et al.* 609 (PMA, *Stotler et al.* 1998); Tierras Altas distrito, Volcán, El Aguacatal, Caldera River, 2,100 m, *Salazar Allen* 1175 (PMA, *Stotler et al.* 1998). COCLÉ: Antón distrito, El Valle de Antón, La Mesa, *Salazar Allen et al.* 1388 (PMA, *Stotler et al.* 1998); Antón distrito, Monumento Natural Cerro Gaital, El Valle de Antón, 8°37'34.6"N, 80°08'13.7"W, *Gudiño JGL* VA04, det. *Salazar Allen* (PMA, *Durant-Archibold et al.* 2017). PANAMA WEST: La Chorrera distrito, Barro Colorado Island, 1 Aug 1950, *Chickering* (MICH, *Crum and Arzeni* 1953; *Stotler et al.* 1998; *Dauphin et al.* 2022); S. loc. (*He et al.* 2016). PANAMA: Panamá distrito, Culebra Island, *Welch* 19682 (PMA, *Stotler et al.* 1998); S. loc. (*Mitten* 1854b).

Also reported from Northern Europe, Southwestern Europe, Southeastern Europe, Macaronesia, West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, Western Asia, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasia, Australia, New Zealand, Southwestern Pacific, Southeastern Pacific, Northwestern Pacific, Northeastern Pacific, North-Central USA, Northeastern USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands.

Dumortiera hirsuta subsp. *nepalensis* (Taylor) R.M.Schust., *Hepat. Anthocer. N. Amer.* 6: 386, 1992 (*Schuster* 1992c). =*Hygrophila nepalensis* Taylor, *Trans. Linn. Soc. London* 17(3): 392, 1836 (Taylor 1836). Type: Nepal.

≡*Dumortiera nepalensis* (Taylor) Nees, *Naturgesch. Eur. Leberm.* 4: 169, 1838 (Nees 1838a).

≡*Dumortiera hirsuta* var. *nepalensis* (Taylor) Frye et L. Clark, *Univ. Wash. Publ. Biol.* 6(1): 93, 1937 (Frye and Clark 1937).

HONDURAS. S. loc. (Haynes et al. 1923 as *Dumortiera nepalensis*; Schuster 1992c). **GRACIAS A DIOS:** Brus Laguna municipio, trail near Rio Platano, 1903, *Wilson* 682 (Evans 1919b as *Dumortiera nepalensis*).

COSTA RICA. **CARTAGO:** Paraíso cantón, Valle del Río Grande de Orosi, cerca del puente colgante sobre el Río Grande de Orosi, en la carretera 224 de Purisil hacia el Parque Nacional Tapantí, 9°46'00"N, 83°48'10"W, 1,200 m, Mar 2001–Feb 2002, *Salazar Allen et al.* (Salazar Allen et al. 2004); Turrialba cantón, 12 km S of Turrialba, 9°48'N, 83°42'W, *Liesner* 14346, det. Whittemore (CR!, MO-3669078!, *Dauphin* 2005 as *Dumortiera nepalensis*); Turrialba, Rio Chitaria, 9°55'N, 83°36'W, 10 May 1983, *Liesner* 15424, det. Whittemore (MO-4435992!, this publication). ***GUANACASTE:** Tilarán cantón, Río Negro fjord on S side of Lake Arenal, 10°25'N, 84°46'W, 10 May 1986, *Haber* 4908, det. Brinda and Dauphin Jun 2017 (MO-3677983!, this publication).

PANAMA. **BOCAS DEL TORO:** 15 km S of Changuinola, *Antonio* 3109, det. Brinda & Dauphin Jun 2017 (MO-2849690, *Stotler et al.* 1998). ***CHIRIQUÍ:** Boquete distrito, Holcomb Trail, 13 Apr 1918, *Cornman* 3135, det. Brinda & Dauphin Jun 2017 (MO-5139505!, this publication). **COCLÉ:** Antón distrito, El Valle de Antón, Río Las Mozas, 500 m, *Salazar Allen et al.* 13478 p.p., 13484 (PMA, *Stotler et al.* 1998). **DARIÉN:** Pino-gana distrito, trail from Cana to Cruce de Mono, 160–300 m, *Allen* 9016 (MO, *Stotler et al.* 1998). **PANAMA WEST:** La Chorrera distrito, Barro Colorado Island, 1 Aug 1950, *Chickering* (MICH, *Crum and Arzeni* 1953 as *Dumortiera nepalensis*; *Stotler et al.* 1998). **VERAGUAS:** Santa Fe distrito, Santa Fe National Park, 8°31'37"N, 81°09'00"W, *Gudiño JGL* VA03, det. Salazar Allen (PMA, *Durant-Archibold et al.* 2017).

Also reported from West-Central Tropical Africa, Southern Africa, Western Indian Ocean(?), China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasias, Southwestern Pacific, Southeastern Pacific, Northeastern Pacific, North-Central USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil(?).

***Fossombronia Raddi, Jungermannigr.*
Etrusca: 29, 1818 (Raddi 1818b).**

Fossombronia foveolata Lindb. *Helsingf. Dagbl.* 1873 (353, 28 Dec): 2, 1873 (Lindberg 1873). Type: Sweden.

GUATEMALA. **ALTA VERAPAZ:** S. loc., 350 m, *Türckheim* (G, NY, Freire 2002 as *Fossombronia brasiliensis*).

HONDURAS. **COMAYAGUA:** Siguatepeque, 1,080–1,400 m, 1928, *Standley* 46456 (JE, Freire 2002).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa, West-Central Tropical Africa, East Tropical Africa, Western Indian Ocean, Caucasus, Western Asia, Subarctic America,

Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, South-Central USA, Southeastern USA, Mexico, the Caribbean, Western South America.

Fossombronia porphyrorhiza (Nees) Prosk., *Bryologist* 58(3): 197, 1955 (Proskauer 1955).

≡*Jungermannia porphyrorhiza* Nees, *Fl. Bras. (Martius)* 1(1): 343, 1833 (Nees 1833b). Type: Brazil.

=*Fossombronia brasiliensis* Steph., *Mém. Herb. Boissier* 16: 28 (=Sp. *Hepat. [Stephani]* 1: 382), 1900 (Stephani 1900a), syn. fide Freire (2002). Type: Brazil.

GUATEMALA. S. loc., 350 m, *Türckheim* (G, Freire 2006 as *Fossombronia brasiliensis*). **ALTA VERAPAZ:** Cobán, 1,350 m, *Türckheim* (NY, BM, Pérez 2009); S. loc., 350 m, *Türckheim* (G, NY, Freire 2002 as *Fossombronia brasiliensis*). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 162 (USCG, Freire et al. 2013). **JALAPA:** Between Monjo and Jalapa, about 10 mi (16 km) south of Jalapa, 1,000 m, *Steyermark* 32189 (F, Freire 2002 as *Fossombronia brasiliensis*; Pérez 2009); between Monjo and Jalapa, about 10 mi (16 km) south of Jalapa, 1,000 m, *Steyermark* 62189 (F, Freire 2006).

COSTA RICA. S. loc. (Cole 1984 as *Fossombronia brasiliensis*; Freire 2002 as *Fossombronia brasiliensis*). **ALAJUELA:** Between Grecia and Naranjo (Morales 1991 as *Fossombronia brasiliensis*; Dauphin 2005); between Grecia and Naranjo, 3,700 ft (1,128 m), 11 Aug 1940, *Haupt* (Haupt 1942 as *Fossombronia brasiliensis*). **GUANACASTE:** La Cruz cantón, Guanacaste National Park, Cerros Santa Elena, 10°53'24"N, 85°50'55"W, *Dauphin et al.* 3370 (CR, Dauphin 2005); La Cruz cantón, Guanacaste National Park, Cerros Santa Elena, 10°53'24"N, 85°50'55"W, 650–700 m, 27 Aug 2003, *Dauphin et al.* 3300 (CR, Dauphin and Grayum 2005; Dauphin 2005). **SAN JOSÉ:** Escazú cantón, Escazú, mountains 0.5 mi SW of village, 4,300 ft (1,310 m), 18 Jul 1940, *Haupt* (Haupt 1942 as *Fossombronia brasiliensis*); Montañas de Escazú (Dauphin 2005); Montañas de Escazú y Aserri (Morales 1991 as *Fossombronia brasiliensis*).

PANAMA. **PANAMA:** Panamá distrito, Chagres National Park, Altos de Cerro Azul, Sendero El Cantar, *Stotler & Crandall-Stotler* 3482 (ABSH, PMA, *Stotler et al.* 1998 as *Fossombronia brasiliensis*; Freire 2002).

Also reported from North-Central USA, Northeastern USA, Southwestern USA, South-Central USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

***Frullania Raddi, Jungermannigr.*
Etrusca: 9, 1818 (Raddi 1818b).**

Frullania aculeata Taylor, *London J. Bot.* 5: 407, 1846 (Taylor 1846a). Type: Ecuador.

PANAMA. S. loc. (Gradstein 2021). **COCLÉ:** Antón distrito, El Valle de Antón, Cerro Gaital, between Alto de La Mesa and the summit region, 8°37.4–8°N, 80°06.9–7.0°W, 1,015 m,

26 Mar 2013, *Schäfer-Verwimp & Verwimp* 34229 (JE, Ellis et al. 2018a).

Also reported from Northern South America, Western South America.

Frullania armata Herzog et L.Clark, *Bryologist* 57(1): 36, 1954 (Clark 1954a). Type: Costa Rica, San José Dota, vicinity of Santa María, altitude 1,500–1,800 m, 14–26 Dec 1925, *Standley* 42479.

COSTA RICA. SAN JOSÉ: Dota cantón, Santa María, 1,500–1,800 m, 14–26 Dec 1925, *Standley* 42479 (TYPE, Clark 1954a; Morales 1991; Kappelle 1996; Dauphin 2005).

Also reported from Western South America(?).

Frullania atrata (Sw.) Nees ex Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 12: 51, 1839 (Montagne 1839a).

≡*Jungermannia atrata* Sw., *Prodr.* (Swartz): 144, 1788 (Swartz 1788). Type: Jamaica.

=*Frullania crinoidea* Spruce ex Steph., *Sp. Hepat. (Stephani)* 4: 604, 1911 (Stephani 1911b), syn. fide Uribe and Gradstein (2003). Type: Peru.

GUATEMALA. S. loc. (Fulford 1987; Fulford and Sharp 1990); S. loc., *Friedrich* (Clark and Svihla 1948a); S. loc., *Friedrichstahl* (G, Clark and Svihla 1945a); S. loc., *Svihla* 45-603 (Clark and Svihla 1948a). ALTA VERAPAZ: E of Tactic, road to Tamahu, 1,500–1,650 m, 9 Apr 1939, *Standley* 71276 (MICH, Clark 1953d as *Frullania crinoidea*). BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). HUEHUETENANGO: S. loc., *Vogel B-9012* (MO, Pérez 2009); S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008).

BELIZE. CAYO: S. loc., Dec 1993, *Allen* 15075 (BRH, MO, Whittemore and Allen 1996); S. loc., Dec 1993, *Allen* 15227 (BRH, MO, Whittemore and Allen 1996). TOLEDO: S. loc., *Meadows* 5 (MO, Whittemore and Allen 1996); S. loc., Dec 1993, *Allen* 15316 (BRH, MO, Whittemore and Allen 1996).

*NICARAGUA. *MATAGALPA: Cordillera Dariense, 20 km N of Matagalpa, 1,500 m, 17 Sep 1981, *Bálsz* 81/12/G *p.p.*, det. Dauphin Jan 2017 (EGR, CR!, this publication).

COSTA RICA. S. loc. (Clark and Svihla 1948a; Cole 1982, 1983). GUANACASTE: La Cruz cantón, Guanacaste National Park, Peninsula Santa Elena, 30 Aug 2003, *Dauphin* 3306 (CR, F, Larraín et al. 2015). HEREDIA: Heredia cantón, Vara Blanca, 1941, *Svihla* 41-487 (Clark and Svihla 1945a; Morales 1991; Dauphin 2005). PUNTARENAS: Monteverde, Oct 1963, *James*, W. 17 (R, Reed and Robinson 1971). SAN JOSÉ: Dota cantón, 9 mi (14 km) SW of El Empalme, *Woodruff* (FLAS, Morales 1991; Dauphin 2005); La Trinidad, *Morales* 305 (FLAS, Morales 1991; Kappelle 1996; Dauphin 2005); Moravia cantón, La Palma, *Pittier* 6036 (Stephani 1893c; Morales 1991; Dauphin 2005).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Frullania beyrichiana (Lehm. et Lindenb.) Lehm. et Lindenb., *Syn. Hepat.* 3: 460, 1845 (Gottsche et al. 1845a).

≡*Jungermannia beyrichiana* Lehm. et Lindenb., *Nouv. Stirp. Pug.* 5: 25, 1833 (Lehmann 1833). Type: Brazil.

GUATEMALA. S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008 as *Frullania* cf. *beyrichiana*). ALTA VERAPAZ: Route 14 between Cobán and Tactic, 6 mi (6.7 km) S of Cobán, 13 mi (21 km) N of Tactic, *Croat* 41433, det. Whittemore 1990 (MO, Pérez 2009). ZACAPA: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007).

†COSTA RICA. S. loc. (Cole 1982, 1983). Note: There is no mention of this species in the literature cited by Cole, and we are not aware of any other report from Costa Rica.

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Frullania bicornistipula Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 46, 1884 (Spruce 1884). Type: Ecuador.

=*Frullania bradeana* Steph., *Sp. Hepat. (Stephani)* 6: 545, 1924 (Stephani 1924), syn. fide Stotler (1969). Lectotype (Bonner 1965: 253; see also Stotler 1969: 460 as "type") or possibly holotype: Costa Rica, s. loc., 1912, *Brade* s.n. (G-00069145 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=112256&lang=en>).

≡*Frullania bicornistipula* var. *bradeana* (Steph.) L.Clark et Svihla, *Bryologist* 54(2): 124, 1951 (Clark and Svihla 1951a).

COSTA RICA. S. loc. (Bonner 1965 as *Frullania bicornistipula* var. *bradeana*; Cole 1982, 1983; Rico and Pócs 2004; Gradstein and Uribe 2011, 2016; Gradstein 2021); S. loc., 1912, *Brade* (G, Bonner 1965 as *Frullania bradeana*; Stotler 1969; Dauphin 2005). CARTAGO: Paraíso cantón, Orosi, Tapantí National Park, *Griffin & Morales* 176 (FLAS, Morales 1991; Dauphin 2005). HEREDIA: San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley* 50256, 50265, 50510 (Herzog 1951 as *Frullania bradeana*; Morales 1991; Dauphin 2005); San Isidro cantón, Cerro Zurquí, NE of San Isidro, 2,000–2,400 m, 3 Mar 1926, *Standley & Valerio* 50265, 50510 (Clark and Svihla 1951a as *Frullania bicornistipula* var. *bradeana*). SAN JOSÉ: Moravia cantón, Cerro Zurquí, 2,000–2,500 m, *Standley* 48256, 48285, 48289 (G, Herzog 1951 as *Frullania bradeana*; Stotler 1969; Morales 1991; Dauphin 2005); Moravia cantón, Cerro Zurquí, 1,600 m, 13 Feb 1926, *Standley & Valerio* 48257 (Clark and Svihla 1951a as *Frullania bicornistipula* var. *bradeana*); Moravia cantón, Cerro Zurquí, 2,000–2,500 m, 13 Feb 1926, *Standley & Valerio* 48289 (Clark and Svihla 1951a as *Frullania bicornistipula* var. *bradeana*); Moravia cantón, La Palma, 1,600 m, 17 Apr 1924, *Standley* 38128 (Clark and Svihla 1951a as *Frullania bicornistipula* var. *bradeana*; Herzog 1951 as *Frullania bradeana*; Morales 1991; Dauphin 2005).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna (Stotler et al. 1998); Gualaca distrito, Fortuna Forest Reserve, Continental Divide, Trail Palo Seco, 900–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (Salazar Allen et al. 2021); Gualaca distrito, Hornito, Fortuna, 1,150–1,245 m, *Salazar Allen et al.* 6338

(PMA, Stotler et al. 1998); Gualaca distrito, Hornito, Fortuna, *Spörle* 1.17, 1.42 (PMA, Stotler et al. 1998).

Also reported from Northern South America, Western South America, Brazil.

Frullania brachycarpa Spruce, *Bull. Soc. Bot. France (Congr. Bot.)* 36: cciv, 1889 (Spruce 1889). Type: Mexico.

GUATEMALA. ALTA VERAPAZ: Cobán, 1,350 m, Dec 1906, *Türckheim* 5419 (NY, Clark 1956a). BAJA VERAPAZ: Santa Rosa, 1,600 m, Dec 1906, *Türckheim* 5054 (NY, Clark 1956a).

Also reported from Mexico, Western South America(?), Brazil.

Frullania brasiliensis Raddi, *Critt. Brasil.*: 12, 1822 (Raddi 1822). Type: Brazil.

=*Jungermannia mucronata* Lehm. et Lindenb., *Nov. Stirp. Pug.* 6: 54, 1834 (Lehmann 1834), syn. fide Uribe and Gradstein (2003). Type: Peru.

=*Frullania mucronata* (Lehm. et Lindenb.) Lehm. et Lindenb., *Syn. Hepat.* 2: 461, 1845 (Gottsche et al. 1845b).

=*Frullania cylindrica* Lehm., *Nov. Stirp. Pug.* 8: 13, 1844 (Lehmann 1844), syn. fide Stotler (1969). Type: Mexico.

=*Frullania patens* Lindenb., *Syn. Hepat.* 3: 462, 1845 (Gottsche et al. 1845a), syn. with *Frullania mucronata* fide Gradstein and Hekking (1979). Type: Brazil.

=*Frullania cylindrica* var. *minor* Husn., *Rev. Bryol.* 2: 4, 1875 (Husnot 1875), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Stotler (1969). Type: Guadeloupe.

=*Frullania brasiliensis* var. *robusta* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 51, 1884 (Spruce 1884), syn. fide Stotler (1969). Type: Ecuador.

=*Frullania robusta* (Spruce) Steph., *Sp. Hepat. (Stephani)* 4: 505, 1911 (Stephani 1911b).

=*Frullania spruceana* Steph., *Hedwigia* 33(3): 160, 1894 (Stephani 1894b), syn. fide Stotler (1969). Type: Ecuador.

=*Frullania cocosensis* Steph., *Sp. Hepat. (Stephani)* 4: 492, 1911 (Stephani 1911b), syn. with *Frullania mucronata* fide Stotler (1969). Lectotype (Stotler 1969: 447 as “type”): Costa Rica, Cocos Island, *Pittier s.n.* (G-00265584 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=302078&clang=en>, synlectotype G).

=*Frullania lacouturei* Steph., *Sp. Hepat. (Stephani)* 4: 499, 1911 (Stephani 1911b), syn. with *Frullania mucronata* fide Stotler (1969). Lectotype (Stotler 1969: 447 as “type”) or possibly holotype: Panamá, Chiriquí, *Hélion s.n.* (G-00069229 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=114970&clang=en>).

=*Frullania panamana* Steph., *Sp. Hepat. (Stephani)* 4: 529, 1911 (Stephani 1911b), syn. with *Frullania mucronata* fide Stotler (1969). Lectotype (Stotler 1969: 438 as “type”) or possibly holotype: Panama, s. loc., *Wagner s.n.* (G-00069179 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=113782&clang=en>).

=*Frullania rufa* Steph., *Sp. Hepat. (Stephani)* 4: 505, 1911 (Stephani 1911b), syn. fide Stotler (1969). Type: Venezuela.

=*Frullania robusta* f. *spinuliflora* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 129, 1951 (Herzog 1951), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Costa Rica “Prov. Cartago, El Muñeco, S of

Navarro, 1400m, *Standley* 33561/a; Prov. S. José, La Hondura, 1200–1500 m, *Standley* 51833; Prov. San José, Santa Maria de Dota, 1500–1800 m, *Standley* 43171.” Note: All three specimens in US have been reidentified as *Frullania spruceana*.

=*Frullania brasiliensis* f. *spinuliflora* (Herzog) G. Dauphin, *Trop. Bryol.* 26: 159, 2005 (Dauphin 2005), nom. inval. (ICN2018 Art. 41.3; basionym not cited).

=*Frullania robusta* f. *latioribus* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 129, 1951 (Herzog 1951), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Costa Rica: South slope of Volcán de Turrialba, near Finca of V. de T., 2,000–2,400 m, *Standley* 35282 (US-04646674 <http://n2t.net/ark:/65665/3f617aab5-3810-43fa-b6fb-d730e9ae339d>) is reidentified as *Frullania spruceana*.

=*Frullania hondurae* Herzog et L. Clark, *Bryologist* 56(4): 289, 1953 (Clark and Svihla 1953a), syn. fide Stotler (1969). Lectotype (Stotler 1969: 438): Costa Rica, San José, La Hondura, 1,300–1,700 m, *Standley* 36559 (US-00070891 <http://n2t.net/ark:/65665/3e774f1d9-cd2a-4f3b-b414-7d170b75d4b2>, isolectotype JE-04002301 <https://je.jacq.org/JE04002301>).

GUATEMALA. S. loc. (Stephani 1911b as *Frullania robusta*; Bonner 1965 as *Frullania patens* and *Frullania robusta*; Fulford and Sharp 1990; Oliveira-e-Silva and Yano 2000; Fuertes and Prada 2020). ALTA VERAPAZ: Cobán, 1,260–1,440 m, *Standley* 69393, 92197 (E, NY, Stotler 1969; Freire 2006); Cobán, 1,350 m, *Türckheim* (NY, BM, Pérez 2009); Cobán, Las Victorias National Park, 2002 (Andersohn 2004); Panzós municipio, Cahabón and/or Senahú, 2012, Pérez & López-Medina, det. M. Pérez (Pérez and López-Medina 2012); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 118, 484, 530 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). EL PROGRESO: San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007). HUEHUETENANGO: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008); Todos Santos Cuchumatán, Chinhuitz, 15°30'40"N, 91°38'56"W, 2,790 m, 2006, Pérez et al. 1182 (USCG, Pérez 2009). *QUETZALTENANGO: Zunil municipio, Aguas Amargas, NW slopes of Pico Zunil, 14°45'21.6"N, 91°29'21.6"W, 22 Dec 2004, Quedensley 2052, det. Dauphin Sep 2017 (CAS, W-0089062!, this publication); Zunil municipio, Aguas Amargas, NW slopes of Pico Zunil, 14°45'21.6"N, 91°29'21.6"W, 22 May 2005, Quedensley 2348, det. Dauphin Sep 2017 (MO, W-0089063!, this publication); Zunil municipio, road from Aldea Chuimucubal, NW slopes of Pico Zunil, 14°45'56.35"N, 91°28'14.69"W, 14 Jan 2006, Quedensley 3998, det. Dauphin Sep 2017 (MO, W-0089061!, this publication). QUICHÉ: S. loc., Pérez 2224 (USCG, Pérez 2009). ZACAPA: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007 as *Frullania* aff. *brasiliensis*). Note: We are not aware of any firsthand report from Zacapa.

NICARAGUA. RÍO SAN JUAN: San Carlos municipio, Mancaron, 2,100 m, *Pittier* 6030 (Stephani 1893c; Morales 1991; Dauphin 2005).

COSTA RICA. Cordillera de Talamanca (Holz and Gradstein 2005b; Holz 2006); Cordillera de Talamanca, *Van Dunné* 83 (AMD, Kappelle 1996); S. loc. (Stephani 1911b as *Frullania robusta*; Clark and Svihla 1948a; Bartram and Arnell 1961 as *Frullania robusta*; Bonner 1965 as *Frullania robusta* and *Frullania robusta* f. *spinuliflora*; Fulford and Sharp 1990; Oliveira-Silva and Yano 2000; Gradstein and Holz 2005; Fuertes and Prada 2020 as *Frullania brasiliensis* f. *spinuliflora*); S. loc., 5,000–8,000 ft (1,524–2,438 m), *Oersted* 1169 (Müller 1851 also as *Frullania cylindrica*); S. loc., *Oersted* (YU, G, S, Hampe 1851b also as *Frullania cylindrica*; Polakowsky 1879 also as *Frullania cylindrica*); S. loc., *Pittier* 6062 (Stephani 1893c; Morales 1991; Dauphin 2005). ALAJUELA: San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 3 Nov 2010, *Lucas* 45 (UC, Norris et al. 2017). CARTAGO: Alto de La Estrella, *Standley* 39324 (Herzog 1951 as *Frullania rufa*; Morales 1991; Dauphin 2005); Cartago cantón, El Muñeco, S of Navarro, 1,400 m, *Standley* 33561a (Herzog 1951 as *Frullania robusta* f. *spinuliflora*; Morales 1991; Dauphin 2005); Santiago, *Maxon* 84 (NY, Morales 1991; Dauphin 2005); Santiago, E of Cartago, 1,050 m, *Maxon* 84 (NY, Stotler 1969); Turrialba cantón, Angostura, *Polakowsky* (Polakowsky 1879 as *Frullania cylindrica* var. *minor*); Turrialba cantón, Angostura, Nov 1875, *Polakowsky* 467 (Polakowsky 1877 as *Frullania cylindrica* var. *minor*; Morales 1991; Dauphin 2005); Turrialba cantón, Volcán Turrialba, S slope, near Finca, 2,000–2,400 m, *Standley* 35282 (Herzog 1951 as *Frullania robusta* f. *latioribus*; Clark 1953b as *Frullania spruceana*; Morales 1991; Dauphin 2005); Turrialba cantón, Volcán Turrialba, S slope, near Finca, 2,000–2,400 m, 22 Feb 1926, *Standley* 34963, 34977, 35104 (Herzog 1951 as *Frullania robusta*; Clark 1953b as *Frullania spruceana*; Morales 1991; Dauphin 2005; Söderström et al. 2012a as *Frullania brasiliensis* f. *spinuliflora*). HEREDIA: Barva cantón, Braulio Carrillo National Park, Sector Volcán Barva, *Griffin et al.* D170, D226 (FLAS, Morales 1991; Dauphin 2005); Heredia cantón, Vara Blanca, 2 Jul 1941, *Svihla* 41-481 (Clark and Svihla 1944b; Morales 1991; Dauphin 2005); Heredia cantón, Vara Blanca, 12 Jul 1941, *Svihla* 41-482, 41-486 (Clark and Svihla 1944c; Morales 1991; Dauphin 2005); Rancho Flores forest, *Pittier* 6027 (Stephani 1893c; Morales 1991; Dauphin 2005). LIMÓN: Pococí cantón, Braulio Carrillo National Park, Botarrama, *Dauphin* 2951 (NY, Dauphin 2005). PUNTARENAS: Monteverde, <1,500 m (Morales 1991; Dauphin 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995); Monteverde, Oct 1963, *James*, W. 15 (R, Reed and Robinson 1971, Dauphin 2005); Osa cantón, Osa Peninsula, Rincón, Centro Boscosa, 150 m, Oct 1993, *Gradstein* (Gradstein 1999b as

Frullania mucronata); S. loc. (Merwin et al. 2001). SAN JOSÉ: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, *Holz* (Holz 2003); Dota cantón, San Gerardo, 9°35'40'N, 83°44'30'W, 3,000 m, Aug 1992, *Van Dunné* (Van Dunné and Kappelle 1998); Dota cantón, Santa María, 1,500–1,800 m, *Standley* 43171 (Herzog 1951 as *Frullania robusta*); Dota cantón, Santa María, 1,500–1,800 m, 3 Jan 1926, *Standley & Valerio* 43171 (Clark 1953b as *Frullania spruceana*; Morales 1991; Dauphin 2005); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a); Moravia cantón, La Hondura, *Griffin et al.* 327 (FLAS, Morales 1991); Moravia cantón, La Hondura, 1,200–1,500 m, *Standley* 51833 (Herzog 1951 as *Frullania robusta* f. *spinuliflora*); Moravia cantón, La Hondura, 1,300–1,700 m, 2–4 Mar 1924, *Standley* 36559 (US-00070891, JE-04002301, TYPE of *Frullania hondurae*, Clark and Svihla 1953a as *Frullania hondurae*; Bonner 1965 as *Frullania hondurae*; Stotler 1969; Morales 1991; Dauphin 2005); Moravia cantón, La Hondura, 1,200–1,500 m, 9 Mar 1926, *Standley & Valerio* 51833 (Clark 1953b as *Frullania spruceana*; Morales 1991; Dauphin 2005); Moravia cantón, La Palma, 1,450–1,550 m, *Maxon* 471 (NY, Stotler 1969; Morales 1991; Dauphin 2005).

PANAMA. S. loc. (Mitten 1854b; Stephani 1911b as *Frullania lacouturei* and *Frullania panamana*; Clark and Svihla 1948a; Fulford and Sharp 1990; Stotler et al. 1998; Oliveira-e-Silva and Yano 2000; Fuertes and Prada 2020); S. loc., *Wagner* (G, Bonner 1965 as *Frullania panamana*; Stotler 1969; Stotler et al. 1998). CHIRIQUÍ: Boquete distrito, Dexter's Brook, *Cornman* 3077 (F, Stotler et al. 1998); Boquete distrito, Watson's Indian country, *Cornman* 3063 (F, Stotler et al. 1998); Boquete, *Svihla* 40-446 (Stotler et al. 1998); Chiriquí, Boquete, Los Naranjos, buffer zone of Parque Internacional La Amistad (PILA) along trail of El Pianista, 8°49'07.4"N, 82°25'20"W, 1,410 m above sea level, 5 Mar 2022, det. Á. Benítez, leg. C. Arrocha 3295 (UCH, Ellis et al. 2022b); Gualaca distrito, Fortuna Forest Reserve, NW of camping site, 1,000–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Hornito, Fortuna, 1,000–1,200 m, *Salazar Allen et al.* 521 (PMA, Stotler et al. 1998 as *Frullania mucronata*); Lawler's coffee tile and woods, *Cornman* 3070 (F, Stotler et al. 1998 as *Frullania mucronata*); S. loc., *Hélion* (G-00069229, TYPE of *Frullania lacouturei*, Bonner 1965 as *Frullania lacouturei*; Stotler 1969 as *Frullania mucronata*; Stotler et al. 1998 as *Frullania mucronata*); Tierras Altas distrito, Cerro Punta, Las Cumbras, 8,000–8,250 ft (2,438–2,515 m), *Salazar Allen* 1055b (PMA, Stotler et al. 1998); Barú Volcano National Park (Rodríguez-Quiel et al. 2022). PANAMA WEST: La Chorrera distrito, Barro Colorado Island, Barbour Point, 2003, *Dauphin* 3155 (CR, PMA, Dauphin et al. 2022). PANAMA: Panamá distrito, Parque Municipal Summit (Canal Zone Experimental Gardens), 1 Aug 1950, *Meyer* 124 (TENN, Crum and Arzeni 1953; Stotler et al. 1998); Panamá distrito, Taboga Island, Apr 1846, *Seemann* (NY,

Stotler et al. 1998); Panamá distrito, Taboga, *Seemann* (NY, Stotler 1969).

COCOS I. Boca Río Genio, 5°32'57"N, 87°03'56"W, 5 m, *Dauphin* 952, det. S. R. Gradstein (USJ, CR, U, **Dauphin** 1995, 1999, both as *Frullania mucronata*, 2005); Boca Río Genio, 5°32'57"N, 87°03'56"W, 5 m, 15 Feb 1994, *Dauphin* 951, det. S. R. Gradstein (USJ, U, **Dauphin** 1995 as *Frullania mucronata*); Fila sobre Valle Wafer, 5°32'57"N, 87°03'56"W, 180 m, 15 Feb 1994, *Dauphin* 1079, det. S. R. Gradstein (USJ, CR, U, **Dauphin** 1995 also as *Frullania mucronata*); Río Genio, 5°32'57"N, 87°03'56"W, 5 m, 15 Feb 1994, *Dauphin* 947, det. S. R. Gradstein (USJ, U, **Dauphin** 1995, 1999, both as *Frullania mucronata*, 2005); S. loc. (**Stephani** 1911b as *Frullania cocosensis*; Fosberg and Klawe 1966 as *Frullania cocosensis*; *Dauphin* 1995 as *Frullania mucronata*); S. loc., 1902, *Pittier* (G, **Bonner** 1965 as *Frullania cocosensis* ["Galapagos"]); **Stotler** 1969 as *Frullania mucronata*; S. loc., 1966, *Fosberg & Klawe* (Morales 1991 as *Frullania mucronata*); Wafer Bay, 28 Jun 1932, *Howell* 226 (**Clark** 1953a as *Frullania cocosensis*; **Clark and Schultz** 1953c as *Frullania cocosensis*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands.

Frullania breuteliana Gottsche, *Syn. Hepat.* 3: 461, 1845 (Gottsche et al. 1845a). Type: St. Kitts.

=*Frullania sagittistipula* Lindenb. et Gottsche, *Syn. Hepat.* 5: 784, 1847 (Gottsche et al. 1847), syn. fide Stotler (1969). Type: Mexico.

GUATEMALA. S. loc. (**Stephani** 1911b as *Frullania sagittistipula*; **Bonner** 1965 as *Frullania sagittistipula*; **Fulford** 1987; **Fulford and Sharp** 1990; **Rico and Pócs** 2004); S. loc., 350 m, *Türckheim* (NY, **Freire** 2006). **ALTA VERAPAZ:** Cobán, 1,350 m, *Türckheim* (NY, **BM, Pérez** 2009); S. loc., 350 m, *Türckheim* (G ex hb. **Levier** 5822, NY, **Stotler** 1969).

?**COSTA RICA.** S. loc. (**Bonner** 1965 as *Frullania sagittistipula*). Note: We are not aware of any firsthand report from Costa Rica.

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Frullania confertiloba Steph., *Sp. Hepat. (Stephani)* 4: 326, 1910 (**Stephani** 1910a). Lectotype: Colombia.

PANAMA. S. loc. (**Stephani** 1910a; **Bonner** 1965; **Stotler** et al. 1998).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Frullania convoluta Lindenb. et Hampe, *Linnaea* 24(3): 303, 1852 (Hampe 1851b). Lectotype (**Söderström** et al. 2023b: 2): Costa Rica, Turrialba, *Oersted s.n.* (G-00113901 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=238596&lang=en>, isoelectotypes BM-728470, BM-728471, G-20611).

=*Frullania convoluta* f. *typica* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 129, 1951 (Herzog 1951), nom. inval. (ICN2018 Art. 26.1; type of species

included). Original material: Costa Rica: Prov. Cartago, Cerro de la Carpintera, 1,500–1,850 m, *Standley* 34347 (US-04545300 <http://n2t.net/ark:/65665/312ff26f8-f223-4e65-883f-4178b29f2846>); Prov. San José, La Hondura, 1,300–1,700 m, *Standley* 36609 (US-04545305 <http://n2t.net/ark:/65665/3e479c27a-7ad6-41e8-85c9-8948c8671fc5>); same locality, 1,200–1,500 m, *Standley* 51821 (US-04545304 <http://n2t.net/ark:/65665/3a7327278-73f5-40bd-ac8f-98e654461c7f>).

=*Frullania convoluta* f. *intermedia* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 129, 1951 (Herzog 1951), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Uribe (2008). Original material: Costa Rica: Prov. San José, La Hondura, 1,300–1,700 m, *Standley* 36318 (US-04545313 <http://n2t.net/ark:/65665/38147b30d-0794-4439-8ab5-f6bd0be1f8a5>), Prov. San José, La Palma, wet bank, 1,600 m, *Standley* 38008 (US-04545302 <http://n2t.net/ark:/65665/38b2618f3-6557-4ebc-a96e-abfd142bbe62>); Prov. Alajuela, Viento Fresco, on tree, 1,600–1,700 m, *Standley* 47890 (US-04545301 <http://n2t.net/ark:/65665/35ef8fd15-9d7c-401a-9804-7bc97aac48f6>); Prov. Heredia, Cerros de Zurquí, 2,000–2,400 m, *Standley* 50434 (US-04545312 <http://n2t.net/ark:/65665/3bccd3341-8f76-4c22-838d-460a5208b0e5>).

=*Frullania convoluta* var. *ampliata* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 129, 1951 (Herzog 1951), syn. fide **Söderström et al.** (2023b). Lectotype (**Söderström et al.** 2023b: 2): Costa Rica, La Palma, Province de San José, altitude about 1,600 m, 3 Feb 1924, *Standley* 33014 (JE-04002308 <https://je.jacq.org/JE04002308>).

GUATEMALA. ALTA VERAPAZ: Cobán, 1,350 m, Mar 1879, *Türckheim* 412 p.p. (**GOET, Uribe** 2005, 2008); Cobán, 1,350 m, May 1908, *Türckheim* 6075 (NY, **Uribe** 2005, 2008).

HONDURAS. COMAYAGUA: El Plan to Cerro El Ma-neadero, ~11 km E of Lake Yojoa, 14°48'N, 88°52'W, 1,800–1,900 m, 11 Mar 1993, *Allen* 13853, 13907, 13938 (**MO, Uribe** 2005, 2008); San Juanillo, Cordillera de Montecillos, trail between San Juanillo and La Danta, 14°30'N, 87°52'W, 1,800–1,900 m, 7 Nov 1991, *Allen* 11035 (**MO, Uribe** 2005, 2008). **OLANCHO:** Catacamas municipio, Sierra de Algalta, La Chorrera, Río Lara, 1,100–1,800 m, 29–30 May 1992, *Allen* 12527 (**MO, Uribe** 2005, 2008); Catacamas municipio, Sierra de Algalta, La Chorrera, Río Lara, 1,100–1,800 m, 29–30 May 1992, *Allen* 12539 (**MO, Uribe** 2005, 2008).

COSTA RICA. Cordillera de Talamanca (**Holz and Gradstein** 2005b; **Holz** 2006); Cordillera de Talamanca, *Kappelle* 650 (CR, **Kappelle** 1996); S. loc. (**Stephani** 1911b; **Pagán** 1942b; **Clark and Svihla** 1948a; **Jovet-Ast** 1959; **Cole** 1982, 1983; **Fulford and Sharp** 1990; **Romero** 1999 as *Frullania convoluta* f. *intermedia*; *Dauphin* 2005; **Gradstein and Holz** 2005; **Lavocat Bernard et al.** 2009). **ALAJUELA:** Alajuela cantón, Viento Fresco, 1,600–1,700 m, 13 Feb 1926, *Standley* 47890 (US, **Herzog** 1951 as *Frullania convoluta* f. *intermedia*; **Morales** 1991; **Dauphin** 2005; **Uribe** 2005, 2008). **CARTAGO:** Alvarado cantón, Coliblanco, 1,950 m, 30 Apr–2 May 1906, *Maxon* 229 (NY, **Uribe** 2005, 2008); La Georgina de Villa Mills, km 95 carretera Interamericana, 2,990 m, 11 Jan 1986, *Kappelle* MK650 (**GOET, Uribe** 2005, 2008); La Unión cantón, Cerro de la Carpintera, Viento Fresco, 1,500–1,850 m, *Standley* 34347 (**Herzog** 1951 as *Frullania convoluta* f. *typica*; **Morales** 1991; **Dauphin** 2005);

Turrialba, *Oersted* (G-00113901, BM, TYPE, Hampe 1851b; Müller 1851; Polakowsky 1879; Bonner 1965; Morales 1991; Dauphin 2005). HEREDIA: San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, *Standley* 51986 (Herzog 1951 as *Frullania convoluta* var. *ampliata*; Bonner 1965 as *Frullania convoluta* var. *ampliata*; Morales 1991; Dauphin 2005); San Isidro cantón, Cerro de Las Lajas, N of San Isidro, 2,000–2,400 m, 7 Mar 1926, *Standley & Valerio* 51458 (Y, Clark and Svihla 1947a; Herzog 1951 as *Frullania convoluta* var. *ampliata*; Bonner 1965 as *Frullania convoluta* var. *ampliata*; Morales 1991; Dauphin 2005); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley* 50434 (Herzog 1951 as *Frullania convoluta* f. *intermedia*); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley* 50457 (Herzog 1951 as *Frullania convoluta* var. *ampliata*; Bonner 1965 as *Frullania convoluta* var. *ampliata*); San Isidro cantón, Cerro Zurquí, *Standley* 51457 (Morales 1991; Dauphin 2005); San Isidro cantón, Cerro Zurquí, NE of San Isidro, 2,000–2,400 m, 3 Mar 1926, *Standley & Valerio* 50434 (Y, Clark and Svihla 1947a; Morales 1991; Dauphin 2005; Uribe 2005, 2008); San Isidro cantón, Yerba Buena, 2,000 m, *Standley* 49844 (Herzog 1951 as *Frullania convoluta* var. *ampliata*; Bonner 1965 as *Frullania convoluta* var. *ampliata*; Morales 1991; Dauphin 2005); San Rafael cantón, Río Las Vueltas, 10°05'N, 84°04'W, 2,020–2,040 m, 4 Sep 1979, *Stevens* 13956 (MO, Uribe 2005, 2008). PUNTARENAS: Coto Brus cantón, Las Cruces, 1,200 m, *Gómez-Pignataro* 25360 (MO, Uribe 2005, 2008); Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a); Monteverde cantón, Reserva Biológica Monteverde, 1,550 m, 9 Nov 1993, *Gradstein* 9437, 9462 (GOET, Uribe 2005, 2008); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995); Monteverde, 1,500–1,550 m, 20 Feb 1992, *Ingram et al.* 1485 (GOET, Uribe 2005, 2008); S. loc. (Merwin et al. 2001); S. loc., *Oersted* (BM-728470, Uribe 2005, 2008). SAN JOSÉ: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, Holz (Holz 2003); Dota cantón, San Gerardo, 9°35'40'N, 83°44'30'W, 3,000 m, Aug 1992, *Van Dunné* (Van Dunné and Kappelle 1998); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a); Montaña de Poás, Macizo de Escazú, 2,400 m, *Pittier* 6031 (Stephani 1893c; Morales 1991; Dauphin 2005); Moravia cantón, Alto La Palma, 1,500 m, 3 Feb 1979, *Griffin et al.* A26 (MEXU, Uribe 2005, 2008); Moravia cantón, Braulio Carrillo National Park, La Honduras, *Dauphin* 2971 (NY, Dauphin 2005); Moravia cantón, Camino a la Honduras, 30 km NE de la universidad, 1,400 m, 28 Aug 1973, *Griffin et al.* 375 (MEXU, MO, NY, Uribe 2005, 2008); Moravia cantón, Cerro Zurquí, 2,000–2,500 m, *Standley* 48170 (Herzog 1951 as *Frullania convoluta* var. *ampliata*; Bonner 1965 as *Frullania convoluta* var. *ampliata*; Morales 1991); Moravia

cantón, La Honduras, 1,200–1,500 m, *Standley* 51821 (Herzog 1951 as *Frullania convoluta* f. *typica*; Morales 1991; Dauphin 2005); Moravia cantón, La Honduras, 1,300–1,700 m, *Standley* 36609 (Herzog 1951 as *Frullania convoluta* f. *typica*); Moravia cantón, La Honduras, 1,300–1,700 m, 2–4 Mar 1924, *Standley* 36318 (US, Herzog 1951 as *Frullania convoluta* f. *intermedia*; Morales 1991; Dauphin 2005; Uribe 2005, 2008); Moravia cantón, La Palma on road to Honduras, 1,500–1,700 m, 17–18 Jul 1923, *Maxon & Harvey* 8052 (Y, Clark and Svihla 1947a; Morales 1991; Dauphin 2005); Moravia cantón, La Palma on the Pacific slope, Jul 1895, *Tonduz* (Y, Clark and Svihla 1947a; Morales 1991; Dauphin 2005); Moravia cantón, La Palma, 1,600 m, *Standley* 33014 (TYPE of *Frullania convoluta* var. *ampliata*, Herzog 1951 as *Frullania convoluta* var. *ampliata*; Bonner 1965 as *Frullania convoluta* var. *ampliata*; Morales 1991; Dauphin 2005); Moravia cantón, La Palma, 1,600 m, *Standley* 33039 (Herzog 1951 as *Frullania convoluta* var. *ampliata*; Bonner 1965 as *Frullania convoluta* var. *ampliata*; Dauphin 2005); Moravia cantón, La Palma, *Valerio* (CR, Morales 1991; Dauphin 2005); Moravia cantón, La Palma, Jul 1895, *Tonduz* 15537 (NY, Uribe 2005, 2008); Moravia cantón, La Palma, 1,450–1,550 m, 6–8 May 1906, *Maxon* 399, 472 (NY, Uribe 2005, 2008); Moravia cantón, La Palma, 1,600 m, 17 Mar 1924, *Standley* 38008 (US, Herzog 1951 as *Frullania convoluta* f. *intermedia*; Morales 1991; Dauphin 2005; Uribe 2005, 2008); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 2,600–3,000 m (Romero et al. 2006); S. loc. (Romero 1999; Markham and Fernández 2021); via La Honduras, 1,500–1,700 m, *Maxon* 2871 (GOET, MO, NY, Uribe 2005, 2008).

PANAMA. S. loc. (Stephani 1911b; Pagán 1942b; Clark and Svihla 1947a, 1948a; Jovet-Ast 1959; Bonner 1965 as *Frullania convoluta* f. *intermedia*; Fulford and Sharp 1990; Stotler et al. 1998; Gradstein 1999a; Lavocat Bernard et al. 2009). NASO TJÉR DI COMARCA: Parque Internacional La Amistad, Cerro Fábrega, 3,150–3,353 m, *Dauphin* 1546 (GOET, CR, PMA, U, Stotler et al. 1998; Dauphin 2007); Parque Internacional La Amistad, Cerro Fábrega, 3,335 m, 12 Feb 1995, *Dauphin et al.* 1546 (GOET, Uribe 2005, 2008).

Also reported from Mexico, the Caribbean, Northern South America, Western South America.

Frullania crispiloba Steph., *Hedwigia* 33(3): 156, 1894 (Stephani 1894b). Type: Brazil.

HONDURAS. S. loc. (Fulford and Sharp 1990; Morales and Moreno 2009). FRANCISCO MORAZÁN: Distrito Central municipio, La Montañita, 1,500 m, *Standley* 12355 p.p. (F, Stotler 1969).

Also reported from Mexico, Northern South America, Western South America, Brazil.

Frullania cuencensis Taylor, *London J. Bot.* 5: 406, 1846 (Taylor 1846a). Type: Ecuador.

*GUATEMALA. *QUETZALTENANGO: Zunil municipio, Aguas Amargas, NW slopes of Pico Zunil, 14°45'21.6"N,

91°29'21.6"W, 1 Jan 2006, *Quedensley* 3863, det. Dauphin Sep 2017 (MO, W-0089064! <https://w.jacq.org/W0089064>, this publication).

COSTA RICA. Cordillera de Talamanca, *Van Dunné* 88 (AMD, Kappelle 1996); S. loc. (Schäfer-Verwimp et al. 2013; Schäfer-Verwimp 2014). ?**GUANACASTE:** La Cruz cantón, Guanacaste National Park, Playa Gringos, Quebrada Despeñadero, 0–50, 27 Aug 2003, *Dauphin et al.* 3289, det. Gradstein (CR, GOET, F, Dauphin 2005 as *Frullania* cf. *cuencensis*; Dauphin and Grayum 2005 as *Frullania* cf. *cuencensis*). Note: We are not aware of any positively identified specimen from Guanacaste. **SAN JOSÉ:** Dota cantón, San Gerardo, 9°35'40"N, 83°44'30"W, 3,000 m, Aug 1992, *Van Dunné* (Van Dunné and Kappelle 1998).

PANAMA. **CHIRIQUÍ:** Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,260 m, 4 Apr 2006, *Schäfer-Verwimp & Verwimp* 30875 (JE, Schäfer-Verwimp 2014).

Also reported from South-Central USA(?), Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Frullania dusenii Steph., *Arch. Mus. Nac. Rio de Janeiro* 13(9): 115, 1905 (Dusén 1905). Type: Brazil.

GUATEMALA. **ALTA VERAPAZ:** S. loc., Pérez 74 (Pérez 2009); Túcúru municipio, Reserva Privada Chelemhá (Pérez 2006). ***CHIMALTENANGO:** Acatenango municipio, Volcán Acatenango road from Parramos to Yepocapa, above Chichoy Bajo, ~8.65 km W of San Miguel Dueñas, 14°32'20.8"N, 90°52'35.9"W, 9 Dec 2013, *Quedensley* 13048, det. Dauphin Sep 2017 (MO, W-0089065!, this publication). **HUEHUETENANGO:** S. loc., Pérez 1246 (USCG, Pérez 2009). **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, Ramírez 2007).

COSTA RICA. S. loc. (Schäfer-Verwimp and Pócs 2009; Schäfer-Verwimp 2014). ***ALAJUELA:** San Carlos, Volcán Arenal, 3 km from the active crater, 14 Dec 1977, *Balázs* 77/16/D, det. Dauphin Jan 2017 (EGR, CR!, this publication). **SAN JOSÉ:** Chirripó National Park, near the entrance, 12 Dec 2002, *Kaczmarek* 146, det. Dauphin (CR, Dauphin 2005).

PANAMA. **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,380 m, *Schäfer-Verwimp & Verwimp* 34363/B (JE, Schäfer-Verwimp 2014); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,380 m, *Schäfer-Verwimp & Verwimp* 34371 (JE, Schäfer-Verwimp 2014); Barú Volcano National Park (Rodríguez-Quiel et al. 2022).

Also reported from the Caribbean, Western South America, Brazil.

Frullania ecklonii (Spreng.) Gottsche, Lindenb. et Nees, *Syn. Hepat.* 3: 413, 1845 (Gottsche et al. 1845a).

≡*Jungermannia ecklonii* Spreng. *Syst. Veg. (ed. 16) [Sprengel]* 4(2): 324, 1827 (Sprengel 1827a). Type: South Africa.

GUATEMALA. S. loc. (Clark and Svihla 1956). **ALTA VERAPAZ:** S. loc., Pérez 321 (USCG, Pérez 2009); Túcúru municipio, Reserva Privada Chelemhá (Pérez 2006).

COSTA RICA. Cordillera de Talamanca (Holz and Gradstein 2005b; Holz 2006); S. loc. (Clark and Svihla 1956). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, Holz (Holz 2003); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a).

PANAMA. **CHIRIQUÍ:** Barú Volcano National Park (Rodríguez-Quiel et al. 2022).

Also reported from West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Frullania ericoides (Nees) Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 12: 51, 1839 (Montagne 1839a).

≡*Jungermannia ericoides* Nees, *Fl. Bras. (Martius)* 1(1): 346, 1833 (Nees 1833b). Type: Brazil.

≡*Frullania ericoides* var. *squarrosa* Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 12: 51, 1839 (Montagne 1839a), syn. fide Grolle (1968a). Type: Java.

≡*Frullania squarrosa* (Mont.) Nees, *Syn. Hepat.* 2: 416, 1845 (Gottsche et al. 1845b).

≡*Frullania allionii* Steph., *Sp. Hepat. (Stephani)* 4: 394, 1910 (Stephani 1910a), syn. fide Gradstein and Pérez (2021). Type: Ecuador.

GUATEMALA. **ALTA VERAPAZ:** Cobán, Las Victorias National Park, 600 m, 2002 (Andersohn 2004). **EL PETÉN:** San José municipio, Cerro Cahuí, *Can et al.* (USCG, Morales 2011); San José municipio, El Zotz, *Can et al.* (USCG, Morales 2011).

HONDURAS. S. loc. (Miller et al. 1983 as *Frullania squarrosa*). **EL PARAÍSO:** El Paraíso municipio, San Francisco, El Zamorano, 800 m, 4 Jan 1947, *Standley & Padilla* 1960 (Clark and Svihla 1950a as *Frullania squarrosa*).

NICARAGUA. **CHINANDEGA:** El Viejo municipio, Gulf of Fonseca, east of Volcano Coseguina, 7 Jul 1932, *Howell* 270 p.p. (CAS, Clark 1953a as *Frullania squarrosa*); El Viejo municipio, Gulf of Fonseca, east of Volcano Coseguina, 7 Jul 1932, *Howell* 244, det. A. Whittmore 2023 (CAS-692237! <https://www.gbif.org/occurrence/4035314342>, Clark 1953a as *Frullania inflata*).

COSTA RICA. S. loc. (Schiffner 1898a as *Frullania squarrosa*; Bonner 1965 as *Frullania allionii*). **CARTAGO:** Turrialba cantón, Angostura, *Polakowsky* 467a (Morales 1991; Dauphin 2005); Turrialba cantón, Angostura, *Polakowsky* (Polakowsky 1879 as *Frullania squarrosa*); Turrialba cantón, Angostura, Nov 1875, *Polakowsky* 467a (Polakowsky 1877 as *Frullania squarrosa*). **SAN JOSÉ:** Dota cantón, Santa María, 1,500–1,800 m, *Standley* 43164 (Herzog 1951 as *Frullania squarrosa*; Morales 1991; Kappelle 1996; Dauphin 2005).

PANAMA. **CHIRIQUÍ:** Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,110 m, 4 Apr 2006, *Schäfer-Verwimp & Verwimp* 30869 (JE, Schäfer-Verwimp 2014); Boquete distrito, Bajo Mono, along Rio Caldera, 8°50.5'N,

82°28.9'W, 1,670–1,745 m, 5 Apr 2006, *Schäfer-Verwimp & Verwimp* 30929 (JE, Schäfer-Verwimp 2014); Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°44.3'N, 82°14.7'W, 1,100 m, 30 Mar 2009, *Schäfer-Verwimp & Verwimp* 34519/A (JE, Schäfer-Verwimp 2014); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,350–1,370 m, *Schäfer-Verwimp & Verwimp* 34341, 34360/A (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Parque Nacional Volcán Barú, Paso Ancho, Camino de ascenso a la cima, ladera Occidental, Bosque de las Brujas, 8°48'54.0"N, 82°34'33.9"W, 2,038 m, 11 Aug 2017, *Guerra* (Arrocha et al. 2020); Tierras Altas distrito, Parque Nacional Volcán Barú, Paso Ancho, 8°48'55.13"N, 82°34'33.50"W, 2,047 m, *Guerra Batista et al.* (UCH, Guerra et al. 2020); Tierras Altas distrito, Volcán, road to Rio Sereno, 8°49.5'N, 82°41.5'W, 1,580 m, 2 Apr 2009, *Schäfer-Verwimp & Verwimp* 34667/a (JE, Schäfer-Verwimp 2014); Barú Volcano National Park (Rodríguez-Quiel et al. 2022). COCLÉ: Antón distrito, El Valle de Antón, Golden Frog Inn and near surroundings, 8°36.6'N, 80°06.6'W, 640–650 m, 7 Apr 2006, *Schäfer-Verwimp & Verwimp* 31045 (JE, Schäfer-Verwimp 2014). PANAMA: Paraíso recreation park, *Vinda* 311 (PMA, Stotler et al. 1998); S. loc. (Schäfer-Verwimp 2014). VERAGUAS: Santa Fe distrito, base of Cerro Tute, 8°30'N, 81°06'W, 710–890 m, 26 Mar 2009, *Schäfer-Verwimp & Verwimp* 34265, 34269, 34278 (JE, Schäfer-Verwimp 2014); Santa Fe distrito, Rio Santa María, 8°32'N, 81°06'W, 400–450 m, 1 Apr 2006, *Schäfer-Verwimp & Verwimp* 30800 (JE, Schäfer-Verwimp 2014); Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, *Schäfer-Verwimp & Verwimp* 30849 (JE, Schäfer-Verwimp 2014).

Also reported from Macaronesia, West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Middle Atlantic Ocean, Western Indian Ocean, Arabian Peninsula(?), China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasias, Australia, Southwestern Pacific, Southeastern Pacific, Northwestern Pacific, North-Central USA, Northeastern USA, South-Central USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Frullania gibbosa Nees, *Syn. Hepat.* 3: 411, 1845 (Gottsche et al. 1845a). Lectotype: Jamaica.

=*Frullania tolimana* Steph. *Sp. Hepat. (Stephani)* 4: 339, 1910 (Stephani 1910a), syn. fide Yuzawa (1991). Type: Colombia.

GUATEMALA. S. loc. (Arnell 1959; Bonner 1965 as *Frullania tolimana*). EL PETÉN: La Libertad municipio, Sabana San Francisco, 30 Mar 1933, *Lundell* 2242b (WTU, Clark 1956b). RETALHULEU: San Felipe, 600 m, *Maxon* 3546 (Clark 1956b).

HONDURAS. S. loc. (Arnell 1959). ATLÁNTIDA: Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 54446 (Clark

1956b). COMAYAGUA: Siguatopeque municipio, El Achote, 1,350 m, *Yuncker et al.* 6588 (NY, Yuzawa 1991); Siguatopeque, 1,080–1,400 m, *Standley* 56075 (Clark 1956b).

COSTA RICA. S. loc. (Bonner 1965 as *Frullania tolimana*; Schäfer-Verwimp 1989 as *Frullania tolimana*, 2014; Schäfer-Verwimp and Pócs 2009). CARTAGO: Turrialba cantón, Angostura, *Polakowsky* (Polakowsky 1879); Turrialba cantón, Angostura, Nov 1875, *Polakowsky* 454 (Polakowsky 1877; Morales 1991; Dauphin 2005). PUNTARENAS: Buenos Aires cantón, 3 km S of crossroad, *Kaczmarek* 206, det. Dauphin (CR, Dauphin 2005). SAN JOSÉ: Alajuelita cantón, La Verbena, *Tonduz* 15527 (FLAS, Morales 1991; Dauphin 2005); Dota cantón, San Marcos (Dauphin 2005); Dota cantón, San Marcos, *Tonduz* 1555 (NY, Yuzawa 1991).

PANAMA. Canal Zone (Schäfer-Verwimp 2014); S. loc. (Stotler et al. 1998). CHIRIQUÍ: Tierras Altas distrito, El Volcán, 8°46.9'N, 82°38.8'W, 1,410 m, 1 Apr 2009, *Schäfer-Verwimp & Verwimp* 34651 (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Volcán, along road to Rio Serena at western edge of the village, 8°47.6'N, 82°39.4'W, 1,370 m, 1 Apr 2009, *Schäfer-Verwimp & Verwimp* 34607/B (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Volcán, road to Rio Sereno, 8°49.5'N, 82°41.5'W, 1,580 m, 2 Apr 2009, *Schäfer-Verwimp & Verwimp* 34667/B (JE, Schäfer-Verwimp 2014). COCLÉ: Antón distrito, El Valle de Antón, Golden Frog Inn and near surroundings, 8°36.6'N, 80°06.6'W, 640–650 m, 7 Apr 2006, *Schäfer-Verwimp & Verwimp* 31044 (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, 8°36.3'N, 80°07.8'W, 600 m, 24 Mar 2009, *Schäfer-Verwimp & Verwimp* 34178 (JE, Schäfer-Verwimp 2014). DARIÉN: Cerro Pirre (Stotler et al. 1998); Cerro Pirre, between Pirre 1 and Pirre 2, 50 m, *Salazar Allen & Gradstein* 9203 (PMA, Stotler et al. 1998); Cerro Pirre, Trail El Real–Pirre, along Río Pirre, ~50 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992); Pinogana distrito, ~20 km SSW of Boca de Cupé, ~200 m, *Allen* 8667 (MO, Stotler et al. 1998); Pinogana distrito, Cruce de Mono, *Allen* 9176 (MO, Stotler et al. 1998); Pirre Mas-sif, *Allen* 8770 (MO, Stotler et al. 1998); S. loc. (Schäfer-Verwimp 2014). PANAMA WEST: La Chorrera distrito, Barro Colorado Island, *Shattuck* 569 p.p. (Haynes 1933; Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Lutz trail, *Shattuck* 569 p.p. (F, Clark 1956b; Stotler et al. 1998); La Chorrera distrito, Barro Colorado, Armour, 2003, *Dauphin* 3092 (CR, PMA, Dauphin et al. 2022); La Chorrera distrito, Barro Colorado, Laboratory Cove, 2003, *Dauphin* 3146 (CR, PMA, Dauphin et al. 2022). VERAGUAS: Santa Fe distrito, in the village, 8°30.7'N, 81°04.6'W, 400 m, 27 Mar 2009, *Schäfer-Verwimp & Verwimp* 34332 (JE, Schäfer-Verwimp 2014).

Also reported from Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Frullania glomerata (Lehm. et Lindenb.) Nees et Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 9: 46, 1838 (Montagne 1838).

=*Jungermannia glomerata* Lehm. et Lindenb., *Nov. Stirp. Pug.* 5: 21, 1833 (Lehmann 1833). Type: Brazil.

=*Frullania hilariana* Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 9: 45, 1838 (Montagne 1838), syn. fide Reiner (1988). Type: Brazil.

COSTA RICA. S. loc. (Schäfer-Verwimp and Pócs 2009). **CARTAGO:** Alto de La Estrella, *Standley* 39249 (**Herzog 1951; Dauphin 2005**); La Estrella, 26–27 Mar 1924, *Standley* 39429 (**Clark and Svihla 1952b; Morales 1991** as *Frullania hilariana*).

Also reported from Mexico, the Caribbean, Western South America, Brazil, Southern South America.

Frullania grandifolia Steph., *Sp. Hepat. (Stephani)* 4: 684, 1911 (Stephani 1911b). Type: Mexico.

=*Frullania rabenhorstii* Steph., *Sp. Hepat. (Stephani)* 4: 601, 1911 (Stephani 1911b), syn. fide Uribe (2008). Type: Mexico.

?**GUATEMALA.** S. loc. (**Bonner 1965** as *Frullania rabenhorstii*; **Fulford and Sharp 1990** as *Frullania rabenhorstii*). Note: We are not aware of any firsthand report from Guatemala.

COSTA RICA. S. loc. (**Gradstein and Uribe 2011; Ellis et al. 2020; Gradstein 2021**). **SAN JOSÉ:** Moravia cantón, Camino a la Hondura, 30 km NE de la universidad, 1,400 m, 28 Aug 1973, *Griffin et al.* 375 (**MEXU, MO, NY, Uribe 2005, 2008**).

Also reported from Mexico, Western South America.

Frullania guatemalensis Steph., *Sp. Hepat. (Stephani)* 4: 497, 1911 (Stephani 1911b). Lectotype (**Bonner 1965**: 319): Guatemala, Alta Verapaz, prope Cobán, 1,350 m, Dec 1906, *Türckheim s.n.* (G-00066751 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=120813&lang=en>, isoelectotypes G, NY).

GUATEMALA. ALTA VERAPAZ: Cobán, 1,350 m, *Türckheim* (NY, BM, **Pérez 2009**); Cobán, 1,350 m, Dec 1906, *Türckheim* 5412, 5413 (**Clark 1954d**); Cobán, 1,350 m, Dec 1906, *Türckheim*, hb. Levier 5411 (G <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=120813&lang=en>, **TYPE**, **Stephani 1911b; Bonner 1965; Fulford and Sharp 1990**).

Also reported from Mexico.

Frullania hamiflora Herzog et L.Clark, *Bryologist* 56(3): 180, 1953 (**Clark and Schultz 1953b**). Holotype: Costa Rica, Alajuela, Fraijanes, *Standley & Torres* 47636 (US-00070889 <http://n2t.net/ark:/65665/335b4c841-0671-4c15-89b8-b88c8abac97d>; isotypes G, JE-04000986 <https://je.jacq.org/JE04000986>).

=*Frullania macrorhyncha* Herzog et L.Clark, *Bryologist* 56(4): 283, 1953 (**Clark and Schultz 1953a**), syn. fide **Stotler (1969)**. Holotype: Costa Rica, San José, Zurquí, *Standley & Valerio* 48135 (US-00070894 <http://n2t.net/ark:/65665/30b865f22-a4b3-400b-96c2-99d75683c5e8>; isotype JE-04001005 <https://je.jacq.org/JE04001005>).

HONDURAS. S. loc. (**Fulford and Sharp 1990**). **FRANCISCO MORAZÁN:** Distrito Central municipio, La Montaña, 1,500 m, *Standley* 1628 (F, **Stotler 1969**).

COSTA RICA. S. loc. (**Cole 1982, 1983; Fulford and Sharp 1990**). **ALAJUELA:** Alajuela cantón, Fraijanes, 1,500–1,700 m, 12–13 Feb 1926, *Standley & Torres* 47636 (US-00070889 <http://n2t.net/ark:/65665/335b4c841-0671-4c15-89b8-b88c8abac97d>, **TYPE**, **Clark and Schultz 1953b; Bonner 1965; Stotler 1969;**

Morales 1991; Dauphin 2005). **SAN JOSÉ:** Moravia cantón, Cerro Zurquí, 2,000–2,500 m, 13 Feb 1926, *Standley & Valerio* 48135 (US-00070894 <http://n2t.net/ark:/65665/30b865f22-a4b3-400b-96c2-99d75683c5e8>, **TYPE** of *Frullania macrorhyncha*, **Clark and Schultz 1953a** as *Frullania macrorhyncha*; **Bonner 1965** as *Frullania macrorhyncha*; **Stotler 1969; Morales 1991; Dauphin 2005**).

Also reported from Mexico.

Frullania intumescens (Lehm. et Lindenb.) Lehm. et Lindenb., *Syn. Hepat.* 3: 460, 1845 (**Gottsche et al. 1845a**) var. *intumescens*.

=*Jungermannia intumescens* Lehm. et Lindenb., *Nouv. Stirp. Pug.* 6: 52, 1834 (Lehmann 1834). Type: Jamaica.

=*Lejeunea clandestina* Nees et Mont., *Ann. Sci. Nat., Bot.*, ser. 2, 5: 59, 1836 (Nees and Montagne 1836), syn. fide **Gradstein et al. (2003)**. Type: Peru.

=*Frullania clandestina* (Nees et Mont.) Nees, *Syn. Hepat.*: 457, 1845 (**Gottsche et al. 1845a**).

=*Frullania cucullata* Lindenb. et Gottsche, *Syn. Hepat.*: 782, 1847 (**Gottsche et al. 1847**), syn. fide **Stotler (1969)**. Type: Mexico.

=*Frullania longicollis* Lindenb. et Gottsche, *Syn. Hepat.*: 783, 1847 (**Gottsche et al. 1847**), syn. fide **Stotler (1969)**. Type: Mexico.

=*Frullania dubia* Lindenb. et Hampe, *Limn. 24*(6): 641, 1851 (Hampe 1851a), syn. fide **Stotler (1969)**. Lectotype (**Stotler 1969**: 446): Costa Rica, s. loc., *Oersted* 9981 (C).

=*Frullania fallax* Steph. *Sp. Hepat. (Stephani)* 4: 495, 1911 (Stephani 1911b), nom. illeg. (ICN2018 Art. 53.1; non **Gottsche et al. 1845b**), syn. fide **Stotler (1969)**. Lectotype: Bolivia.

=*Frullania fuscobrunnea* Steph., *Sp. Hepat. (Stephani)* 6: 570, 1924 (Stephani 1924), nom. nov.

GUATEMALA. S. loc. (**Stephani 1911b; Bonner 1965** also as *Frullania fuscobrunnea*; **Fulford and Sharp 1990; Schuster 1992a**). **ALTA VERAPAZ:** Tamahú municipio, above Tamahú, 900–1,200 m, 5 Apr 1939, *Standley* 70947 (**Clark and Svihla 1952a**). **BAJA VERAPAZ:** S. loc. (**Pérez 2009**); Santa Rosa, 1,600 m (**Freire 2006**); Santa Rosa, 1,600 m, *Türckheim* (NY, **Stotler 1969**).

***HONDURAS.** ***LEMPIRA:** Gracias municipio, Montaña de Celaque, 14°33'N, 88°38'W, 1,740–2,040 m, 10 May 1992, *Allen* 11867, det. Atwood Jun 2017 (MO-5227667! <https://tropicos.org/specimen/90094412>, **this publication**).

COSTA RICA. Cordillera de Talamanca, *Kappelle* 1823 (CR, **Kappelle 1996**); S. loc. (Stephani 1911b as *Frullania cucullata*, *Frullania dubia*, and *Frullania longicollis*; **Frye and Clark 1947** as *Frullania cucullata*; **Clark and Svihla 1948a** as *Frullania cucullata*; **Bonner 1965** as *Frullania cucullata* and *Frullania longicollis*; **Cole 1982, 1983** also as *Frullania cucullata*; **Fulford and Sharp 1990; Schuster 1992a** also as *Frullania cucullata*; **Dauphin 2005; Gradstein 2021**); S. loc., 5,000–8,000 ft (1,524–2,438 m), *Oersted* 1169 (**Müller 1851** as *Frullania dubia*); S. loc., *Oersted* 9981 (C, **Morales 1991; Dauphin 2005**); S. loc., *Oersted* (YU, G, S, **TYPE** of *Frullania dubia*, **Hampe 1851a** as *Frullania dubia*; **Polakowsky 1879** as *Frullania dubia*; **Dauphin 2005**). **ALAJUELA:** Alajuela cantón, Viento Fresco, 1,600–1,900 m, *Standley* 47746 (**Herzog 1951** as *Frullania longicollis*); Alajuela

cantón, Viento Fresco, 1,600–1,900 m, 13 Feb 1926, *Standley & Torres* 47746 (Clark and Svihla 1952a; Morales 1991; Dauphin 2005); San Ramón cantón, Piedades (Morales 1991); San Ramón cantón, Piedades, Jun 1900, *Brenes* 9410 (FH, Clark 1958b as *Frullania longicollis*). CARTAGO: Cartago cantón, El Muñeco, S of Navarro, 1,400 m, *Standley* 33937 (Morales 1991; Dauphin 2005; also reported as *Frullania closterantha* by Herzog 1951, see below); Paraíso cantón, Jardín Lankester, *Griffin & Morales* C152 (FLAS, USJ, Morales 1991; Dauphin 2005). GUANACASTE: La Cruz cantón, Guanacaste National Park, Cerros Santa Elena, 10°53'24"N, 85°50'55"W (Dauphin and Grayum 2005); La Cruz cantón, Guanacaste National Park, Cerros Santa Elena, 10°53'24"N, 85°50'55"W, *Dauphin et al.* 3302, 3306, 3313, 3346.1, det. Gradstein (CR, GOET, Dauphin 2005). HEREDIA: Barva cantón, Barva forest, *Pittier* 6010 (Stephani 1893c as *Frullania dubia*; Morales 1991; Dauphin 2005); Barva cantón, Barva forest, 10 Jan 1890, *Pittier* 2325 (FH, Clark 1958a as *Frullania dubia*); Heredia cantón, Vara Blanca, 1941, *Svihla* 41-485, 41-487 (Clark and Frye 1945 as *Frullania cucullata*); San Isidro cantón, Yerba Buena, *Standley* 33937 (Dauphin 2005); San Isidro cantón, Yerba Buena, NE of San Isidro, 2,000 m, 22–28 Feb 1928, *Standley & Valerio* 49914 (Herzog 1951 as *Frullania longicollis*; Clark and Svihla 1952a; Morales 1991). PUNTARENAS: Buenos Aires cantón, Alto Hacam, *Tonduz* (NY, Stotler 1969; Morales 1991; Dauphin 2005); Buenos Aires cantón, Boruca, *Tonduz* 15523 (Evans 1914a as *Frullania cucullata*); Buenos Aires cantón, Boruca, *Tonduz* (NY, Stotler 1969; Morales 1991); Cerro Vueltas, 3,000 ft (914 m), 1969, *Gómez-Pignataro* 2117 (R, this publication); Monteverde (Morales 1991); Monteverde, 4,300 ft (1,310 m), Feb 1969, *James, W.* 1969-17 (R, Reed and Robinson 1971 as *Frullania cucullata*; Dauphin 2005). SAN JOSÉ: Vásquez de Coronado cantón, between Las Nubes and San Isidro de Coronado, 1,420–1,800 m, *Standley* 38869 (Herzog 1951; Morales 1991; Dauphin 2005); Vásquez de Coronado cantón, Las Nubes, 1945, *Echeverría* 95 (Morales 1991; Dauphin 2005; also reported as *Frullania closterantha* by Clark and Mullen 1947, see below); Vásquez de Coronado cantón, San Isidro, 1941, *Svihla* 41-504 (Clark and Frye 1945 as *Frullania cucullata*).

PANAMA. S. loc. (Mitten 1854b as *Frullania cucullata*; Frye and Clark 1947 as *Frullania cucullata*; Clark and Svihla 1948a as *Frullania cucullata*; Iverson 1963 as *Frullania cucullata*; Bonner 1965 as *Frullania cucullata* and *Frullania longicollis*; Stotler 1969; Fulford and Sharp 1990; Schuster 1992a also as *Frullania cucullata*; Stotler et al. 1998 as *Frullania cucullata*). CHIRIQUÍ: Boquete distrito, Caldera, *Salazar Allen et al.* 881 (PMA, Stotler et al. 1998); Boquete distrito, Palo Alto, 1,300–1,400 m, *Salazar Allen et al.* 757 p.p., 770 (PMA, Stotler et al. 1998); Boquete, 1940, *Svihla* 40-402, 40-411, 40-416, 40-424, 40-438, 40-444 (Clark and Frye 1945 as *Frullania cucullata*; Stotler et al. 1998 as *Frullania cucullata*); Tierras Altas distrito, Volcán, N of Hotel Dos Ríos, 500 m, *Salazar Allen* 5286b (PMA, Stotler et al. 1998); Barú Volcano National Park (Rodríguez-Quiel et al. 2022). COLÓN: Colón distrito, Juan Mina, 1 Aug 1950, *Meyer* 221 (TENN, Crum and Arzeni 1953 as *Frullania cucullata*;

Stotler et al. 1998 as *Frullania cucullata*); Colón distrito, Juan Mina, 1 Aug 1950, *Meyer* 98 (TENN, Crum and Arzeni 1953 as *Frullania cucullata*; Stotler et al. 1998 as *Frullania cucullata*). ?PANAMA WEST: Capira distrito, Cruces (Stotler et al. 1998 as *Frullania cucullata*). Note: We are not aware of any firsthand report from Panama West. PANAMA: Panamá distrito, Cerro Jefe, 2 km before the top of Cerro Jefe on the south side, *Martínez* 880 (PMA, Stotler et al. 1998).

COCOS I. Chatham Bay, 28 Jun 1932, *Howell* 228 p.p. (CAS, Clark 1953a as *Frullania cucullata*); Río Genio, 5°32'57"N, 87°03'56"W, 0–5 m, *Dauphin* 947, det. G. Dauphin Apr 2021 (USJ-47232!, CR-4468431!, W!, GOET [https://gwdu64.gwdg.de/pls/herbar/moos\\$moos.QueryViewByKey?P_ID=13312&Z_CHK=64320](https://gwdu64.gwdg.de/pls/herbar/moos$moos.QueryViewByKey?P_ID=13312&Z_CHK=64320), this publication [in hb. USJ and GOET det. as *Frullania mucronata* by S. R. Gradstein]); Río Genio, 5°32'57"N, 87°03'38"W, 0–5 m, *Dauphin* 952, det. G. Dauphin Apr 2021 (USJ-47228!, CR-4468435!, W!, GOET [https://gwdu64.gwdg.de/pls/herbar/moos\\$moos.QueryViewByKey?P_ID=13310&Z_CHK=63808](https://gwdu64.gwdg.de/pls/herbar/moos$moos.QueryViewByKey?P_ID=13310&Z_CHK=63808), this publication [in hb. USJ and GOET det. as *Frullania mucronata* by S. R. Gradstein]); Río Genio, 5°32'57"N, 87°03'56"W, 0–5 m, *Dauphin* 953, det. G. Dauphin Apr 2021 (USJ-47230!, CR-4468432!, W!, this publication); S. loc. (Iverson 1963 as *Frullania cucullata*; Fosberg and Klawe 1966 as *Frullania cucullata*; Dauphin 1995, 1999, 2005); S. loc., 1966, *Fosberg & Klawe* (Morales 1991); Wafer Bay, 28 Jun 1932, *Howell* 229 (CAS, Clark 1953a as *Frullania cucullata*).

Also reported from Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Frullania intumescens var. *closterantha* (Spruce) Gradst. et Pócs, Nova Hedwigia 112(1/2): 58, 2021 (Gradstein and Pócs 2021). ≡ *Frullania closterantha* Spruce, Trans. & Proc. Bot. Soc. Edinburgh 15: 51, 1884 (Spruce 1884). Type: Ecuador.

GUATEMALA. S. loc. (Stephani 1911b as *Frullania closterantha*; Clark and Mullen 1947 as *Frullania closterantha*; Bonner 1965 as *Frullania closterantha*; Winkler 1967 as *Frullania closterantha*). QUETZALTENANGO: S. loc., *Vogel* B-9028 (MO, Pérez 2009 as *Frullania closterantha*).

EL SALVADOR. SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler* A/23/3 (Winkler 1967 as *Frullania closterantha*).

COSTA RICA. S. loc. (Stephani 1911b as *Frullania closterantha*; Clark and Svihla 1948a as *Frullania closterantha*; Bonner 1965 as *Frullania closterantha*; Winkler 1967 as *Frullania closterantha*; Cole 1982, 1983 as *Frullania closterantha*). CARTAGO: Cartago cantón, El Muñeco, S of Navarro, 1,400 m, *Standley* 33937 (Herzog 1951 as *Frullania closterantha*). SAN JOSÉ: Vásquez de Coronado cantón, Las Nubes, 1945, *Echeverría* 95 (Clark and Mullen 1947 as *Frullania closterantha*).

?PANAMA. S. loc. (Clark and Svihla 1948a as *Frullania closterantha*). Note: We are not aware of any firsthand report from Panama.

Also reported from Mexico, Northern South America, Western South America.

Frullania kunzei (Lehm. et Lindenb.) Lehm. et Lindenb., *Syn. Hepat.* 3: 449, 1845 (Gottsche et al. 1845a) var. *kunzei*.

≡ *Jungermannia kunzei* Lehm. et Lindenb., *Nov. Stirp. Pug.* 6: 50, 1834 (Lehmann 1834). Type: Cuba.

= *Frullania neesii* Lindenb., *Syn. Hepat.*: 450, 1845 (Gottsche et al. 1845b), syn. fide Gradstein and Costa (2003). Type: Brazil.

= *Frullania ecuadorensis* Steph., *Sp. Hepat. (Stephani)* 4: 526, 1911 (Stephani 1911b), syn. fide Gradstein and Pérez (2021). Type: Ecuador.

= *Frullania galapagona* Steph., *Sp. Hepat. (Stephani)* 4: 532, 1911 (Stephani 1911b), nom. illeg. (ICN2018 Art. 53.1; hom. illeg. non Ångström 1873), syn. with *Frullania ecuadorensis* fide Stotler (1969). Lectotype (Bonner 1965: 309; see also Stotler 1969 as “type”) or possibly holotype: Cocos Island, *Pittier* 1902 (G-00067435 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=119009&lang=en>).

≡ *Frullania decipiens* Beauverd, *Sp. Hepat. (Stephani)* 6: 570, 1924 (Stephani 1924), nom. nov. for *Frullania galapagona* Steph. 1911.

GUATEMALA. S. loc. (Fulford and Sharp 1990 as *Frullania neesii*; Oliveira-e-Silva and Yano 2000 as *Frullania neesii*); S. loc., Duss 197 (G, Stotler 1969 as type of *Frullania minima*, but that is from Guadeloupe; Freire 2006 as type of *Frullania minima*, but that is from Guadeloupe). **ALTA VERAPAZ:** Santa Cruz Verapaz municipio, above Santa Cruz, *Standley* 71052 (NY, Pérez 2009). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 190, 265 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). **EL PROGRESO:** San Agustín Acasaguastlán municipio, Caserio Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007). Note: Stotler (1969) stated that the type of *Frullania minima* is from Guatemala. However, it was collected in Guadeloupe. Several of the reports from Guatemala as *Frullania neesii* without further specification may be based on this error.

HONDURAS. S. loc. (Fulford 1987 as *Frullania neesii*; Fulford and Sharp 1990 as *Frullania neesii*; Oliveira-e-Silva and Yano 2000 as *Frullania neesii*). **FRANCISCO MORAZÁN:** Distrito Central municipio, La Montanita, 1,500 m, *Standley* 12394 p.p. (F, Stotler 1969 as *Frullania neesii*).

COSTA RICA. S. loc. (Fulford 1987 as *Frullania neesii*; Fulford and Sharp 1990 as *Frullania neesii*; Oliveira-e-Silva and Yano 2000 as *Frullania neesii*); S. loc., Brenes (F, Stotler 1969 as *Frullania neesii*; Morales 1991 as *Frullania neesii*). **ALAJUELA:** San Ramón, Brenes (Dauphin 2005). **PUNTARENAS:** Monteverde Cloud Forest (Merwin et al. 2001); Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, Gradstein et al. (U, Sillett et al. 1995 as *Frullania cf. neesii*). **SAN JOSÉ:** Vásquez de Coronado cantón, San Isidro, *Standley* 34017 (Morales 1991 as *Frullania neesii*).

PANAMA. **BOCAS DEL TORO:** Salt Creek (9°17'39.7"N, 82°06'11.2"W) on Isla Bastimento, Aug 2017 (Salazar Allen et al. 2022). **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito,

1,300–1,700 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°44.3'N, 82°14.7'W, 1,100 m, 30 Mar 2009, Schäfer-Verwimp & Verwimp 34508 (JE, Schäfer-Verwimp 2014); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,350 m, Schäfer-Verwimp & Verwimp 34338/B (JE, Schäfer-Verwimp 2014); Barú Volcano National Park (Rodríguez-Quiel et al. 2022 as *Frullania cf. kunzei*). **COCLÉ:** Antón distrito, El Valle de Antón, Golden Frog Inn and near surroundings, 8°36.6'N, 80°06.6'W, 640–650 m, 7 Apr 2006, Schäfer-Verwimp & Verwimp 31041 (JE, Schäfer-Verwimp 2014). **PANAMA:** Panamá distrito, Juan Díaz, Cornman 3022 (MO, Stotler 1969 as *Frullania ecuadorensis*; Stotler et al. 1998 as *Frullania ecuadorensis*). **VERAGUAS:** Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, Schäfer-Verwimp & Verwimp 30853 (JE, Schäfer-Verwimp 2014).

COCOS I. S. loc. (Stephani 1911b as *Frullania galapagona*; Clark 1953a as *Frullania decipiens*; Fosberg and Klawe 1966 as *Frullania decipiens*; Dauphin 1995, 1999, 2005, all as *Frullania ecuadorensis*); S. loc., Pittier (G-00047702 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=159230&lang=en>), TYPE of *Frullania galapagona*; S. loc., 1966, Fosberg & Klawe (Morales 1991 as *Frullania ecuadorensis*).

Also reported from North-Central USA, South-Central USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Frullania laxiflora Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 26, 1884 (Spruce 1884). Type: Ecuador.

?**GUATEMALA.** S. loc. (Stephani 1910a; Evans 1914b as *Frullania laxiflora* var. *laxiflora*; Herrera 1921, 1926; Clark 1959; Bonner 1965). Note: We are not aware of any firsthand report from Guatemala.

COSTA RICA. S. loc. (Gradstein 2021). **PUNTARENAS:** Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde, 1,550 m, Gradstein & Solano 9517 (U, USJ, Gradstein et al. 1994; Dauphin 2005); S. loc. (Merwin et al. 2001).

Also reported from Northern South America, Western South America, Southern South America.

Frullania levieri Steph., *Sp. Hepat. (Stephani)* 4: 388, 1910 (Stephani 1910a). Lectotype (Bonner 1965: 352) or possibly holotype: Guatemala, Alta Verapaz, Cobán, 1,650 m, Jun 1908, Türckheim s.n. (G-00067108 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=113757&lang=en>).

GUATEMALA. **ALTA VERAPAZ:** Cobán, 1,650 m, Jun 1908, Türckheim s.n. (G-00067108 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=113757&lang=en>), TYPE, Stephani 1910a; Bonner 1965).

Not found outside Central America.

Frullania macrocephala (Lehm. et Lindenb.) Lehm. et Lindenb., *Syn. Hepat.* 3: 460, 1845 (Gottsche et al. 1845a).

=*Jungermannia macrocephala* Lehm. et Lindenb., *Nov. Stirp. Pug.* 5: 20, 1833 (Lehmann 1833). Type: Peru.

=*Frullania strobilantha* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 48, 1884 (Spruce 1884), syn. fide Stotler (1969). Type: Peru.

=*Frullania costaricensis* Steph., *Sp. Hepat. (Stephani)* 4: 512, 1911 (Stephani 1911b), syn. fide Stotler (1969). Lectotype (Bonner 1965: 275; see also Stotler 1969) or possibly holotype: Costa Rica, *Pittier* 5 (G-00067105 <https://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=113658&lang=en>).

=*Frullania bullatiflora* Steph. *Sp. Hepat. (Stephani)* 4: 513, 1911 (Stephani 1911b), syn. fide Gradstein and Hekking (1979). Type: Colombia.

HONDURAS. S. loc., *Yuncker* 6590 (DPU, Stotler 1969).

COSTA RICA. S. loc. (Clark 1955a as *Frullania strobilantha*; Cole 1982, 1983); S. loc., 1,600 m, *Pittier* 5 (G-00067105, **TYPE** of *Frullania costaricensis*, **Stephani 1911b** as *Frullania costaricensis*; Bonner 1965 as *Frullania costaricensis*; Stotler 1969; Morales 1991; Dauphin 2005). **SAN JOSÉ:** Moravia cantón, La Palma (Morales 1991; Dauphin 2005); Moravia cantón, La Palma, 1,600 m, 3 Feb 1924, *Standley* 32953 (US, Clark 1954b as *Frullania bullatiflora*).

PANAMA. S. loc. (Stephani 1911b as *Frullania strobilantha*; Clark 1955a as *Frullania strobilantha*; Bonner 1965 as *Frullania strobilantha*; Stotler et al. 1998); S. loc., 1906, *Hélion* (PC, Stotler et al. 1998); S. loc., 1907, *Hélion* (NY, Stotler 1969). **CHIRIQUÍ:** Boquete distrito, Bajo Mono, along Rio Caldera, 8°50.5'N, 82°28.9'W, 1,670–1,745 m, 5 Apr 2006, *Schäfer-Verwimp & Verwimp* 30966 (JE, Schäfer-Verwimp 2014); Gualaca distrito, Fortuna Forest Reserve, SW of camping site, from Finca Pittí to foothills of Cerro Fortuna, 1,000–1,270 m (Salazar Allen et al. 2021); Gualaca distrito, Hornito, Fortuna, 1,000–1,270 m, *Salazar Allen et al.* 646, 647 (PMA, Stotler et al. 1998); Tierras Altas distrito, Volcán, along road to Rio Serena at western edge of the village, 8°47.6'N, 82°39.4'W, 1,370 m, 1 Apr 2009, *Schäfer-Verwimp & Verwimp* 34629 (JE, Schäfer-Verwimp 2014).

Also reported from Mexico, the Caribbean, Western South America, Brazil.

Frullania microcephala Gottsche, *Mex. Leverm.*: 251, 1863 (Gottsche 1863). Type: Mexico.

Note: *Frullania microcephala* is a doubtful taxon described from Mexico. The reports from Costa Rica and Panama are not supported by any other data and are probably all based on the unsupported statement in Bonner (1965).

GUATEMALA. S. loc. (Bonner 1965; Fulford and Sharp 1990). **ALTA VERAPAZ:** Cobán, 1,600 m, Jan 1908, *Türckheim* 5595 (Clark 1954c).

?**COSTA RICA.** S. loc. (Bonner 1965; Fulford and Sharp 1990). Note: We are not aware of any firsthand report from Costa Rica.

?**PANAMA.** S. loc. (Bonner 1965; Fulford and Sharp 1990; Stotler et al. 1998). Note: We are not aware of any firsthand report from Panama.

Also reported from Mexico, Brazil.

Frullania microrhyncha L.Clark et Svihla, *Bryologist* 53(1): 63, 1950 (Clark and Svihla 1950d). Holotype: Panama, near Cruces, s. coll. (NY-01047662 <http://sweetgum.nybg.org/science/vh/specimen-details/?irn=1151501>).

PANAMA. PANAMA WEST: Capira distrito, Cruces, Clark & Svihla (Stotler et al. 1998); S. loc. (NY, Clark and Svihla 1950d).

Also reported from Western South America, Southern South America.

Frullania mirabilis J.B.Jack et Steph., *Hedwigia* 31(1): 15, 1892 (Jack and Stephani 1892). Type: Ecuador.

=*Frullania pendulostyla* Steph., *Sp. Hepat. (Stephani)* 6: 547, 1924 (Stephani 1924), syn. fide (Yuzawa 1991). Type: Ecuador.

COSTA RICA. S. loc. (Stephani 1911b; Stotler 1969 as *Frullania pendulostyla*; Hattori 1973; Cole 1982, 1983, both as *Frullania 'pendulosa'*; Dauphin 2005; Gradstein and Uribe 2011, 2016; Schäfer-Verwimp et al. 2013; Schäfer-Verwimp 2014; Gradstein 2021; Gradstein and Pérez 2021; Oliveira-da-Silva et al. 2022). **ALAJUELA:** San Ramón, *Brenes* 16205 (F, Stotler 1969 as *Frullania pendulostyla*; Morales 1991 as *Frullania pendulostyla*; Dauphin 2005). **CARTAGO:** Alto de La Estrella, *Standley* 39056, 39074 (Herzog 1951; Morales 1991; Dauphin 2005). **HEREDIA:** Heredia cantón, Finca Isla Bonita, Vara Blanca, Atlantic slope, ~5,500 ft (1,676 m), 2 Dec 1947, *Svihla* 47-951, 47-997 (Clark and Svihla 1948c; Morales 1991); San Isidro cantón, Cerro Caricias, 2,000–2,400 m, *Standley* 52173 (Herzog 1951; Dauphin 2005); San Isidro cantón, Cerro de Caricias, *Standley* 52171 (Morales 1991); San Isidro cantón, Cerro Zurquí, *Dodgrtothers* 7926 (NY, Stotler 1969 as *Frullania pendulostyla*; Dauphin 2005); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley* 50290 (Herzog 1951; Morales 1991; Dauphin 2005); San Isidro cantón, Yerba Buena, 2,000 m, *Standley* 49844b, 50029 (Herzog 1951; Morales 1991; Dauphin 2005). **PUNTARENAS:** Monteverde (Morales 1991); Monteverde, 10–17 Mar 1965, *James, W. & James, M.* 106 (R, Reed and Robinson 1971; Dauphin 2005). **SAN JOSÉ:** Cerro Zurquí, *Dodgrtothers* 7922, 7926 (NY, Stotler 1969 as *Frullania pendulostyla*; Morales 1991 as *Frullania pendulostyla*; Dauphin 2005); Dota cantón, Laguna de La Chonta, NE of Sta María de Dota, 2,000–2,100 m, *Standley* 42341 (Herzog 1951; Morales 1991; Kappelle 1996; Dauphin 2005).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, near southern edge of storage lake, 8°44.0'N, 82°14.5'W, 1,215 m, 30 Mar 2009, *Schäfer-Verwimp & Verwimp* 34493 (JE, Schäfer-Verwimp 2014). ?**PANAMA WEST:** S. loc. (He et al. 2016). Note: We are not aware of any firsthand report from Panama West.

Also reported from Northern South America, Western South America, Brazil.

Frullania montagnei Gottsche, *Syn. Hepat.* 3: 456, 1845 (Gottsche et al. 1845a). Type: French Guiana.

=*Frullania tuerckheimii* Steph., *Sp. Hepat. (Stephani)* 4: 508, 1911 (Stephani 1911b), syn. fide Stotler (1969). Lectotype (Bonner 1965: 457; see also Stotler 1969: 453 as “type”): Guatemala, Baja Verapaz, Santa Rosa, in truncis quercinis inter Macromitria, Dec 1906, *Türckheim*, hb. Levier 5054 (G-00114945 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=165943&lang=en>, isoelectotypes S-B24321 <https://herbarium.nrm.se/specimens/B24321>, NY-1047687 <https://sweetgum.nybg.org/science/vh/specimen-details/?irn=1153009>, NY-1047688).

=*Frullania virillana* Steph., *Sp. Hepat. (Stephani)* 4: 528, 1911 (Stephani 1911b), syn. fide Stotler (1969). Lectotype (Bonner 1965: 465; see also Stotler 1969: 453 as “type”) if not holotype: Costa Rica, San José, Río Virilla, *Tonduz s.n.* (G-00114347 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=165723&lang=en>).

GUATEMALA. S. loc. (Fulford and Sharp 1990; Oliveira-e-Silva and Yano 2000); S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008). **ALTA VERAPAZ:** Cobán, 1,350 m, *Türckheim* 5414 (G, Stotler 1969; Freire 2006; Pérez 2009); Cobán, 1,350 m, *Türckheim* (NY, BM, Pérez 2009 as *Frullania tuerckheimii*). **BAJA VERAPAZ:** S. loc. (Stephani 1911b as *Frullania tuerckheimii*); S. loc., *Türckheim* (NY, Pérez 2009 as *Frullania tuerckheimii*); Santa Rosa, *Türckheim* 5057 (G, TYPE of *Frullania tuerckheimii*, Bonner 1965 as *Frullania tuerckheimii*; Stotler 1969; Freire 2006; Pérez 2009); Santa Rosa, 1,600 m, Dec 1906, *Türckheim* 5054 (NY, Stotler 1969; Freire 2006).

***BELIZE.** ***CAYO:** Las Cuevas Field Station, 16°44'N, 88°59'W, 6 Dec 1996, Allen 18016, det. Atwood and Dauphin Jun 2017 (MO-52240003! <https://tropicos.org/specimen/90094394>, this publication).

COSTA RICA. S. loc. (Cole 1982, 1983; Fulford and Sharp 1990; Oliveira-e-Silva and Yano 2000). ***PUNTARENAS:** Coto Brus cantón, San Vito, 4 mi S of San Vito, Koch 4954, det. Dauphin 2015 (CR!, this publication). **SAN JOSÉ:** San Vicente, Río Virilla, *Tonduz* 6207 (G-00114347, TYPE of *Frullania virillana*, Stephani 1911b as *Frullania virillana*; Bonner 1965 as *Frullania virillana*; Stotler 1969; Morales 1991; Dauphin 2005).

PANAMA. S. loc., 1906, *Hélion* (PC, Dugas 1928 as *Frullania tuerckheimii*).

Also reported from Mexico, Northern South America, Western South America, Brazil.

Frullania moritziana Lindenb. et Gottsche, *Syn. Hepat.* 5: 782, 1847 (Gottsche et al. 1847). Type: Venezuela.

COSTA RICA. **ALAJUELA:** Poás Volcano, Aug 1977, *Griffin et al.* 167 (FLAS-020504, Morales and Griffin 1983; Morales 1991; Dauphin 2005). **CARTAGO:** El Guarco cantón, La Cangeja, *Mata* 38, det. Dauphin (USJ, Dauphin 2005).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Frullania nodulosa (Reinw., Blume et Nees) Nees, *Syn. Hepat.* 3: 433, 1845 (Gottsche et al. 1845a).

≡*Jungermannia nodulosa* Reinw., Blume et Nees, *Nova Acta Phys.-Med. Acad. Caes. Leop.-Carol. Nat. Cur.* 12(1): 217, 1825 (Reinwardt et al. 1824a). Type: Java.

=*Jungermannia replicata* Nees, *Fl. Brasil. Enum. Pl.* 1: 369, 1833 (Nees 1833b), syn. fide Kamimura (1961). Type: Brazil.

≡*Frullania replicata* (Nees) Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 36, 1884 (Spruce 1884).

=*Frullania thuilleri* Nees, *Syn. Hepat.* 2: 434, 1845 (Gottsche et al. 1845a), syn. fide Verdoorn (1930). Type: Many syntypes from America and Asia.

=*Frullania nodulosa* f. *brachyantha* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 130, 1951 (Herzog 1951), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Panamá, Río Tapia, on tree, *Standley* 32094 (US-04646383 <http://n2t.net/ark:/65665/3e570cebc-fab8-4aa9-ac80-8ccdedfc9505>). Note: The specimen in US is named *Frullania replicata* Nees and annotated as seen by L. Clark in 1957.

GUATEMALA. S. loc. (Clark and Svihla 1948a; Miller et al. 1983). **EL PETÉN:** La Libertad, 1933, *Lundell* 2528 (Clark and Svihla 1947b). **SAN MARCOS:** Santa Teresa, 1933, *Lundell* 2679 (Clark and Svihla 1947b).

***BELIZE.** ***TOLEDO:** Edwards Road beyond Columbia, 28 Jan 1948, *Gentle* 6381 (MO, Whittemore and Allen 1996); San Antonio, *Gentle* 7802, det. Atwood and Dauphin Jun 2017 (MO-5228144! <https://www.tropicos.org/specimen/90103148>, this publication).

HONDURAS. S. loc. (Arnell 1956b; Miller et al. 1983); S. loc., 1911, *Hunt* (Verdoorn 1930). **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 55808 (Herzog 1951); Tela municipio, Lancetilla Valley, 20–600 m, 1928, *Standley* (Verdoorn 1934b).

COSTA RICA. S. loc. (Schiffner 1898a as *Frullania replicata*; Miller et al. 1983); S. loc., 5,000–8,000 ft (1,524–2,438 m), *Oersted* 1169 (S, NY, Hampe 1851b as *Frullania thuillieri*; Müller 1851 as *Frullania thuillieri*; Polakowsky 1879 as *Frullania thuillieri*). **CARTAGO:** Oreamuno cantón, Irazú, *Stork* (NICH, Hattori 1980). **LIMÓN:** Siquirres cantón, Cairo, Finca Hamburgo, 55 m, *Standley* 47875, 48738 (Herzog 1951; Morales 1991; Dauphin 2005); Siquirres cantón, Cairo, Finca Hamburgo, on the Río Reventazón below Cairo, 55 m, *Standley* 48674, 48775 p.p. (Herzog 1951; Morales 1991; Dauphin 2005); Siquirres cantón, Finca La Colombiana, *Standley* 36867 (Herzog 1951; Morales 1991; Dauphin 2005). **PUNTARENAS:** Buenos Aires cantón, Boruca (*Tonduz* 1895a as *Frullania replicata*); Buenos Aires cantón, Boruca, 55 m, *Pittier* 6072 (Stephani 1893c as *Frullania replicata*; Morales 1991; Dauphin 2005); Buenos Aires cantón, Boruca, 1891, *Pittier* (Verdoorn 1930).

PANAMA. S. loc. (Schiffner 1898a as *Frullania replicata*; Clark and Svihla 1948a; Miller et al. 1983; Stotler et al. 1998). **PANAMA WEST:** Capira distrito, Cruces (*Mitten* 1854b as *Frullania thuillieri*; Stotler et al. 1998). **PANAMA:** Panamá distrito, Río Tapia, 7 Dec 1923–11 Jan 1924, *Standley* 32094 (Clark and Svihla 1947b; Herzog 1951 as *Frullania nodulosa* f. *brachyantha*; Stotler et al. 1998).

Also reported from West Tropical Africa, West-Central Tropical Africa, East Tropical Africa, Western Indian Ocean, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuaia, Australia, Southwestern Pacific, Southeastern Pacific,

Northwestern Pacific, the Caribbean, Northern South America, Western South America, Brazil.

Frullania obcordata (Lehm. et Lindenb.) Lehm. et Lindenb., *Syn. Hepat.* 2: 447, 1845 (Gottsche et al. 1845b).

=*Jungermannia obcordata* Lehm. et Lindenb., *Nov. Stirp. Pug.* 6: 51, 1834 (Lehmann 1834). Type: Guyana.

=*Frullania parasitica* Hampe, *Nov. Stirp. Pug.* 7: 11, 1838 (Lehmann 1838). Type: South America.

=*Frullania gymnotis* Nees et Mont, *Ann. Sci. Nat., Bot.*, ser. 2, 19: 257, 1843 (Montagne 1843a), syn. fide Gradstein and Hekking (1989). Type: "In Guyana."

=*Frullania caulisequa* auct. Note: As shown by Winter and Schäfer-Verwimp (2020), all reports of *Frullania caulisequa* from Central America belong to *F. obcordata*.

GUATEMALA. S. loc. (Fulford 1987 as *Frullania parasitica*). **ALTA VERAPAZ:** Cobán, Las Victorias National Park, 2002 (Andersohn 2004 as *Frullania caulisequa*); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Frullania caulisequa*). **IZABAL:** Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007 as *Frullania caulisequa*).

BELIZE. S. loc. (Fulford 1938; Frye and Clark 1947; Clark and Svihla 1948a; Whittemore and Allen 1996 as *Frullania caulisequa*; Schuster 1992a).

HONDURAS. S. loc. (Clark 1958c as *Frullania gymnotis*; Lemos-Michel 1983 as *Frullania gymnotis*; Schuster 1992a as *Frullania gymnotis*). Note: We are not aware of any firsthand report from Honduras.

NICARAGUA. S. loc. (Schuster 1992a as *Frullania gymnotis*). Note: We are not aware of any firsthand report from Nicaragua.

COSTA RICA. S. loc. (Jovet-Ast 1957, 1959, both as *Frullania gymnotis*; Clark 1958c as *Frullania gymnotis*; Bonner 1965 as *Frullania gymnotis*; Lemos-Michel 1983 as *Frullania gymnotis*; Miller et al. 1983 as *Frullania gymnotis*; Fulford 1987 as *Frullania parasitica*; Schuster 1992a as *Frullania gymnotis*; Cordillera de Talamanca (Holz and Gradstein 2005b as *Frullania caulisequa*; Holz 2006 as *Frullania caulisequa*); Canal Zone (Schäfer-Verwimp 2014 as *Frullania caulisequa*). **ALAJUELA:** Poás Volcano, 5 Aug 1968, Morales & Canessa 476 (Morales and Griffin 1983 as *Frullania* aff. *obcordata*; Morales 1991 as *Frullania caulisequa*; Dauphin 2005 as *Frullania caulisequa*); San Ramón cantón, Nectandra Cloud Forest, Norris 110221 (UC, Norris et al. 2017 as *Frullania gymnotis*). **CARTAGO:** Alvarado cantón, Coliblanco, ~1,950 m, 30 Apr–2 May 1906, Maxon 259 (Clark and Svihla 1948b as *Frullania gymnotis*; Morales 1991 as *Frullania caulisequa*; Dauphin 2005 as *Frullania caulisequa*). **HEREDIA:** Heredia cantón, Finca Isla Bonita, Vara Blanca, Atlantic slope, 1,524 m, 2–3 Feb 1947, Svihla 47-941, 47-984, 47-985, 47-986, 47-993, 47-1006 (Clark and Svihla 1948b as *Frullania gymnotis*; Morales 1991 as *Frullania caulisequa*; Dauphin 2005 as *Frullania caulisequa*). **SAN JOSÉ:** Dota cantón, "Los Robles" (Los Santos Forest Reserve, 9°32'N,

83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002 as *Frullania caulisequa*); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, Holz (Holz 2003 as *Frullania caulisequa*); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a as *Frullania caulisequa*); Vásquez de Coronado cantón, San Isidro, Standley 34017 (Herzog 1951 as *Frullania parasitica*).

PANAMA. S. loc. (Clark 1958c as *Frullania gymnotis*; Lemos-Michel 1983 as *Frullania gymnotis*; Fulford 1987 as *Frullania parasitica*; Schuster 1992a as *Frullania gymnotis*). **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (Salazar Allen et al. 2021 as *Frullania caulisequa*); Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021 as *Frullania caulisequa*); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°44.3'N, 82°14.7'W, 1,100 m, 30 Mar 2009, Schäfer-Verwimp & Verwimp 34511/A (JE, Schäfer-Verwimp 2014 as *Frullania caulisequa*); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,380 m, Schäfer-Verwimp & Verwimp 34363/C (JE, Schäfer-Verwimp 2014 as *Frullania caulisequa*). **COCLÉ:** Antón distrito, El Valle de Antón, along road to Mato Ahogado, 8°37.05'N, 82°06.60'W, 670 m, 4 Apr 2009, Schäfer-Verwimp & Verwimp 34765 (JE, Schäfer-Verwimp 2014 as *Frullania caulisequa*); Antón distrito, El Valle de Antón, ascent to "India Dormida," 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, Schäfer-Verwimp & Verwimp 34166/A (JE, Schäfer-Verwimp 2014 as *Frullania caulisequa*). **DARIÉN:** S. loc. (Schäfer-Verwimp 2014 as *Frullania caulisequa*); ridge trail above Cana to Pirre Massif, 800–900 m, Allen 8984 (MO, Stotler et al. 1998 as *Frullania gymnotis*). **PANAMA WEST:** La Chorrera distrito, Barro Colorado Island, Camino Wheeler 5–6, Salazar Allen & Chung 4737b (PMA, Stotler et al. 1998 as *Frullania caulisequa*; Dauphin et al. 2022); La Chorrera distrito, Barro Colorado, Armour, 2003, Dauphin 3092 (PMA, Dauphin et al. 2022). **PANAMA:** Panamá distrito, Parque Municipal Summit (Canal Zone Experimental Gardens), 1 Aug 1950, Meyer 131 (TENN, Crum and Arzeni 1953 as *Frullania parasitica*; Stotler et al. 1998 as *Frullania parasitica*). **VERAGUAS:** Santa Fe distrito, base of Cerro Tute, 8°30'N, 81°06'W, 710–890 m, 26 Mar 2009, Schäfer-Verwimp & Verwimp 34284 (JE, Schäfer-Verwimp 2014 as *Frullania caulisequa*); Santa Fe distrito, 8°31'N, 81°06'W, 635–600 m, 27 Mar 2009, Schäfer-Verwimp & Verwimp 34326 (JE, Schäfer-Verwimp 2014 as *Frullania caulisequa*).

COCOS I. S. loc. (Clark 1958c as *Frullania gymnotis*; Jovet-Ast 1959 as *Frullania gymnotis*; Fosberg and Klawe 1966 as *Frullania gymnotis*; Lemos-Michel 1983 as *Frullania gymnotis*; Miller et al. 1983 as *Frullania gymnotis*; Schuster 1992a as *Frullania gymnotis*; Dauphin 1995, 2005, both as *Frullania caulisequa*); S. loc., 1966, Fosberg & Klawe (Morales 1991 as *Frullania caulisequa*); Wafer Bay, 28 Jun 1932, Howell 231 p.p. (CAS, Clark 1953a as *Frullania gymnotis*).

Also reported from Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Frullania obscura (Sw.) Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 14: 333, 1840 (Montagne 1840) var. *obscura*.

≡ *Jungermannia obscura* Sw., *Fl. Ind. Occid.* 3: 1869, 1806 (Swartz 1806).

Type: Jamaica.

≡ *Jungermannia arecae* Spreng., *Neue Entdeck. Pflanzenk.* 2: 99, 1821 (Sprengel 1821), syn. fide Gradstein (2012). Type: Puerto Rico.

≡ *Frullania arecae* (Spreng.) Gottsche, *Mexik. Leverm.*: 236, 1863 (Gottsche 1863).

≡ *Jungermannia hians* Lehm. et Lindenb., *Nov. Stirp. Pug.* 4: 55, 1832 (Lehmann 1832), syn. fide Yuzawa (1991). Type: Mexico.

≡ *Frullania hians* (Lehm. et Lindenb.) Lehm. et Lindenb., *Syn. Hepat.* 3: 414, 1845 (Gottsche et al. 1845a).

≡ *Frullania fusiflora* Steph., *Biblioth. Bot.* 87(2): 239, 1916 (Stephani 1916b), syn. fide Yuzawa (1991). Type: Bolivia.

GUATEMALA. S. loc. (WTU, Clark and Svihla 1948a as *Frullania arecae*; Clark and Svihla 1956 as *Frullania arecae*; Fulford and Sharp 1990 as *Frullania 'arecea'*). **ALTA VERAPAZ:** S. loc., Pérez 196 (Pérez 2009 as *Frullania arecae*); Senahú municipio, Finca Mocca, 1920, Johnson 120 (YU, Clark and Svihla 1947c as *Frullania arecae*); Tucurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Frullania arecae*). **ESCUINTLA:** Volcán de Agua, 2,700–3,000 m, 1905, Maxon & Hay 3729a (Clark and Svihla 1947c as *Frullania arecae*). **HUEHUETENANGO:** Todos Santos Cuchumatán, Chinhuitz, 15°30'40"N, 91°38'56"W, 2,790 m, 2006, Pérez et al. 1196 (USCG, Pérez 2009 as *Frullania arecae*). **QUETZALTENANGO:** Esperanza, Maxon & Hay 3352 (Clark and Svihla 1947c as *Frullania arecae*).

NICARAGUA. **GRANADA:** Granada municipio, Mombacho, 2,000 ft (610 m), Oersted (Hampe 1851b as *Frullania hians*; Müller 1851 as *Frullania hians*).

COSTA RICA. Cordillera de Talamanca (Holz 2003 as *Frullania arecae*; Holz and Gradstein 2005b as *Frullania arecae*); S. loc. (WTU, Evans 1914b as *Frullania hians*; Herrera 1921, 1926, both as *Frullania hians*; Pagán 1939b as *Frullania hians*; Clark and Svihla 1948a, 1956, both as *Frullania arecae*; Fulford and Sharp 1990 as *Frullania arecae 'arecea'*; Dauphin 2005 as *Frullania arecae* var. *arecae*). **CARTAGO:** Cartago cantón, El Muñeco, Navarro River, 1,400–1,500 m, 1926, Standley & Torres 51133 (Clark and Svihla 1947c as *Frullania arecae*; Morales 1991 as *Frullania fusiflora*; Dauphin 2005 as *Frullania arecae* var. *arecae*); Cartago cantón, El Muñeco, Río Navarro, 1,400–1,500 m, Standley 51132, 51133 (S, Yuzawa 1991 as *Frullania arecae*); Jiménez cantón, Juan Viñas (Tonduz 1895b as *Frullania hians*); Jiménez cantón, Juan Viñas, Pittier 6039a (Stephani 1893c as *Frullania hians*; Morales 1991 as *Frullania arecae*; Dauphin 2005 as *Frullania arecae* var. *arecae*). **PUNTARENAS:** Coto Brus (Dauphin 2005 as *Frullania arecae* var. *arecae*); Coto Brus cantón Las Cruces garden, ~4 km SSE of San Vito, ~1,300 m, Sipman 11939 (U, Yuzawa 1991 as *Frullania arecae*); Monteverde (Morales 1991 as *Frullania arecae*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a as *Frullania arecae*); Monteverde, James, W. 88, 105 (Dauphin 2005 as *Frullania arecae* var. *arecae*); Monteverde, Oct 1963, James,

W. 14 (R, Reed and Robinson 1971 as *Frullania arecae*; Dauphin 2005 as *Frullania arecae* var. *arecae*); Monteverde, 10–17 Mar 1965, James, W. & James, M. 88, 105 (R, Reed and Robinson 1971 as *Frullania arecae*); S. loc. (Merwin et al. 2001 as *Frullania arecae*). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002 as *Frullania arecae*); Dota cantón, San Gerardo (Dauphin 2005 as *Frullania arecae* var. *arecae*); Dota cantón, Santa María, 1,500–1,800 m, Standley 43163 (Herzog 1951 as *Frullania hians*); Moravia cantón, La Palma, 1,400–1,550 m, Maxon 470 (NY, Clark and Svihla 1947c as *Frullania arecae*; Morales 1991 as *Frullania fusiflora*; Dauphin 2005 as *Frullania arecae* var. *arecae*).

PANAMA. S. loc. (Mitten 1854b as *Frullania hians*; Stotler et al. 1998 as *Frullania arecae*; Alam and Srivastava 2009 as *Frullania arecae*). **CHIRIQUÍ:** S. loc. (Schäfer-Verwimp 2014); Tierras Altas distrito, Cerro Punta, Guadalupe, Vinda 1566 (NY, Yuzawa 1991 as *Frullania arecae*; Stotler et al. 1998 as *Frullania arecae*); Tierras Altas distrito, Parque Nacional Volcán Barú, Paso Ancho, 8°48'55.13"N, 82°34'33.50"W, 2,047 m, Guerra Batista et al. (UCH, Guerra et al. 2020 as *Frullania arecae*); Barú Volcano National Park (Rodríguez-Quiel et al. 2022). **COCLÉ:** Antón distrito, El Valle de Antón, Alto de La Mesa, 8°38'N, 80°07'W, 800–850 m, 30 Mar 2006, Schäfer-Verwimp & Verwimp 30753 (JE, Schäfer-Verwimp 2014).

Also reported from West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasia, Australia, Southwestern Pacific, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Frullania obscura var. *spiniloba* (Steph.) Hentschel et von Konrat, *Phytotaxa* 220(2): 136, 2015 (Hentschel et al. 2015).

≡ *Frullania spiniloba* Steph., *Sp. Hepat. (Stephani)* 4: 336, 1910 (Stephani 1910a). Type: Ecuador.

≡ *Frullania arecae* var. *spiniloba* (Steph.) Yuzawa, *J. Hattori Bot. Lab.* 70: 269, 1991 (Yuzawa 1991).

COSTA RICA. **SAN JOSÉ:** Moravia cantón, La Palma, 1,400–1,550 m, Maxon 470 (NY, Yuzawa 1991 as *Frullania arecae* var. *spiniloba*; Dauphin 2005 as *Frullania arecae* var. *spiniloba*).

PANAMA. S. loc. (Stephani 1910a as *Frullania spiniloba*; Evans 1914b as *Frullania spiniloba*; Clark and Svihla 1950c as *Frullania spiniloba*; Fulford and Sharp 1990 as *Frullania spiniloba*; Stotler et al. 1998 as *Frullania spiniloba*). **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, near southern edge of storage lake, 8°44.0'N, 82°14.5'W, 1,215 m, 30 Mar 2009, Schäfer-Verwimp & Verwimp 34492 (JE, Schäfer-Verwimp 2014 as *Frullania spiniloba*); S. loc., Hélion 414 (G hb. Lacouture, Bonner 1965 as *Frullania spiniloba*).

Also reported from Mexico, the Caribbean, Western South America.

Frullania osculatiana De Not., *Mem. Reale Accad. Sci. Torino*, ser. 2, 16: 236, 1857 (De Notaris 1857). Type: Ecuador/Peru ("Colombia").

COSTA RICA. **PUNTARENAS:** Monteverde (Morales 1991); Monteverde, 4 Apr 1969, *James, W. 1969-91* (R, US, *Reed and Robinson 1971; Dauphin 2005*). **SAN JOSÉ:** Aserri cantón, between Aserri and Tarbaca, 1,600–1,900 m, 12 Feb 1924, *Standley 34121* (*Herzog 1951; Clark and Svihla 1953b; Morales 1991; Dauphin 2005*); Moravia cantón, Alto de La Palma, *Griffin & Morales A26* (FLAS, *Morales 1991; Dauphin 2005*).

Also reported from Western South America.

Frullania paradoxa Lehm. et Lindenb., *Syn. Hepat.* 3: 462, 1845 (Gottsche et al. 1845a). Type: Tropical America s. loc.

=*Frullania flexicaulis* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 53, 1884 (Spruce 1884), syn. fide Hentschel (2015). Type: Ecuador.

GUATEMALA. **HUEHUETENANGO:** San Juan Ixcoy municipio, Piedras de Captzin, 15°33'52"N, 91°29'54"W, 3,387 m, 2006, *Pérez et al. 1303* (USCG, *Pérez 2009* as *Frullania flexicaulis*).

Also reported from Mexico, the Caribbean, Western South America, Brazil, Southern South America.

Frullania peruviana Gottsche, *Syn. Hepat.* 4: 465, 1846 (Gottsche et al. 1846). Type: Peru.

=*Frullania atosanguinea* Taylor ex Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 39, 1884 (Spruce 1884), syn. fide Uribe (2008). Type: Ecuador.

=*Frullania haeckeriana* Lindenb., *Syn. Hepat.* 4: 465, 1846 (Gottsche et al. 1846), syn. fide Uribe (2008). Type: Peru.

=*Frullania piliflora* Steph., *Sp. Hepat. (Stephani)* 4: 598, 1911 (Stephani 1911b), syn. fide Uribe (2008). Lectotype (Bonner 1965: 401) if not holotype: Costa Rica, Heredia, C. de las Vueltas, 3,000 m, 1911, *Tonduz s.n.* (G-00067460 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=119011&lang=en>).

=*Frullania piliflora* Steph. var. *appendiculata* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 129, 1951 (Herzog 1951), syn. fide (Söderström et al. 2023b). Lectotype (Söderström et al. 2023b: 2): Costa Rica, Cartago, southern slope of Volcán de Turrialba, near the Finca del Volcán de Turrialba, altitude about 2,000–2,400 m, 22 Feb 1924, *Standley 35088* (JE-04004146 <https://je.jacq.org/JE04004146>, isoelectotypes G-00265605 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=271882&lang=en>, US-04646508 <http://n2t.net/ark:/65665/30c6ff639-2fe7-4383-b919-296397863453>).

=*Frullania piliflora* f. *subobtusis* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 129, 1951 (Herzog 1951), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Costa Rica: Prov. San Jose, Cerro de Las Vueltas, 2,700–3,000 m, *Standley 43711* (US-04646509 <http://n2t.net/ark:/65665/33a1c75e8-2b89-4f35-84f8-7abe003a369e>, labeled without indication of forma).

GUATEMALA. S. loc. (Stephani 1911b also as *Frullania haeckeriana*; Clark and Frye 1953; Bonner 1965 also as *Frullania*

haeckeriana; Fulford and Sharp 1990). **ALTA VERAPAZ:** Cobán, 1,350 m, Feb 1907, *Türckheim 5410* (NY, Uribe 2005, 2008).

HONDURAS. **CORTÉS:** San Pedro Sula municipio, Cusuc National Park, 22 km W de San Pedro Sula, 16 km S de Cuyamel, 1,600–2,000 m, 19 Mar 1993, *Allen 14234* (MO, Uribe 2005, 2008). **LEMPIRA:** Gracias municipio, Celaque National Park, 2,000–2,480 m, 18 Nov 1991, *Allen 11589, 11590* (MO, Uribe 2005, 2008); Gracias municipio, Montaña de Celaque, Cerro Mojó, 2,849 m, 17 May 1992, *Allen 12269* (GOET, NY, Uribe 2005). **OLANCHO:** Catacamas municipio, Sierra de Algalta, Montana Babilonia, La Picucha, 2,354 m, 2 Feb 1992, *Allen 12754* (MO, Uribe 2005, 2008).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Stephani 1911b as *Frullania piliflora* and *Frullania atosanguinea*; Clark and Svihla 1951b as *Frullania atosanguinea*; Dauphin 2005 as *Frullania atosanguinea* and *Frullania piliflora*); S. loc., *Schäfer-Verwimp et al. 24356* (GOET, Larraín et al. 2015). **CARTAGO:** El Guarco cantón, 3 de Junio, *Anton et al. AHH 170* (CR, Dauphin 2005); Paraíso cantón, Cerro Asunción, 3,350 m, 29 Dec 1978, *Sipman 11681, 11682, 11685, 11686, 11689, 11691* (GOET, Uribe 2005, 2008); Turrialba cantón, Volcán Turrialba, S slope, near Finca, 2,000–2,400 m, 24 Feb 1924, *Standley 35088* (Clark 1953c as *Frullania piliflora*; Morales 1991 as *Frullania piliflora*; Dauphin 2005 as *Frullania piliflora*). **PUNTARENAS:** Monteverde, 1,500–1,550 m, 20 Feb 1992, *Ingram et al. 1367* (MO, Uribe 2005, 2008). **SAN JOSÉ:** Chirripó National Park, 26 Mar 1983, *Chaverri et al. 1019* (NY, Uribe 2005, 2008); Dota cantón, "Los Robles" (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, *Standley 43711* (Herzog 1951 as *Frullania piliflora* f. *subobtusis*); Dota cantón, Cerro de Las Vueltas, 3,000 m, 1911, *Tonduz* (G-00067460, Bonner 1965 as *Frullania piliflora*, TYPE of *Frullania piliflora*); Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, 29 Dec 1925–1 Jan 1926, *Standley & Valerio 43711* (US, Clark 1953c as *Frullania piliflora*; Morales 1991 as *Frullania piliflora*; Kappelle 1996 as *Frullania piliflora*; Dauphin 2005 as *Frullania piliflora*); Dota cantón, San Gerardo (Dauphin 2005, s. lat.); Moravia cantón, Camino a La Hondura, *Griffin et al. 375* (FLAS, Morales 1991 as *Frullania atosanguinea*; Dauphin 2005 as *Frullania atosanguinea*); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,400 m, *Chaverri et al. 1567* (GOET, Uribe 2005); Vásquez de Coronado cantón, Las Nubes, 1,500–1,900 m, 20–22 Mar 1924, *Standley 38421* (Clark 1953c as *Frullania piliflora*; Morales 1991 as *Frullania piliflora*; Dauphin 2005 as *Frullania piliflora*).

PANAMA. **CHIRIQUÍ:** Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 2,260 m, 6 Apr 2006, *Schäfer-Verwimp & Verwimp 31023* (JE, Schäfer-Verwimp 2014); Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,750 m, 4 Apr 2006, *Schäfer-Verwimp & Verwimp 30902* (JE, Schäfer-Verwimp 2014); Tieras Altas distrito, Parque Internacional La Amistad near Las

Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, *Schäfer-Verwimp & Verwimp* 34552, 34556, 34584 (JE, Schäfer-Verwimp 2014).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Frullania phalangiflora Steph., *Biblioth. Bot.* 87(2): 247, 1916 (Stephani 1916b). Type: Bolivia.

HONDURAS. S. loc. (Schäfer-Verwimp 2014). **COMAYAGUA:** El Plan to Cerro El Maneadero, ~11 km E of Lake Yojoa, 14°48'N, 88°52'W, 1,740–2,040 m, 12 Mar 1993, *Allen* 13887 (NY, Uribe 2005, 2008).

PANAMA. **CHIRIQUÍ:** Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,870 m, 6 Apr 2006, *Schäfer-Verwimp & Verwimp* 30981/B (JE, Schäfer-Verwimp 2014).

Also reported from Northern South America, Western South America.

Frullania pittieri Steph., *Primit. fl. costar.*: 113, 1893 (Stephani 1893c). Lectotype (Bonner 1965: 402; see also Stotler 1969: 465 as “type”): Costa Rica, San José, Forêts de La Palma, 18 Dec 1888, *Pittier* 6037 (G-00067245 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=117884&lang=en>, isoelectotypes BR-5040109469532 <https://www.botanicalcollections.be/specimen/BR5040109469532>, PC-0102339 <https://science.mnhn.fr/institution/mnhn/collection/pc/item/pc0102339>).

COSTA RICA. S. loc. (Stephani 1911b; Cole 1982; Dauphin 2005; Gradstein and Uribe 2016). **ALAJUELA:** Poás Volcano, Aug 1977, *Griffin et al.* 77 (FLAS-020505, Morales and Griffin 1983; Morales 1991; Dauphin 2005). **SAN JOSÉ:** Moravia cantón, La Hondura, 1924, *Standley* 36406 (Clark and Frye 1952; Morales 1991; Dauphin 2005); Moravia cantón, La Palma, *Maxon* 473 (NY, Stotler 1969; Morales 1991; Dauphin 2005); Moravia cantón, La Palma, *Pittier* (Stotler 1969); Tarrazú cantón, La Palma Forest, *Pittier* (G, Morales 1991; Dauphin 2005); Tarrazú cantón, La Palma Forest, ~1,600 m, *Standley* 32937 (G, Herzog 1951; Stotler 1969; Morales 1991; Dauphin 2005); Tarrazú cantón, La Palma Forest, 1,550 m, 18 Dec 1888, *Pittier* 6037 (G-00067245 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=117884&lang=en>, BR-5040109469532, PC-0102339, TYPE, Stephani 1893c; Bonner 1965; Morales 1991; Dauphin 2005); Tarrazú cantón, La Palma Forest, 1924, *Standley* 32958a (Herzog 1951; Clark and Frye 1952; Morales 1991; Dauphin 2005).

PANAMA. **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, NW of camping site, 1,000–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Hornito, Fortuna, 1,000–1,200 m, *Salazar Allen et al.* 560 p.p. (PMA, Stotler et al. 1998); S. loc. (Schäfer-Verwimp 2014). **PANAMA WEST:** Capiरा distrito, Altos de Campana National Park, Sendero de Interpretación, 850 m, *Salazar Allen* 9436 (PMA, Stotler et al. 1998); Capiरा distrito, Altos de Campana National Park, Sendero de Interpretación,

850 m, *Salazar Allen* 9437 (PMA, Stotler et al. 1998; Hentschel et al. 2009). **PANAMA:** Panamá distrito, Cerro Jefe, along unpaved road, 9°13.4–5'N, 79°22.7–9'W, 750–1,000 m, 28 Mar 1906, *Schäfer-Verwimp & Verwimp* 30742 (JE, Schäfer-Verwimp 2014).

Also reported from Northern South America(?), Western South America.

Frullania planifolia Steph., *Sp. Hepat.* (Stephani) 4: 337, 1910 (Stephani 1910a). Type: Venezuela.

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Dauphin 2005; Gradstein and Holz 2005; Gradstein 1999a, 2021). **SAN JOSÉ:** Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,200 m, *Gradstein* 9732 (U, USJ, Gradstein et al. 1994; Dauphin 2005).

Also reported from Northern South America, Western South America.

Frullania pluricarinata Gottsche, *Ann. Sci. Nat. Bot.*, sér. 5, 1: 168, 1864 (Gottsche 1864). Type: Colombia.

GUATEMALA. S. loc. (Gradstein and Cuvertino 2015; Gradstein 2021). **HUEHUETENANGO:** Huehuetenango municipio, Zaculeu ruins, 1,800 m, 8 Jan 1941, *Standley* 82770 (NY, Clark and Svihla 1950b; Yuzawa 1991).

?**PANAMA.** ?**Chiriquí:** Barú Volcano National Park (Rodríguez-Quiel et al. 2022 as *Frullania* cf. *kunzei*). Note: We do not know of any positively identified specimen from Panama.

Also reported from South-Central USA, Mexico, Western South America, Southern South America.

Frullania rio-janeirensis (Raddi) Ångstr., *Öfvers. Kongl. Vetensk.-Akad. Förh.* 33(7): 88, 1876 (Ångström 1876) var. *rio-janeirensis*.

≡*Frullanoides rio-janeirensis* Raddi, *Critt. Brasil.*: 13, 1822 (Raddi 1822). Type: Brazil.

≡*Frullania arietina* Taylor ex Gottsche, Lindenb. et Nees, *Syn. Hepat.*: 413, 1845 (Gottsche et al. 1845b), syn. fide Haarbrink (1981). Type: Suriname.

GUATEMALA. S. loc. (Clark and Svihla 1948a; Bonner 1965; Fulford and Sharp 1990). **ALTA VERAPAZ:** S. loc., Pérez 245 (USCG, Pérez 2009); S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). **EL PETÉN:** La Libertad municipio, Sabana San Francisco, 30 Mar 1933, *Lundell* 2242a (Clark and Svihla 1945b); La Libertad, 20 Mar 1933, *Lundell* 2244 (Clark and Svihla 1945b).

BELIZE. S. loc. (Fulford 1938 as *Frullania arietina*; Clark and Svihla 1945b, 1948a; Frye and Clark 1947; Schuster 1992a; Whittemore and Allen 1996).

HONDURAS. **COMAYAGUA:** Siguatepeque municipio, El Achiote, 1,350 m, *Yuncker et al.* 6567 (NY, Yuzawa 1991).

NICARAGUA. S. loc., *Lindig* 1743 (BM, Yuzawa 1991).

COSTA RICA. S. loc. (Frye and Clark 1947; Clark and Svihla 1948a; Bonner 1965; Fulford and Sharp 1990; Schuster

1992a). GUANACASTE: La Cruz cantón, Guanacaste National Park, Cerros Santa Elena, 10°53'24"N, 85°50'55"W, 650–700, 27 Aug 2003, *Dauphin et al.* 3304 (CR, *Dauphin and Grayum* 2005). PUNTARENAS: Monteverde, <1,500 m (*Dauphin* 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, *Gradstein et al.* (U, *Sillett et al.* 1995); S. loc. (*Merwin et al.* 2001). SAN JOSÉ: Entre San José y Heredia, Rio Torres, on bank of river between San José and Heredia, 5 Jul 1941, *Svihla* 41-453 (*Clark and Svihla* 1945b; *Morales* 1991; *Dauphin* 2005); Entre San José y Heredia, Rio Torres, on bank of river between San José and Heredia, 5 Jul 1941, *Svihla* 41-454 (*Clark and Svihla* 1945b; *Morales* 1991; *Dauphin* 2005).

PANAMA. S. loc. (*Frye and Clark* 1947; *Clark and Svihla* 1948a; *Bonner* 1965; *Fulford and Sharp* 1990; *Schuster* 1992a; *Stotler et al.* 1998; *Oliveira-e-Silva and Yano* 2000). CHIRIQUÍ: Boquete distrito, Palo Alto, 1,300–1,400 m, *Salazar Allen et al.* 751 p.p., 751, 757 (PMA, *Stotler et al.* 1998); Boquete, 3 Sep 1940, *Svihla* 40-436 (*Clark and Svihla* 1945b); Boquete, 3 Sep 1940, *Svihla* 40-443 (*Clark and Svihla* 1945b); Tierras Altas distrito, Cerro Punta, Guadalupe, 1,500 m, *Vinda* 1566 p.p. (PMA, *Stotler et al.* 1998). COCLÉ: Antón distrito, El Valle de Antón, La Mesa, *Salazar Allen & Béliz* 1378 (NY, *Yuzawa* 1991); Antón distrito, El Valle de Antón, La Mesa, *Salazar Allen et al.* 1378 (NY, PMA, *Stotler et al.* 1998). PANAMA: Panamá distrito, Parque Municipal Summit (Canal Zone Experimental Gardens), 1 Aug 1950, *Meyer* 129 (TENN, *Crum and Arzeni* 1953; *Stotler et al.* 1998); Panamá distrito, Parque Municipal Summit (Canal Zone Experimental Gardens), 1 Aug 1950, *Meyer* 44 (TENN, *Crum and Arzeni* 1953; *Stotler et al.* 1998).

COCOS I. Río Genio, 5°32'57"N, 87°03'38"W, 0–5 m, *Dauphin* 944, det. G. Dauphin Apr 2021 (USJ-47231!, CR-4468430!, GOET [https://gwdu64.gwdg.de/pls/herbar/moos\\$moos.QueryViewByKey?P_ID=12038&Z_CHK=64322,W-0207439!](https://gwdu64.gwdg.de/pls/herbar/moos$moos.QueryViewByKey?P_ID=12038&Z_CHK=64322,W-0207439!) <https://w.jacq.org/W0207439>, this publication); Río Genio, 5°32'57"N, 87°03'56"W, 5 m, 15 Feb 1994, *Dauphin* 944, det. *Gradstein* (USJ, U, *Dauphin* 1995, 1999, 2005); S. loc. (*Fosberg and Klawe* 1966; *Morales* 1991); Wafer Bay, 28 Jun 1932, *Howell* 277 p.p. (CAS, *Clark* 1953a).

Also reported from West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, South Africa(?), China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasia, Southwestern Pacific, Southeastern Pacific, Northeastern Pacific(?), Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Frullania riparia Hampe, *Pugillus* 7: 14, 1838 (*Lehmann* 1838). Type: USA.

NICARAGUA. CHINANDEGA: El Viejo municipio, Gulf of Fonseca, east of Volcano Coseguina, 7 Jul 1932, *Howell* 246 p.p. (CAS, *Clark* 1953a).

Also reported from Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, Siberia, Western Asia, China(?), Indian Subcontinent(?), New Zealand, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, South-Central USA, Southeastern USA, Mexico, the Caribbean, Western South America.

Frullania semivillosa Lindenb. et Gottsche, *Syn. Hepat.* 5: 774, 1847 (*Gottsche et al.* 1847). Type: Mexico.

PANAMA. S. loc. (*Mitten* 1854b; *Schuster* 1992a; *Stotler et al.* 1998). PANAMA: Panamá distrito, Taboga Island, Apr 1846, *Seemann* (NY, *Clark* 1955b; *Stotler et al.* 1998); Panamá distrito, Taboga, *Seemann* (NY, *Clark* 1955b; *Stotler et al.* 1998).

Also reported from Mexico, Brazil.

Frullania setigera Steph., *Hedwigia* 33(3): 159, 1894 (*Stephani* 1894b). Type: Brazil.

GUATEMALA. S. loc. (*Fulford and Sharp* 1990; *Benitez et al.* 2013; *Schäfer-Verwimp* 2014; *Sierra et al.* 2019b; *Oliveira-e-Silva and Yano* 2000). ALTA VERAPAZ: Panzós municipio, Cahabón and/or Senahú, 2012, *Pérez & López-Medina*, det. M. Pérez (*Pérez and López-Medina* 2012); Tucurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, *Pérez* 390 (USCG, *Pérez* 2009); Tucurú municipio, Reserva Privada Chelemhá (*Pérez* 2006). BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al.* 2005). QUICHÉ: S. loc., *Pérez* 2328 (USCG, *Pérez* 2009). SOLOLÁ: Volcán Tolimán, *Steyermark* 47572 (F, *Stotler* 1969; *Freire* 2006; *Pérez* 2009).

*BELIZE. *TOLEDO: Columbia River Forest Reserve, Little Quartz Ridge, 16°23'58"N, 89°06'41"W, 20 Feb 1997, *Allen* 18969, det. *Atwood and Dauphin* Jun 2017 (MO-5224001! <https://tropicos.org/specimen/90094396>, this publication).

COSTA RICA. S. loc. (*Cole* 1982, 1983; *Fulford and Sharp* 1990; *Benitez et al.* 2013; *Schäfer-Verwimp* 2014; *Sierra et al.* 2019b; *Oliveira-e-Silva and Yano* 2000). CARTAGO: Alvarado cantón, Coliblanco, 1,950 m, *Maxon* 226 (NY, *Stotler* 1969; *Morales* 1991; *Dauphin* 2005).

PANAMA. S. loc. (*Sierra et al.* 2019b). CHIRIQUÍ: Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,870 m, 6 Apr 2006, *Schäfer-Verwimp & Verwimp* 30981/A (JE, *Schäfer-Verwimp* 2014). VERAGUAS: Santa Fe distrito, Piedra Alto, 8°30'–31'N, 81°07'–08'W, 800–850 m, 27 Mar 2009, *Schäfer-Verwimp & Verwimp* 34321 (JE, *Schäfer-Verwimp* 2014).

Also reported from Mexico, the Caribbean, Western South America, Brazil.

Frullania sphaerocephala Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 17, 1884 (*Spruce* 1884). Type: Ecuador.

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Gradstein 1999a; Dauphin 2005; Gradstein and Holz 2005). **SAN JOSÉ:** Chirripó National Park, *Chaverri et al.* 1243, det. Gradstein (Morales 1991 as *Frullania* cf. *sphaerocephala*; Dauphin 2005).

Also reported from Mexico, Northern South America, Western South America.

Frullania stenostipa Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 29, 1884 (Spruce 1884). Type: Ecuador.

COSTA RICA. Cordillera de Talamanca (Holz and Gradstein 2005b; Holz 2006); S. loc. (Gradstein 2021). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, Holz (Holz 2003); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a).

Also reported from Western South America, Southern South America.

Frullania subtilissima (Nees ex Mont.) Lindenb., *Syn. Hepat.* 3: 443, 1845 (Gottsche et al. 1845a).

≡ *Frullania atrata* β *subtilissima* Nees ex Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 14: 333, 1840 (Montagne 1840). Lectotype: French Guiana.

≡ *Frullania atrata* var. *subtilissima* (Nees ex Mont.) L. Clark et Svihla, *Bryologist* 51(3): 23, 1948 (Clark and Svihla 1948a).

= *Frullania exilis* Taylor, *London J. Bot.* 5: 405, 1846 (Taylor 1846a), syn. fide Gradstein (2021). Type: Guyana.

= *Frullania apiculata* auct. non (Reinw., Blume et Nees) Nees, syn. fide Gradstein (2021).

GUATEMALA. S. loc. (Clark and Svihla 1948a). **ALTA VERAPAZ:** Cobán, Las Victorias National Park, 2002 (Andersohn 2004); Tucurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Frullania* cf. *apiculata*).

***BELIZE.** ***TOLEDO:** Columbia River Forest Reserve, Little Quartz Ridge, 16°23'58"N, 89°06'41"W, 890 m, 22 Feb 1997, Allen 19044, det. Atwood and Dauphin Jun 2017 (MO-4417199 <https://tropicos.org/specimen/90046837>, this publication).

***HONDURAS.** ***LEMPIRA:** Gracias municipio, Montaña de Celaque, Río Naranjo, ~10 km SW of Gracias, 14°32'N, 88°39'W, 1,600–2,375 m, 12 May 1992, Allen 11997B p.p., det. Atwood May 2017 (MO-6699954!, this publication as *Frullania apiculata*).

***NICARAGUA.** ***ATLÁNTICO SUR:** 6.7 km SSE of Nawawas, at ford of Río Kurinwasito, 12°33'47"N, 84°41'21"W, 113 m, 19 Feb 2019, Stevens & Calero 40988, det. J. Atwood 2019 (MO-3144637! <https://tropicos.org/specimen/103097630>, HULE <https://tropicos.org/specimen/101121159>, this publication).

COSTA RICA. S. loc. (Clark and Svihla 1948a). **PUNTA-RENAS:** Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve,

10°18'N, 84°48'W, 1,470–1,545 m, 1990, Gradstein et al. (U, Sillett et al. 1995 as *Frullania* cf. *exilis*); Monteverde, 1,550 m, Gradstein & Solano 9525, 9555 (U, USJ, Gradstein et al. 1994; Dauphin 2005); Osa cantón, Península de Osa, Rincón, Centro Boscosa, 29 Oct 1993, Dauphin 788, det. Gradstein (USJ, Dauphin 2005 as *Frullania apiculata*); S. loc. (Merwin et al. 2001).

PANAMA. **BOCAS DEL TORO:** Bocas del Toro distrito, Bastimentos, Salt Creek, Sendero a Long Beach, 9.29456°N, 82.10303°W, 70 m, 16 Aug 2017, Hernández-Rodríguez 795, det. Hernández-Rodríguez Aug 2017 (PMA, this publication); Punta Donato (9°22'45.5"N, 82°22'07.8"W; Salazar Allen et al. 2022); Salt Creek (9°17'39.7"N, 82°06'11.2"W) on Isla Bastimento, Aug 2017 (Salazar Allen et al. 2022). **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, NW of camping site, 1,000–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, SW of camping site, from Finca Pittí to foothills of Cerro Fortuna, 1,000–1,270 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna, SW of camping site, 1,000–1,270 m, Salazar Allen et al. 645 (PMA, Stotler et al. 1998 as *Frullania apiculata*); Tierras Altas distrito, Parque Nacional Volcán Barú, Paso Ancho, 8°48'55.13"N, 82°34'33.50"W, 2,047 m, Guerra Batista et al. (UCH, Guerra et al. 2020 as *Frullania apiculata*).

***COCOS I.** Boca Río Genio, 5°32'57"N, 87°03'56"W, 0–5 m, Dauphin 948 p.p., det. G. Dauphin Mar 2021 (USJ-47207!, CR-4468309!, W!, this publication); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 21 Jan 1990, Dauphin 969 p.p., det. G. Dauphin Apr 2021 (USJ-47194!, CR-4468408!, W!, this publication); Fila sobre Valle Wafer, 5°32'57"N, 87°03'56"W, 180 m, 25 Jan 1990, Dauphin 1079, det. G. Dauphin Apr 2021 (USJ-47229!, CR-4468433! W-0207434! <https://w.jacq.org/W0207434> as *Frullania exilis*, this publication).

Also reported from Southeastern USA, the Caribbean, Northern South America, Western South America, Brazil.

Frullania subtruncata Steph., *Sp. Hepat. (Stephani)* 4: 389, 1910 (Stephani 1910a). Lectotype (Bonner 1965: 441): Panama, Chiriquí, *Hélion* 427 (G-00069088 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=115550&lang=en>, isolectotypes PC-0104316, PC-0104317, PC-0102215).

?**COSTA RICA.** S. loc. (Bonner 1965). Note: We are not aware of any firsthand report from Costa Rica.

PANAMA. **CHIRIQUÍ:** S. loc., *Hélion* 427 (G-00069088 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=115550&lang=en>, TYPE, Stephani 1910a; Bonner 1965; Stotler et al. 1998).

Not found outside Central America.

Frullania tetraptera Nees et Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 9: 47, 1838 (Montagne 1838). Type: Chile.

CENTRAL AMERICA. S. loc. (Gradstein and Uribe 2011).

PANAMA. **CHIRIQUÍ:** Barú Volcano National Park (Rodríguez-Quiel et al. 2022).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Frullania triquetra Lindenb. et Gottsche, *Syn. Hepat.* 5: 780, 1847 (Gottsche et al. 1847). Type: Mexico.

GUATEMALA. S. loc. (Fulford and Sharp 1990). QUETZALTENANGO: Cumbre de Tuilacán, 2,400 m, *Standley* 67838 (NY, Stotler 1969; Freire 2006; Pérez 2009).

Also reported from Mexico, Western South America, Brazil.

Frullania uleana Steph., *Hedwigia* 33(3): 155, 1894 (Stephani 1894b). Type: Brazil.

=*Frullania involuta* Hampe ex Steph., *Spec. Hepat.* 4: 595, 1911 (Stephani 1911b), syn. fide Uribe and Gradstein (2003). Type: Lesser Antilles. .

*BELIZE. *TOLEDO: Columbia River Forest Reserve, Camp 2, 16°23'17"N, 89°05'30"W, 14 Feb 1997, *Allen* 18718, det. Whittemore (MO-5224004!, **this publication**); Columbia River Forest Reserve, from Camp 2 along Little Quartz Ridge spur to spur's summit, 16°23'17"N, 89°05'30"W, 16 Feb 1997, *Allen* 18819, det. Atwood and Dauphin Jun 2017 (MO-5224012! <https://tropicos.org/specimen/90094397>, **this publication**); Columbia River Forest Reserve, Union Camp, 16°23'54"N, 89°08'29"W, 600–700 m, 10 Feb 1997, *Allen* 18503, det. Atwood 2017 (MO-5224005! <https://tropicos.org/specimen/90094392>, **this publication**).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, Quijada del Diablo, 1,200–1,600 m (*Salazar Allen et al.* 2021); Gualaca distrito, Fortuna Forest Reserve, SW of camping site, from Finca Pitti to foothills of Cerro Fortuna, 1,000–1,270 m (*Salazar Allen et al.* 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°41.4'N, 82°13.7'W, 1,280 m, 30 Mar 2009, *Schäfer-Verwimp & Verwimp* 34455, 34472 (JE, MO-6690412, *Schäfer-Verwimp* 2014 as *Frullania involuta*). COCLÉ: Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 700–1,000 m, 31 Mar 2006, *Schäfer-Verwimp & Verwimp* 30776 (JE, *Schäfer-Verwimp* 2014 as *Frullania involuta*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Frullania wagneri Steph., *Sp. Hepat. (Stephani)* 4: 392, 1910 (Stephani 1910a). Lectotype (Bonner 1965: 466): Panama, Maume & Gorgone, s.d., *M. Wagner s.n.*, ex hb. M (G-00066773 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=119839&lang=en>, isolectotype M).

Note: The type locality of *Frullania wagneri* has not been identified, and the spelling of the place name is not necessarily correct.

PANAMA. Moume & Gorgone(?), *Wagner s.n.* (G-00066773 ex M, TYPE, Stephani 1910a; Bonner 1965).

Also reported from the Caribbean.

***Frullania winteri* Steph., *Sp. Hepat. (Stephani)* 4: 338, 1910 (Stephani 1910a) var. *vanderhammenii* (Haarbrink) Yuzawa, *J. Hattori Bot. Lab.* 70: 233, 1991 (Yuzawa 1991).

=*Frullania vanderhammenii* Haarbrink, *Lindbergia* 7(1): 56, 1981 (Haarbrink 1981). Type: Colombia.

*GUATEMALA. *HUEHUETENANGO: San Mateo Ixtatán municipio, N of San Mateo Ixtatán, 15°51'45.1"N, 91°30'52.1"W, 2,800 m, 11 Apr 2007, *Laeger et al.* 3702, det.

Atwood and Dauphin (MO-6160446! <https://tropicos.org/specimen/101182541>, **this publication**).

Also reported from Mexico, Western South America.

Frullanoides Raddi, Critt. Brasil.: 13, 1822 (Raddi 1822).

Frullanoides chinantlana (Gottsche) L. Söderstr. et A.Hagborg, *Lindbergia* 46(e24519): 1, 2023 (Söderström and Hagborg 2023a).

=*Phragmicoma bicolor* γ *chinantlana* Gottsche, *Mexik. Leverm.*: 172, 1863 (Gottsche 1863). Type: Mexico.

=*Brachiolejeunea tristis* Steph., *Sp. Hepat. (Stephani)* 5: 112, 1912 (Stephani 1912a). Type: Ethiopia.

=*Frullanoides tristis* (Steph.) van Slageren, *Meded. Bot. Mus. Herb. Rijks Univ. Utrecht* 544: 110, 1985 (van Slageren 1985b).

=*Brachiolejeunea insularis* A.Evans, *Bull. Torrey Bot. Club* 35(4): 159, 1908 (Evans 1908c), syn. fide van Slageren (1985b). Type: Puerto Rico.

=*Brachiolejeunea parva* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 125, 1951 (Herzog 1951), syn. fide van Slageren (1985b). Lectotype (van Slageren 1985b: 111 as “holotype”) if not holotype: Honduras, Lancetilla Valley, near Tela, *Standley* 56075a (JE-04002172 <https://je.jacq.org/JE04002172>).

BELIZE. TOLEDO: Lime Cay, 6 Jul 1972, *Spellman & Stoddard* B128b, det. Gradstein 1976 (MO-2624652, HAC, EGR, Reyes 1979 as *Brachiolejeunea insularis*).

HONDURAS. S. loc. (Fulford and Sharp 1990 as *Frullanoides tristis*; Gradstein 1994 as *Frullanoides tristis*; Bastos 2004 as *Frullanoides tristis*). ATLÁNTIDA: Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 56075a (JE, Herzog 1951 as *Brachiolejeunea parva*; Bonner 1963a as *Brachiolejeunea parva*; van Slageren 1985b as *Frullanoides tristis*).

COSTA RICA. S. loc. (Fulford and Sharp 1990 as *Frullanoides tristis*; Bastos 2004 as *Frullanoides tristis*). CARTAGO: Turrialba, *Svihla* 47-749 (WTU, van Slageren 1985b as *Frullanoides tristis*; Morales 1991 as *Frullanoides tristis*; Gradstein 1994 as *Frullanoides tristis*; Dauphin 2005 as *Frullanoides tristis*); Turrialba, 1947, *Svihla* 47-778 (WTU, van Slageren 1985b as *Frullanoides tristis*; Morales 1991 as *Frullanoides tristis*; Gradstein 1994 as *Frullanoides tristis*; Dauphin 2005 as *Frullanoides tristis*).

PANAMA. S. loc. (Fulford and Sharp 1990 as *Frullanoides tristis*; Bastos 2004 as *Frullanoides tristis*). CHIRIQUÍ: S. loc., *Hélion* 497 (G-20160, van Slageren 1985b as *Frullanoides tristis*; Gradstein 1994 as *Frullanoides tristis*; Stotler et al. 1998 as *Frullanoides tristis*).

Also reported from West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, China, Indian Subcontinent, Indo-China, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Frullanoides corticalis (Lehm. et Lindenb.) van Slageren, *Meded. Bot. Mus. Herb. Rijks Univ. Utrecht* 544: 84, 1985 (van Slageren 1985b).

≡*Jungermannia corticalis* Lehm. et Lindenb., *Nouv. Stirp. Pug.* 4: 50, 1832 (Lehmann 1832). Type: Jamaica.

≡*Brachiolejeunea corticalis* (Lehm. et Lindenb.) Steph., *Hedwigia* 33: 180, 1890 (Stephani 1890b), nom. inval. (ICN2018 Art. 35.1; genus not valid). Name validated in Schiffner (1894).

=*Ptychocoleus torulosus* f. *parvistipulus* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 135, 1951 (Herzog 1951). Lectotype (van Slageren 1985b: 85 as “holotype”) or possibly holotype: Honduras, Lancetilla Valley, near Tela, 20–600 m, 14 Dec 1927–15 Mar 1928, *Standley 54496* (JE-04010829 <https://je.jacq.org/JE04010829>).

BELIZE. S. loc. (Fulford and Sharp 1990; Bastos 2004).

*BELIZE: Tropical Education Center Mile 28–29 on Western Highway, 17°21'N, 88°32'W, 5 Dec 1996, *Allen 17998*, det. Whittemore 1996 (MO-4417024!, **this publication**). TOLEDO: Acahual near Columbia, 7 Feb 1948, *Gentle 6392*, det. Atwood 2013 (MO-5281060!, **this publication**); Franks Cay, 6 Jul 1972, *Spellman & Stoddard B129b*, det. Gradstein 1976 (MO-2624650, EGR, HAC, U, van Slageren 1985b; Gradstein 1994; Whittemore and Allen 1996); Lime Cay, 6 Jul 1972, *Spellman & Stoddard B128b*, det. Gradstein 1976 (MO-2624652, HAC, EGR, van Slageren 1985b; Gradstein 1994; Whittemore and Allen 1996); Nicolas Cay, 6 Jul 1972, *Spellman & Stoddard B127b*, det. Gradstein 1976 (MO-2624651, EGR, HAC, U, van Slageren 1985b; Gradstein 1994; Whittemore and Allen 1996); S. loc. (Whittemore and Allen 1996).

HONDURAS. S. loc. (Fulford and Sharp 1990; Bastos 2004).

ATLÁNTIDA: El Porvenir municipio, Pico Bonito National Park, in vicinity of UNAH-CURLA camp, 15°42'N, 86°51'W, 27 Apr 1996, *Allen 17631*, det. Dauphin May 2017 (MO-6230314!, **this publication**); Tela municipio, Lancetilla Valley, 20–600 m, 14 Dec 1927, *Standley 54496* (JE, TYPE of *Ptychocoleus torulosus* f. *parvistipulus*, Herzog 1951 as *Ptychocoleus torulosus* f. *parvistipulus*; van Slageren 1985b; Geissler and Bischler 1989 as *Ptychocoleus torulosus* f. *parvistipulus*; Gradstein 1994).

NICARAGUA. S. loc. (Bastos 2004). ATLÁNTICO NORTE:

Bilwi municipio, Puerto Cabezas, *Seymour* (MO, U, Gradstein 1994); Bilwi municipio, vicinity of Auastara, 14°19'N, 83°12–13'W, 29 Sep–2 Oct 1978, *Stevens 10530*, det. Atwood 2013 (MO-6236100!, **this publication**). CHONTALES: Villa Sandino municipio, La Gateada near Highway 7, *Stevens & Krukoff 2862d* (MO, U, Gradstein 1994).

COSTA RICA. S. loc. (Fulford and Sharp 1990; Bastos 2004).

GUANACASTE: La Cruz cantón, Guanacaste National Park, Cerros Santa Elena, 10°53'24"N, 85°50'55"W, 650–700 m, 27 Aug 2003, *Dauphin et al. 3338* (CR, Dauphin 2005; Dauphin and Grayum 2005); La Cruz cantón, Guanacaste National Park, Playa Gringos, Quebrada Despeñadero, 0–50, 27 Aug 2003, *Dauphin et al. 3292* (CR, Dauphin 2005; Dauphin and Grayum 2005). LIMÓN: Pococí cantón, Tortuguero, 10°31'N, 83°32'W, 2 Aug 1993, *Timme 11193a* (GOET, Holz et al. 2001; Dauphin 2005); Talamanca cantón, Cahuita, *Holz CR 99-608* (Dauphin 2005). PUNTARENAS: Golfo Dulce, 26 Mar 1939, *Taylor 39-754* (AHFH, MICH, hb. Fulford, Steere 1946 as *Brachiolejeunea corticalis*; van Slageren 1985b; Morales 1991; Gradstein 1994; Dauphin 2005).

PANAMA. Canal Zone (Stotler et al. 1998; Schäfer-Verwimp 2014); Canal Zone, 29 Dec 1909, *Howe* (NY, YU, Schuster 1980d as *Brachiolejeunea corticalis*; van Slageren 1985b); Gatún, 1 Jan 1910, *Howe* (NY, YU, Schuster 1980d as *Brachiolejeunea corticalis*; van Slageren 1985b); S. loc. (Fulford and Sharp 1990; Bastos 2004). BOCAS DEL TORO: Bocas del Toro distrito, Bastimentos, Salt Creek, Sendero a Long Beach, 9.29456°N, 82.10303°W, 70 m, 16 Aug 2017, *Caswell-Levy 1051*, det. Caswell-Levy Aug 2017 (PMA, **this publication**); Bocas del Toro distrito, Dolphin Bay, Aug 2017, *Dauphin et al. 4613* (PMA, **this publication**); Dolphin Bay (9°13'14.7"N, 82°13'02.9"W), Aug 2017 (Salazar Allen et al. 2022); Punta Donato (9°22'45.5"N, 82°22'07.8"W; Salazar Allen et al. 2022); Salt Creek (9°17'39.7"N, 82°06'11.2"W) on Isla Bastimento, Aug 2017 (Salazar Allen et al. 2022). CHIRIQUÍ: S. loc. (Schäfer-Verwimp 2014); Tierras Altas distrito, Volcán, 9 Aug 1950, *Chickering* (MICH, Crum and Arzeni 1953 as *Brachiolejeunea corticalis*; Stotler et al. 1998). COCLÉ: Antón distrito, El Valle de Antón, Alto de La Mesa, 8°38.3'N, 82°07.6'W, 850–870 m, 3 Apr 2009, *Schäfer-Verwimp & Verwimp 31034* (JE, Schäfer-Verwimp 2014). COLÓN: Colón distrito, Lake Gatún, *Howe* (NY, U, Gradstein 1994; Stotler et al. 1998); Colón distrito, Lake Gatún, 1 Jan 1910, *Howe*, det. Evans (MO-5379446!, **this publication**); Portobelo distrito, Playa Langosta, *Salazar Allen 870* (hb. Fulford, PMA, van Slageren 1985b; Stotler et al. 1998). ?PANAMA: S. loc. (Schäfer-Verwimp 2014). Note: We are not aware of any firsthand report from Panama Province. VERA-GUAS: Santa Fe distrito, base of Cerro Tute, 8°30'N, 81°06'W, 710–890 m, 26 Mar 2009, *Schäfer-Verwimp & Verwimp 34283* (JE, Schäfer-Verwimp 2014); Santa Fe distrito, between the village and Alto de Piedra, 8°31'N, 81°06'W, 635–600 m, 27 Mar 2009, *Schäfer-Verwimp & Verwimp 34326 p.p.* (JE, Schäfer-Verwimp 2014).

Also reported from Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Frullanoides densifolia Raddi, *Critt. Brasil.*: 14, 1822 (Raddi 1822) subsp. *densifolia*. Type: Brazil.

≡*Brachiolejeunea densifolia* (Raddi) A. Evans, *Bull. Torrey Bot. Club* 35(4): 158, 1908 (Evans 1908c).

=*Jungermannia bicolor* Nees, *Fl. Brasil (Martius)* 1(1): 349, 1833 (Nees 1833b). Type: Brazil.

≡*Lejeunea bicolor* (Nees) Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 5: 59, 1836 (Nees and Montagne 1836).

=*Marchesinia coniloba* Steph., *Sp. Hepat. (Stephani)* 5: 147, 1912 (Stephani 1912a), syn. fide van Slageren (1985b). Lectotype (van Slageren 1985b: 92 as “holotype”) or possibly holotype: Costa Rica, Cartago, 1,500 m, May 1900, *Wercklé s.n.* (G-00047462 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=131671&lang=en>).

GUATEMALA. ALTA VERAPAZ: S. loc., Pérez 242 (USCG, Pérez 2009); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006).

COSTA RICA. Cordillera de Talamanca (Holz and Gradstein 2005b); S. loc. (Stephani 1912a as *Marchesinia coniloba*; Geissler and Bischler 1985 as *Marchesinia coniloba*; Fulford and Sharp 1990; Bastos 2004; Gradstein and Holz 2005); S. loc.,

Gradstein 10171 (GOET, Larraín et al. 2015). CARTAGO: S. loc., *Wercklé* (G-00047462 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=131671&lang=en>, TYPE of *Marchesinia coniloba*, van Slageren 1985b). SAN JOSÉ: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo, Holz (Holz 2003); Dota cantón, Santa María, Standley & Valerio 43152 (JE, Kappelle 1996); Dota cantón, Santa María, 1,500–1,800 m, Standley 43152, 43158 (Herzog 1951 as *Brachiolejeunea densifolia*); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a).

PANAMA. S. loc. (Fulford and Sharp 1990; Bastos 2004). PANAMA WEST: Capira distrito, Cruces (Mitten 1854b as *Lejeunea bicolor*).

Also reported from Northeastern Pacific(?), Southeastern USA(?), Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Frullanoides liebmaniana (Lindenb. et Gottsche) van Slageren, *Meded. Bot. Mus. Herb. Rijks Univ. Utrecht* 544: 102, 1985 (van Slageren 1985b).

≡ *Phragmicoma liebmaniana* Lindenb. et Gottsche, *Syn. Hepat.* 5: 744, 1847 (Gottsche et al. 1847). Type: Mexico.

?HONDURAS. S. loc. (Bapna and Kachroo 2000b). Note: We are not aware of any firsthand report from Honduras.

*NICARAGUA. *ATLÁNTICO NORTE: Siuna municipio, Cerro Waylawás (Peñas Blancas), 13°29'00"N, 84°45'30"W, 100–268 m, 4 May 1978, Stevens 8789, det. Whittemore 1999 (MO-3669081! <http://tropicos.org/Specimen/100948091>, this publication).

COSTA RICA. S. loc. (Bapna and Kachroo 2000b). GUANACASTE: Liberia cantón, Rincón de la Vieja National Park, Santa María, 10°45'55"N, 85°18'15"W, 700–800 m, Dauphin 2354, det. Holz (CR, Dauphin 2005). SAN JOSÉ: Acosta cantón, Cangrejal, Cerro Caraigres, 700–2,500 m, Dauphin 3402 (CR, Dauphin 2005).

PANAMA. S. loc. (Bapna and Kachroo 2000b). BOCAS DEL TORO: Bocas del Toro distrito, Dolphin Bay, 9°13'16.9"N, 82°13'03.0"W, 16 m, 15 Aug 2017, Dauphin 4608, det. Dauphin Aug 2017 (PMA, this publication); Dolphin Bay (9°13'14.7"N, 82°13'02.9"W), Aug 2017 (Salazar Allen et al. 2022); Salt Creek (9°17'39.7"N, 82°06'11.2"W) on Isla Bastimento, Aug 2017 (Salazar Allen et al. 2022). DARIÉN: Cerro Pirre (Stotler et al. 1998); Cerro Pirre, between Pirre 1 and Pirre 2, Salazar Allen & Gradstein 9198 (PMA, Stotler et al. 1998); Cerro Pirre, Trail El Real–Pirre, along Río Pirre, ~50 m, 4–8 Jun 1991, Gradstein & Salazar Allen (PMA, U, Gradstein and Salazar Allen 1992); Pirre Massif, 30 Apr 1990, Allen 8707, det. Whittemore 1992 (MO-3677055, Stotler et al. 1998); trail El Real–Pirre, Salazar Allen & Gradstein 9199 (PMA, Gradstein 1994; Stotler et al. 1998). PANAMA WEST: La Chorrera distrito, Barro Colorado, Laboratory Cove, 2003, Dauphin 3141 (CR, PMA, Dauphin et al. 2022).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Frullanoides mexicana van Slageren, *Meded. Bot. Mus. Herb. Rijks Univ. Utrecht* 544: 106, 1985 (van Slageren 1985b). Type: Mexico.

≡ *Brachiolejeunea mamillata* f. *typica* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 135, 1951 (Herzog 1951), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Honduras: Lancetilla Valley, near Tela, 20–600 m, Standley 55249 (JE-04010819 <https://je.jacq.org/JE04010819>).

≡ *Brachiolejeunea mamillata* f. *obtusifolia* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 135, 1951 (Herzog 1951), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Honduras: Lancetilla Valley, near Tela, 20–600 m, Standley 54526 (JE-04010822 <https://je.jacq.org/JE04010822>).

≡ *Brachiolejeunea mamillata* f. *brevifolia* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 135, 1951 (Herzog 1951), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Honduras: Lancetilla Valley, near Tela, 20–600 m, Standley 54372, 55428 (JE-04010821 <https://je.jacq.org/JE04010821>) and 55428 (JE-04010820 <https://je.jacq.org/JE04010820>).

HONDURAS. S. loc. (Gradstein 1987; Fulford and Sharp 1990). ATLÁNTIDA: Tela municipio, Lancetilla Valley, Standley 54358 (JE, van Slageren 1985b; Gradstein 1994); Tela municipio, Lancetilla Valley, 20–600 m, Standley 54372 (JE, Herzog 1951 as *Brachiolejeunea mamillata* f. *brevifolia*; Gradstein 1994); Tela municipio, Lancetilla Valley, Standley 54423 (JE, van Slageren 1985b; Gradstein 1994); Tela municipio, Lancetilla Valley, 20–600 m, Standley 55428 (Herzog 1951 as *Brachiolejeunea mamillata* f. *brevifolia*; van Slageren 1985b; Gradstein 1994); Tela municipio, Lancetilla Valley, 20–600 m, Standley 54526, 55249 (Herzog 1951 as *Brachiolejeunea mamillata* f. *typica*; van Slageren 1985b); Tela municipio, Lancetilla Valley, Standley 55295, 56075a (JE, van Slageren 1985b; Gradstein 1994); Tela municipio, Lancetilla Valley, 20–600 m, 14 Dec 1927, Standley 54496 (JE, van Slageren 1985b; Gradstein 1994).

COSTA RICA. LIMÓN: Talamanca cantón, Cahuita, 0 m, Maas 7934 (CR, U, MO, Gradstein 1994; Gradstein et al. 1994; Dauphin 2005); Talamanca cantón, road along the Caribbean coast from Limón to Cahuita, 0 m, Sipman 12298a (U, Gradstein 1994; Gradstein et al. 1994; Dauphin 2005).

*PANAMA. *BOCAS DEL TORO: Bocas del Toro distrito, Dolphin Bay, 9°13'16.9"N, 82°13'03.0"W, 16 m, 15 Aug 2017, Magaña-Marcial 246, det. Magaña-Marcial Aug 2017 (PMA, Salazar Allen et al. 2022).

Also reported from Mexico.

Fulfordianthus Gradst., *Bryologist* 95(1): 44, 1992 (Gradstein 1992b).

Fulfordianthus evansii (Fulford) Gradst., *Bryologist* 95(1): 46, 1992 (Gradstein 1992b).

≡ *Thysananthus evansii* Fulford, *Bull. Torrey Bot. Club* 68(1): 34, 1941 (Fulford 1941a). Holotype: Belize, Punta Gorda, Oct 1932, s. coll. (MO-2248310 <https://tropicos.org/specimen/100263202>).

GUATEMALA. S. loc. (Whittemore and Allen 1996). IZABAL: East coast, Watson 116 p.p. (NY, Gradstein 1994; Pérez 2009).

BELIZE. S. loc. (Gradstein 1987 as *Thysananthus evansii*; Gradstein 1992b; Whittemore and Allen 1996). **TOLEDO:** Condemn Branch Pine Ridge, 13 Mar 1945, *Gentle* 5269 (MO-3951383, Whittemore and Allen 1996 as *Thysananthus evansii*); Punta Gorda (CINC, M, Fulford 1941a as *Thysananthus evansii*; Geissler and Bischler 1990 as *Thysananthus evansii* ["Honduras"]); Sukkharak 2015); S. loc. (Gradstein 1994; Whittemore and Allen 1996).

COSTA RICA. S. loc. (Gradstein 1992a as *Thysananthus evansii*; Whittemore and Allen 1996); S. loc., *Dauphin* (GOET, Wang et al. 2016; Zhu et al. 2017, 2018b). **GUANACASTE:** Liberia cantón, Rincón de la Vieja National Park, Sector Santa María, Quebrada Provisión, *Dauphin* 2299 (CR, *Dauphin* 2005). **LIMÓN:** Pococí cantón, Cariari, El Carmen, Estación Biológica El Zota, 10°34'N, 83°45'W, *Egremy* 343, det. *Dauphin* (CR, *Dauphin* 2005); Pococí cantón, Cariari, El Carmen, Estación Biológica El Zota, 10°34'N, 83°45'W, *Egremy* 364, det. *Dauphin* (CR, *Dauphin* 2005); Pococí cantón, Cerro Tortuguero, *Dauphin* (GOET, *Dauphin* 2005; Hartmann et al. 2006; Wilson et al. 2007; Heinrichs et al. 2012c, 2014a, 2014b; Czumay et al. 2013; Dong et al. 2013; Feldberg et al. 2014; Schäfer-Verwimp et al. 2014; Wang et al. 2014; Shi et al. 2015; Bechteler et al. 2016a, 2016c; Zhu and Shu 2018); Pococí cantón, Tortuguero, 1–5 m (Gradstein 1992b); Pococí cantón, Tortuguero, *Eggers* CR12/1 (JE, U, Gradstein 1994); Pococí cantón, Tortuguero, *Steere* CR-31 (NY, U, Thiers 1985 as *Thysananthus evansii*, Gradstein 1994); Pococí cantón, Tortuguero, 10°31'N, 83°32'W, *Steere* (FLAS, Morales 1991 as *Thysananthus evansii*; *Dauphin* 2005).

PANAMA. S. loc. (Whittemore and Allen 1996; Stotler et al. 1998). **DARIÉN:** Cerro Pirre, Rancho Mojado, 400–500 m, *Salazar Allen & Gradstein* 9242, 9243, 9265 (PMA, Stotler et al. 1998). **PANAMA WEST:** La Chorrera distrito, Barro Colorado Island, *Gradstein & Salazar Allen* 15094 (*Dauphin* et al. 2022); La Chorrera distrito, Barro Colorado Island, Shannon Creek, *Salazar Allen* 4300 (PMA, Stotler et al. 1998; *Dauphin* et al. 2022).

Also reported from Western South America(?).

Fulfordianthus pterobryoides (Spruce) Gradst., *Bryologist* 95(1): 44, 1992 (Gradstein 1992b).

≡ *Lejeunea pterobryoides* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 109, 1884 (Spruce 1884). Type: Ecuador.

≡ *Thysananthus pterobryoides* (Spruce) Schiffn., *Hepat. (Engl.-Prantl)*: 130, 1893 (Schiffner 1893a).

≡ *Thysanolejeunea pterobryoides* (Spruce) Steph., *Sp. Hepat. (Stephani)* 4: 786, 1912 (Stephani 1912b).

COSTA RICA. S. loc. (Stephani 1912b as *Thysananthus pterobryoides*; Timme 1985 as *Thysananthus pterobryoides*; Gradstein 1992b, 2021; Gradstein et al. 2001b; Schäfer-Verwimp et al. 2013; Schäfer-Verwimp 2014); S. loc., *Chavarría* 1413 (CR, Hartmann et al. 2006; Wilson et al. 2007); S. loc., *Dauphin* 2158 (GOET, Ye and Wei 2021). **GUANACASTE:** La Cruz cantón, Guanacaste National Park, Volcán Orosí, Sendero Casafrán, *Dauphin* 2518 (GOET, CR, Hartmann et al. 2006; Wang

et al. 2014, 2016; Larraín et al. 2015; Shi et al. 2015; Ye and Zhu 2018). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, 500 m, 29 Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0284, det. Schäfer-Verwimp (MO-6093842! <https://tropicos.org/specimen/100650996>, this publication); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 92-196 (hb. Lücking, Lücking 1995); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (Lücking 1997). **PUNTARENAS:** Osa cantón, Península de Osa, Rincón, Station Boscosa, 18 May 1993, *Dauphin* (hb. Lücking ex USJ-47009, Lücking 1995). **SAN JOSÉ:** Candelaria, *Stephani* 1038 (Morales 1991 as *Thysananthus pterobryoides*); Candelaria, 1,800 m, 24 Dec 1881, *Lehmann* 1038 (BM, G, PC, US, *Stephani* 1894a as *Thysanolejeunea pterobryoides*; Bischler 1965 as *Thysananthus pterobryoides*; Gradstein 1994; *Dauphin* 2005); S. loc. (Fulford 1941a as *Thysananthus pterobryoides*).

PANAMA. S. loc. (Gradstein 1992b; Lücking 1995; Stotler et al. 1998). **CHIRIQUÍ:** Boquete distrito, Dexter trail, 4 Nov 1918, *Cornman* 3117A, det. Atwood (MO-5280918!, this publication); Gualaca distrito, Fortuna (Stotler et al. 1998); Gualaca distrito, Fortuna Forest Reserve, Quebrada Alemán, 1,200–1,400 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna, *Spörle & Aranda* 1.39 (NY, PMA, U, Gradstein 1994; Stotler et al. 1998); Gualaca distrito, Fortuna, *Spörle* 1.39 (PMA, Spörle 1990 as *Thysananthus pterobryoides*); S. loc. (Schäfer-Verwimp 2014). **COCLÉ:** La Pintada distrito, El Copé, *Salazar Allen et al.* 1491, 1503 (NY, PMA, Gradstein 1994; Stotler et al. 1998); S. loc. (Schäfer-Verwimp 2014). ***COLÓN:** Colón distrito, Santa Rita Ridge, ~12 km from Trans Isthmian Highway, 28 Jun 1978, *Hammel* 3633, det. Atwood 2016 (MO-5228156!, this publication). **DARIÉN:** Cerro Pirre (Stotler et al. 1998); Cerro Pirre, *Salazar Allen & Gradstein* several coll. no. (PMA, U, Gradstein 1994); Cerro Pirre, *Salazar Allen & Gradstein* (PMA, U, Stotler et al. 1998); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992); Cerro Pirre, along trail to Rancho Mojado, 400–500 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992); S. loc. (Schäfer-Verwimp 2014). **PANAMA:** Chepo distrito, Cañazas Mountains, above Tortí Arriba, *Folsom et al.* 6705 (MO, U, Gradstein 1994; Stotler et al. 1998); Panamá distrito, Cerro Jefe, forest behind INTEL tower, 900–1,000 m, *Salazar Allen & Chung* 5226 (PMA, U, Gradstein 1994; Stotler et al. 1998); Panamá distrito, Cerro Jefe, forest behind INTEL tower, 21 Jul 1972, *Gentry & Dwyer* 5597, det. Whittemore 1989 (MO-3668784!, Stotler et al. 1998); S. loc. (Schäfer-Verwimp 2014). **VERAGUAS:** Montijo distrito, Island of Coiba, *Seemann* (NY, Y, Fulford 1941a as *Thysananthus pterobryoides*; Gradstein 1994; Salazar Allen and Chung 1997a; Stotler et al. 1998); Santa Fe distrito, Piedra Alto, 8°30–31'N, 81°07–08'W, 800–850 m, 27 Mar 2009, *Schäfer-Verwimp & Verwimp* 34307 (JE, Schäfer-Verwimp 2014).

Also reported from Western South America.

***Fuscocephaloziopsis* Fulford, Mem. New York Bot. Gard. 11(3): 353, 1968 (Fulford 1968).**

Fuscocephaloziopsis catenulata (Huebener) Váňa et L.Söderstr., *Phytotaxa* 112(1): 9, 2013 (Váňa et al. 2013b).

≡ *Jungermannia catenulata* Huebener, *Hepaticol. germ.*: 169, 1834 (Hübener 1834). Type: Germany.

≡ *Cephalozia catenulata* (Huebener) Lindb., *Acta Soc. Sci. Fenn.* 10: 262, 1872 (Lindberg 1872).

GUATEMALA. S. loc. (Gradstein et al. 2001b as *Cephalozia catenulata*). EL PROGRESO: Finca Piamonte, *Steyermark* 43434 p.p. (F, Gradstein and Váňa 1994 as *Cephalozia catenulata*). QUETZALTENANGO: Above Chiquival, *Sharp* 2121 (TENN, Gradstein and Váňa 1994 as *Cephalozia catenulata*). TOTONICAPÁN: E of Totoncapán, *Sharp* 2606 (TENN, Gradstein and Váňa 1994 as *Cephalozia catenulata*).

HONDURAS. FRANCISCO MORAZÁN: San Antonio de Oriente municipio, Cerro de Uyuca, *Standley* 11896 p.p. (F, Gradstein and Váňa 1994 as *Cephalozia catenulata*).

COSTA RICA. S. loc. (Schäfer-Verwimp and Pócs 2009 as *Cephalozia catenulata*; Schäfer-Verwimp and Van Melick 2016). SAN JOSÉ: Dota cantón, Los Quetzales National Park (Amen-gual et al. 2007 as *Cephalozia catenulata*); Dota cantón, San Gerardo, Río Savegre Valley, 1,950 m, 25 Dec 1999, *Schäfer-Verwimp* & *Holz* SV/H-0073 (CR, PRC, hb. Schäfer-Verwimp, *Holz* et al. 2001 as *Cephalozia catenulata*; Dauphin 2005 as *Cephalozia catenulata*).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, Macaronesia, Siberia, Russian Far East, Middle Asia(?), Caucasus, Western Asia, China, Eastern Asia, Indo-China, Malesia, Subarctic America, Western Canada, Eastern Canada, North-western USA, North-Central USA, Northeastern USA, South-Central USA, Southeastern USA, Mexico, the Caribbean.

Fuscocephaloziopsis crassifolia (Lindenb. et Gottsche) Váňa et L.Söderstr., *Phytotaxa* 112(1): 10, 2013 (Váňa et al. 2013b).

≡ *Jungermannia crassifolia* Lindenb. et Gottsche, *Syn. Hepat.* 5: 685, 1847 (Gottsche et al. 1847). Type: Mexico.

≡ *Cephalozia crassifolia* (Lindenb. et Gottsche) Fulford, *Mem. New York Bot. Gard.* 11: 312, 1968 (Fulford 1968).

= *Cephalozia subforficata* Herzog, *Rev. Bryol. Lichénol.* 11(1/2): 17, 1938 (Herzog 1938), syn. fide Váňa (1988). Lectotype (Váňa 1988: 196 as “holotype”): Costa Rica, San José, Laguna de La Chonta, 18 Dec 1925, *Standley* 42299 (JE-04001123 <https://je.jacq.org/JE04001123>, isolecototypes B-182071, US-00289479 <http://n2t.net/ark:/65665/378eaac82-cd5e-4375-9f81-ba6fdec193a2>).

= *Cephalozia caribbeana* Fulford, *Mem. New York Bot. Gard.* 11: 315, 1968 (Fulford 1968), syn. fide Váňa (1988). Type: Cuba.

GUATEMALA. S. loc. (Fulford et al. 1970 as *Cephalozia caribbeana*; Bonner 1977 as *Cephalozia caribbeana*; Fulford 1987 as *Cephalozia caribbeana*; Fulford and Sharp 1990 as *Cephalozia caribbeana*; Freire et al. 2012 as *Cephalozia crassifolia*). ALTA VERAPAZ: Cobán municipio, Cubilguitz, 350 m,

Türckheim (NY, Fulford 1968 as *Cephalozia subforficata*; Freire 2006 as *Cephalozia subforficata*); Cobán, Las Victorias National Park, 1,700 m, 2002 (Andersohn 2004 as *Cephalozia crassifolia*); Panzós municipio, Cahabón and/or Senahú, 2012, Pérez & López-Medina, det. M. Pérez (Pérez and López-Medina 2012 as *Cephalozia crassifolia*); S. loc., Pérez 1401 (USCG, Pérez 2009 as *Cephalozia crassifolia*); Tucurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Cephalozia crassifolia*). BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 209, 224, 266, 42, 63, 77 (USCG, Freire et al. 2013 as *Cephalozia crassifolia*); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as *Cephalozia crassifolia*). CHIQUIMULA: S. loc., *Steyermark* 21037 (F, Fulford 1968 as *Cephalozia subforficata*; Freire 2006 as *Cephalozia subforficata*; Pérez 2009 as *Cephalozia crassifolia*). EL PROGRESO: Finca Bucaral, 6,500 ft (1,981 m), *Sharp* 2767 (TENN, Fulford 1968 as *Cephalozia caribbeana*; Freire 2006 as *Cephalozia caribbeana*); San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007 as *Cephalozia crassifolia*); Volcán Santa Luisa, 2,400–3,333 m, *Steyermark* 43525 p.p., 43527 p.p. (F, Fulford 1968 as *Cephalozia subforficata*; Freire 2006 as *Cephalozia subforficata*; Pérez 2009 as *Cephalozia crassifolia*). HUEHUETENANGO: S. loc., Pérez 1399 (USCG, Pérez 2009 as *Cephalozia crassifolia*). QUETZALTENANGO: San Carlos Sija municipio, Cerro de Sija, 10,000 ft (3,048 m), *Sharp* 5049 p.p. (TENN, Fulford 1968 as *Cephalozia subforficata*; Freire 2006 as *Cephalozia subforficata*); San Carlos Sija municipio, Cerro de Sija, *Sharp* 5049 (TENN, Pérez 2009 as *Cephalozia crassifolia*); Zunil municipio, road to Fuentes Georginas, 4 km S of Zunil, NW slopes of Pico Zunil, 14°45'15.6"N, 91°28'58.4"W, 13 Jan 2006, *Quedensley* 3956, det. Dauphin Sep 2017 (MO, W!, this publication); Zunil, Zunil municipio, road to Fuentes Georginas, 4 km S of Zunil, NW slopes of Pico Zunil, 14°45'15.6"N, 91°28'58.4"W, 1 Jan 2004, *Quedensley* 2137c, det. Dauphin Sep 2017 (MO, W!, this publication). QUICHÉ: S. loc., Pérez 2319 (USCG, Pérez 2009 as *Cephalozia crassifolia*). ZACAPA: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007 as *Cephalozia crassifolia*); Sierra de Las Minas, 2,500 m, *Steyermark* 29967 (F, Fulford 1968 as *Cephalozia caribbeana*; Freire 2006 as *Cephalozia caribbeana*; Pérez 2009 as *Cephalozia caribbeana*).

BELIZE. CAYO: Southern Maya Mountains, Doyle's Delight, 16°29'N, 89°02'W, 5 Dec 1993, Allen 15084, det. Whittemore 1994 (BRH, MO-3981790, Whittemore and Allen 1996 as *Cephalozia crassifolia*); Southern Maya Mountains, Doyle's Delight, 16°29'N, 89°02'W, 5 Dec 1993, Allen 15106, det. Whittemore 1994 (BRH, MO-3981754, Whittemore and Allen 1996 as *Cephalozia crassifolia*); Southern Maya Mountains, Doyle's Delight, 16°29'N, 89°02'W, 5 Dec 1993, Allen 15267, det. Whittemore 1974 (BRH, MO-3981778, Whittemore and Allen 1996 as *Cephalozia crassifolia*); Southern Maya Mountains,

Doyle's Delight, 16°29'N, 89°02'W, 5 Dec 1993, *Allen* 15270, det. Whittemore 1974 (BRH, MO-3981780, *Whittemore and Allen* 1996 as *Cephalozia crassifolia*); Southern Maya Mountains, summit of Doyle's Delight, 16°29'N, 89°02'W, 1,140 m, 10 Dec 1993, *Allen* 15372, det. Whittemore 1974 (BRH, MO-3981779, *Whittemore and Allen* 1996 as *Cephalozia crassifolia*); Southern Maya Mountains, summit of Doyle's Delight, 16°29'N, 89°02'W, 1,140 m, 10 Dec 1993, *Allen* 15373, det. Whittemore 1974 (BRH, MO-3981755, *Whittemore and Allen* 1996 as *Cephalozia crassifolia*). ***TOLEDO**: Columbia River Forest Reserve, along trail from Camp 2 to Chiclero Camp, 16°23'17"N, 89°04'36"W, 15 Feb 1997, *Allen* 18789, det. Whittemore 2000 (MO-5215177!, *this publication*); Columbia River Forest Reserve, Little Quartz Ridge, 16°23'58"N, 89°06'41"W, 19 Feb 1997, *Allen* 18915, det. Whittemore 2000 (MO-5215179!, *this publication*); Columbia River Forest Reserve, Little Quartz Ridge, 16°23'58"N, 89°06'41"W, 21 Feb 1997, *Allen* 19016, det. Whittemore 2000 (MO-5215158!, *this publication*); Columbia River Forest Reserve, Union Camp, 16°23'54"N, 89°08'29"W, 600–700 m, 10 Feb 1997, *Allen* 18540, det. Whittemore 2000 (MO-5215168!, *this publication*).

HONDURAS. S. loc. (Fulford et al. 1970 as *Cephalozia caribbeana*; Bonner 1977 as *Cephalozia caribbeana*; Fulford 1987 as *Cephalozia caribbeana*; Fulford and Sharp 1990 as *Cephalozia caribbeana*). ***ATLÁNTIDA**: El Porvenir municipio, Pico Bonito National Park, trail from confluence to ridge camps, 15°38'–39'N, 86°51'–52'W, 20 Apr 1996, *Allen* 17433, det. Whittemore 1996 (MO-4428680!, *this publication*). ***COMAYAGUA**: El Plan to Cerro El Maneadero, ~11 km E of Lake Yojoa, 14°48'N, 88°52'W, 12 Mar 1993, *Allen* 13908, det. Whittemore 1996 (MO-4428665!, *this publication*). ***CORTÉS**: San Pedro Sula municipio, Cusuco National Park, along Río Cusuco, ~22 km W of San Pedro Sula, 15°31'N, 88°14'W, 20 Mar 1993, *Allen* 14278, det. Whittemore 1996 (MO-4428663!, *this publication*); San Pedro Sula municipio, E Slope of Peña Blanca, 22 Mar 1951, *Morton* 7322, det. Robinson (MO-6695841!, *this publication*). **FRANCISCO MORAZÁN**: San Antonio de Oriente municipio, Cerro de Uyuca, Caño Lamor, *Carlson* 2489 (F, *Fulford* 1968 as *Cephalozia caribbeana*); San Antonio de Oriente municipio, Cerro de Uyuca, near summit, 1,600 m, *Standley* 759 p.p., 4810 (F, *Fulford* 1968 as *Cephalozia caribbeana*). ***OLANCHO**: Catacamas municipio, Sierra de Algalta, Montana Babilonia, 15 km NNW of Catacamas, 14°59'N, 85°56'W, 31 May 1992, *Allen* 12650, det. Dauphin May 2017 (MO-5227669!, *this publication*).

***EL SALVADOR**. ***SANTA ANA**: Metapán municipio, Cerro Monte Cristo, ~14 mi NE of Metapán, trail to Punto Trifinio, 2,100–2,400 m, 31 Jul 1977, *Croat* 42457 p.p., det. Dauphin May 2017 (MO-6699947! <https://tropicos.org/specimen/100988152>, *this publication*); Metapán municipio, Cerro Montecristo, ~1.4 mi NE of Metapán, along trail to Punto Trifinio, 1,000–1,350 m, 24 Feb 1978, *Stevens* 6545, det. Whittemore 1990 (MO-3678530!, *this publication*).

COSTA RICA. Cordillera de Talamanca (Holz 2003 as *Cephalozia crassifolia*; Holz and Gradstein 2005b as *Cephalozia*

crassifolia); S. loc. (Cole 1982, 1983, both as *Cephalozia caribbeana* and *Cephalozia subforficata*; Schuster 2002 as *Cephalozia subforficata*). ***ALAJUELA**: San Ramón cantón, Monteverde, Atlantic Slope, Cerro Amigos, 10°19'N, 84°47'W, 20 Mar 1992, *Lyon* 396, det. Whittemore 1995 (MO-4438244!, *this publication*). **HEREDIA**: Las Vueltas area, valley of Río Patria, vicinity where road 113 crosses the river, 10°06'N, 84°03'W, 29 Mar 1973, *Crosby & Crosby* 6427, det. Vaña (MO-3677757!, *this publication*); Sarapiquí cantón, El Plástico, *Dauphin* 2153 (CR, *Dauphin* 2005 as *Cephalozia crassifolia*). **PUNTARENAS**: Coto Brus cantón, Fila Cruces, *Dauphin* 2153 (CR, *Dauphin* 2005 as *Cephalozia crassifolia*); Monteverde, <1,500 m (Morales 1991 as *Cephalozia crassifolia*; *Dauphin* 2005 as *Cephalozia crassifolia*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, 24 Mar 1992, *Lyon* 465, det. Whittemore 1995 (MO-4438245!, *this publication*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a as *Cephalozia crassifolia*); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, *Gradstein et al.* (U, *Sillett et al.* 1995 as *Cephalozia crassifolia*); Monteverde, *James*, W. 23773 (*Dauphin* 2005 as *Cephalozia crassifolia*); Monteverde, 4,300 ft (1,310 m), Feb 1969, *James*, W. 1969-02 (US, MO-6168186, *Reed and Robinson* 1971 as *Cephalozia caribbeana*); S. loc. (*Merwin et al.* 2001 as *Cephalozia crassifolia*). **SAN JOSÉ**: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, *Holz et al.* 2002 as *Cephalozia crassifolia*); Dota cantón, Laguna de La Chonta, 2,000–2,100 m, *Standley* 42299 (JE-04001123 <https://je.jacq.org/JE04001123>, B-18207, **TYPE** of *Cephalozia subforficata*, *Herzog* 1938 as *Cephalozia subforficata*; *Bonner* 1963a as *Cephalozia subforficata*; *Fulford* 1968 as *Cephalozia subforficata*; Vaña 1988 as *Cephalozia crassifolia*; *Morales* 1991 as *Cephalozia crassifolia*; *Kappelle* 1996 as *Cephalozia crassifolia*; *Dauphin* 2005 as *Cephalozia crassifolia*); Dota cantón, Laguna de La Chonta, *Standley* 42711 (Hb. Grolle, *Fulford* 1968 as *Cephalozia subforficata*; *Morales* 1991 as *Cephalozia crassifolia*; *Dauphin* 2005 as *Cephalozia crassifolia*); Dota cantón, San Gerardo (*Dauphin* 2005 as *Cephalozia crassifolia*).

PANAMA. **CHIRIQUÍ**: Gualaca distrito, Fortuna Forest Reserve, SW of camping site, from Finca Pittí to foothills of Cerro Fortuna, 1,000–1,270 m (*Salazar Allen et al.* 2021); Gualaca distrito, Hornito, Fortuna, *Gradstein* 9775 (GOET, *Stotler et al.* 1998 as *Cephalozia crassifolia*); S. loc. (Schäfer-Verwimp 2014). **COCLÉ**: Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4'–8'N, 80°06.9'–7.0'W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34224 (JE, *Schäfer-Verwimp* 2014); S. loc., *Schäfer-Verwimp & Verwimp* 34224 (M, *Feldberg et al.* 2016, 2017). **DARIÉN**: Cerro Pirre (*Stotler et al.* 1998 as *Cephalozia crassifolia*); Cerro Pirre, 1,200–1,300 m, *Salazar Allen & Gradstein* 9275, 9276 (PMA, *Stotler et al.* 1998 as *Cephalozia crassifolia*); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, *Gradstein*

& Salazar Allen (PMA, U, Gradstein and Salazar Allen 1992 as *Cephalozia crassifolia*); S. loc. (Schäfer-Verwimp 2014); Summit of Pirre Massif, 1,200–1,350 m, Allen 8886, det. Whittemore 1990 (MO-3677663, Stotler et al. 1998 as *Cephalozia crassifolia*).

COCOS I. Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 21 Jan 1990, *Dauphin* 965 p.p., det. G. Dauphin Mar 2021 (USJ-109015!, CR!, W!, this publication); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 15 Feb 1994, *Dauphin* 965 (USJ, Dauphin 1995, 1999, 2005, all as *Cephalozia crassifolia*); Valle Wafer, 5°32'57"N, 87°03'56"W, 0–10 m, 19 Feb 1990, *Dauphin* 1159, det. G. Dauphin Apr 2021 (USJ-109005!, this publication); Valle Wafer, 5°32'57"N, 87°03'56"W, 5 m, 15 Feb 1994, *Dauphin* 1159 (USJ, Dauphin 1995, 1999, 2005, all as *Cephalozia crassifolia*).

Also reported from Northern Europe, Southwestern Europe, Macaronesia, Northeastern Pacific, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Fuscocephalozia lunulifolia (Dumort.) Váňa et L.Söderstr., *Phytotaxa* 112(1): 10, 2013 (Váňa et al. 2013b).

≡ *Jungermannia lunulifolia* Dumort., *Syll. Jungerm. Europ.*: 61, 1831 (Dumortier 1831). Type: Europe.

GUATEMALA. TOTONICAPÁN: East of Totonicapán, *Sharp* 2606 p.p. (TENN, Gradstein and Váňa 1994).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa, Macaronesia, Siberia, Russian Far East, Caucasus, Western Asia, China, Eastern Asia, Indian Subcontinent, Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, South-Central USA, Southeastern USA, the Caribbean.

***Gongylanthus* Nees, *Naturgesch. Eur. Leberm.* 2: 405, 1836 (Nees 1836).**

Gongylanthus liebmanianus (Lindenb. et Gottsche) Steph., *Bull. Herb. Boissier*, sér. 2, 6(5): 388(44), 1906 (Stephani 1906b).

≡ *Gymnanthe liebmaniana* Lindenb. et Gottsche, *Syn. Hepat.* 5: 712, 1847 (Gottsche et al. 1847). Type: Mexico.

≡ *Lindigina liebmanniana* (Lindenb. et Gottsche) Mitt., *J. Linn. Soc., Bot.* 16(91): 190, 1977 (Mitten 1877a).

GUATEMALA. HUEHUETENANGO: S. loc., Pérez 1205 (USCG, Pérez 2009).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Gradstein 1999a; Dauphin 2005; Gradstein and Holz 2005); S. loc., *Standley* (JE, G, Grolle 1962b as *Lindigina liebmaniana*). **ALAJUELA:** Poás Volcano, 31 Jul 1977, *Griffin & Araya* 73, 75, 84 (USJ, FLAS, Morales and Griffin 1983; Morales 1991; Dauphin 2005); S. loc. (Váňa et al. 2012a). ***CARTAGO:** Oreamuno cantón, Irazú Volcán National Park, 20 Mar 1954, *Daly* 3a, det. Whittemore and Juarez (MO-2103743, this publication); S. loc. (Váňa et al. 2012a). **SAN JOSÉ:** Dota cantón, Los Quetzales National Park (Amengual et al. 2007). Note: Three specimens in CR probably correspond

to this report (San Gerardo de Dota, campo vacacional Chacón, camino hacia la Catarata, 1,950–2,000 m, 25 Dec 1999, *I. Holz & A. Schäfer-Verwimp* 6, CR-3746974, CR-3746975; Cordillera de Talamanca, Cerro de La Muerte, área de la cima, páramo, 3,400–3,500 m, *I. Holz & A. Schäfer-Verwimp* 176, CR-3747205).

PANAMA. S. loc. (Gradstein 1999a). **†BOCAS DEL TORO:** S. loc. (Váňa et al. 2012a). Note: This must refer to the “new” comarca Naso Tjër Di. **NASO TJËR DI COMARCA:** Parque Internacional La Amistad, Cerro Fábrega, 3,150–3,353 m, *Dauphin* 1566 (GOET, CR, PMA, U, Stotler et al. 1998; Dauphin 2007).

Also reported from Mexico, Northern South America, Western South America, Brazil.

Gongylanthus limbatus (Herzog) Grolle et Váňa, *Folia Geobot. Phytotax.* 9(2): 198, 1974 (Váňa 1974b).

≡ *Aplazia limbata* Herzog, *Beih. Bot. Centralbl.* 61B(3): 561, 1942 (Herzog 1942b). Type: Ecuador.

?COSTA RICA. S. loc. (Schäfer-Verwimp et al. 2013; Schäfer-Verwimp 2014; Gradstein 2021; Gradstein and Pócs 2021). **?SAN JOSÉ:** S. loc. (Váňa et al. 2012a). Note: We are not aware of any firsthand report from Costa Rica.

PANAMA. S. loc. (Gradstein 2021; Gradstein and Pócs 2021). **CHIRIQUÍ:** Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,250 m, 4 Apr 2006, *Schäfer-Verwimp & Verwimp* 30883 (JE, Schäfer-Verwimp 2014).

Also reported from Northern South America, Western South America.

Gongylanthus muelleri (Gottsche) Steph., *Bull. Herb. Boissier*, sér. 2, 6(5): 388 (44), 1906 (Stephani 1906b).

≡ *Lindigia muelleri* Gottsche, *Mexik. Leverm.*: 121, 1863 (Gottsche 1863). Type: Mexico.

?GUATEMALA. S. loc. (Schäfer-Verwimp 2014). **?QUICHÉ:** S. loc. (Váňa et al. 2012a). Note: We are not aware of any firsthand report from Guatemala.

COSTA RICA. S. loc. (León-Yáñez et al. 2006; Schäfer-Verwimp and Pócs 2009; Schäfer-Verwimp 2014). **SAN JOSÉ:** Pérez Zeledón cantón, Rivas, San Gerardo, Río Chirripó Pacífico, 1,400–1,600 m, *Schäfer-Verwimp & Holz* SV/H-0223, SV/H-0241 (CR, GOET, PRC, hb. Schäfer-Verwimp, Holz et al. 2001; Dauphin 2005); S. loc. (Váňa et al. 2012a).

PANAMA. CHIRIQUÍ: Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,480 m, 4 Apr 2006, *Schäfer-Verwimp & Verwimp* 30895 (JE, Schäfer-Verwimp 2014).

Also reported from Mexico, the Caribbean, Western South America.

***Gymnomitrium* Corda, *Gen. Hepat.* 651, 1829 (Corda 1829).**

Gymnomitrium africanum (Steph.) Horik., *Acta Phytotax. Geobot.* 13: 212, 1943 (Horikawa 1943).

≡ *Acolea africana* Steph., *Sp. Hepat. (Stephani)* 6: 77, 1917 (Stephani 1917b). Type: Tanzania.

≡*Apomarsupella africana* (Steph. ex Bonner) R.M.Schust., *J. Hattori Bot. Lab.* 80: 91, 1996 (Schuster 1996b).

GUATEMALA. S. loc. (Váña and Watling 2004b as *Apo-marsupella africana*). **SAN MARCOS:** Between San Sebastian and summit of Volcán Tajumulco, 3,800–4,600 m, 3 Feb 1940, *Steyermark* 35542, det. Váña (F, Váña 2003 as *Apomarsupella africana*).

Also reported from West-Central Tropical Africa, East Tropical Africa, Mexico, Northern South America, Southern South America.

Gymnomitrium asperulatum R.M.Schust., *Acta Acad. Ped. Agr., Sect. Biol.* 24: 114, 2003 (Váña 2003). Type: Venezuela.

COSTA RICA. **SAN JOSÉ:** Pérez Zeledón cantón, Cerro de La Muerte, Páramo Buena Vista, 3,100 m, 9 Nov 1999, *Holz* 99-620, det. Váña (PRC, Váña 2003).

Also reported from Northern South America.

Gymnomitrium bolivianum (Steph.) Váña, *Novon* 20(2): 225, 2010 (Váña et al. 2010b).

≡*Anastrophyllum bolivianum* Steph., *Biblioth. Bot.* 87(2): 186, 1916 (Stephani 1916a). Type: Bolivia.

≡*Sphenolobus laceratus* Steph., *Bull. Herb. Boissier*, sér. 2, 2(2): 173 (=Spec. Hepat. [Stephani] 2: 165), 1902 (Stephani 1902c), syn. fide Váña (2003). Type: Colombia. Note: Not *Gymnomitrium laceratum* (Steph.) Horik. 1943.

≡*Marsupella lacerata* (Steph.) Váña, *Acta Acad. Ped. Agr., Sect. Biol.*, n.s., 24: 119, 2003 (Váña 2003).

≡*Acolea andina* Herzog, *Bibl. Bot.* 88: 27, 1920 (Herzog 1920), syn. fide Váña (2003). Type: Bolivia.

≡*Gymnomitrium andinum* (Herzog) Herzog, *Hedwigia* 74(29): 81, 1934 (Herzog 1934).

≡*Marsupella trollii* Herzog, *Hedwigia* 74(2): 82, 1934 (Herzog 1934), syn. fide Váña (2003). Type: Bolivia.

≡*Marsupella subhyalina* R.M.Schust., *J. Hattori Bot. Lab.* 80: 142, 1996 (Schuster 1996b). Type: Ecuador.

COSTA RICA. Cordillera de Talamanca (Holz 2003 as *Gymnomitrium andinum*; Holz and Gradstein 2005b as *Gymnomitrium andinum*); S. loc. (Morales 1991 as *Marsupella trollii*; Gradstein 1999a as *Marsupella trollii*; Dauphin 2005 as *Marsupella trollii*; Gradstein and Holz 2005 as *Gymnomitrium andinum*). **SAN JOSÉ:** Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,000 m, *Gradstein* 9747 (U, USJ, *Gradstein et al.* 1994 as *Marsupella trollii*); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,450 m, 26 Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0143 (PRC, JE, Váña 2003 as *Marsupella lacerata*); Pérez Zeledón cantón, Valle Crestones, Chirripó, 3,775 m, 8 Mar 1983, *Chaverri et al.* 1045 p.p., 1153 p.p., det. Gradstein (Morales 1991 as *Marsupella trollii*; Dauphin 2005 as *Marsupella trollii*).

Also reported from Southern Africa, Mexico, Northern South America, Western South America, Southern South America.

Gymnomitrium miniatum Lindenb. et Gottsche, *Syn. Hepat.* 4: 617, 1846 (Gottsche et al. 1846). Type: Mexico.

≡*Marsupella miniata* (Lindenb. et Gottsche) Grolle, *J. Jap. Bot.* 41(5): 144, 1966 (Grolle 1966c).

COSTA RICA. Cordillera de Talamanca (Holz 2003 as *Marsupella miniata*; Holz and Gradstein 2005b as *Marsupella miniata*); S. loc. (Gradstein and Holz 2005 as *Marsupella miniata*). **CARTAGO:** Oreamuno cantón, Irazú Volcán, 3,300 m, 16 Aug 1993, *Aedo* 5124, det. Váña (hb. Muñoz, Váña 2003 as *Marsupella miniata*). **LIMÓN:** Limón cantón, NE del Cerro Chirripó, 3,775 m, *Chaverri et al.* 1036, det. Gradstein (U, USJ, Váña 2003 as *Marsupella miniata*). **SAN JOSÉ:** Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,450 m, 26 Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0144b (PRC, hb. Schäfer-Verwimp, Holz et al. 2001 as *Marsupella miniata*; Váña 2003 as *Marsupella miniata*; Dauphin 2005 as *Marsupella miniata*); Pérez Zeledón cantón, Valle Crestones, Chirripó, 3,775 m, 8 Mar 1983, *Chaverri et al.* 1045 p.p., 1153 p.p., det. Gradstein (Váña 2003 as *Marsupella miniata*).

Also reported from Malesia, Mexico, Northern South America, Western South America, Southern South America.

Gymnomitrium moralesae Váña, *J. Hattori Bot. Lab.* 48: 230, 1980 (Váña 1980). Holotype: Costa Rica, Alajuela, Parque Nacional Volcán Poás, 2,400–2,710 m, 30–31 Jul 1977, *D. Griffin III et A. Araya* P. 88 (FLAS-B28925, isotype PRC).

≡*Marsupella moralesae* (Váña) Váña, *Acta Acad. Ped. Agr., Sect. Biol.*, n.s., 24: 124, 2003.

COSTA RICA. S. loc. (Fulford and Sharp 1990). **ALAJUELA:** Poás National Park (Schuster 2002); Poás Volcano, 2,400–2,710 m, 31 Jul 1977, *Griffin & Araya* 88, det. Váña (USJ, FLAS, PRC, TYPE, Váña 1980; Morales and Griffin 1983; Engel 1989; Morales 1991; Váña 2003 as *Marsupella moralesae*; Dauphin 2005; Crosby and Engel 2006).

Also reported from Mexico.

Gymnomitrium setaceum Grolle et Váña, *J. Hattori Bot. Lab.* 41: 411, 1976 (Váña 1976). Type: Venezuela.

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Gradstein 1999a, 2021; Gradstein and Holz 2005; Gradstein and Uribe 2016). **SAN JOSÉ:** Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,000 m, *Gradstein* 9747 (U, USJ, *Gradstein et al.* 1994); Pérez Zeledón cantón, Cerro de la Muerte, Páramo Buena Vista S of Cartago, 3–5 Sep 1973, *Griffin & Eakin* 590 p.p. (FLAS, Morales 1991; Dauphin 2005); Pérez Zeledón cantón, Páramo Buena Vista, 3,200–3,270 m, 3 Sep 1973, *Griffin & Eakin* 598, det. Váña (FLAS, Váña 2003).

Also reported from Northern South America, Western South America.

Gymnomitrium truncatoapiculatum Herzog, *Hedwigia* 74(2): 81, 1934 (Herzog 1934). Type: Colombia.

≡*Marsupella truncatoapiculata* (Herzog) Váña, *Acta Acad. Ped. Agr., Sect. Biol.*, n.s., 24: 124, 2003 (Váña 2003).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Gradstein 1999a; Dauphin 2005);

Gradstein and Holz 2005). **LIMÓN:** Limón cantón, NE del Cerro Chirripó, 3,775 m, *Chaverri et al.* 1036, det. Gradstein (U, USJ, Morales 1991). **SAN JOSÉ:** Chirripó National Park, *Chaverri et al.* 1036 (Dauphin 2005); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,350–3,450 m, 26 Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0136, SV/H-0189, det. Váña (PRC, Váña 2003 as *Marsupella truncatoapiculata*); Pérez Zeledón cantón, Cerro de la Muerte, Páramo Buena Vista S of Cartago, 3–5 Sep 1973, *Griffin & Eakin* 590 p.p. (FLAS, Dauphin 2005; Morales 1991).

Also reported from Mexico, Northern South America, Western South America, Brazil.

Haplomitrium Nees, Naturgesch. Eur. Leberm. 1: 109, 1833 (Nees 1833a).

Haplomitrium blumei (Nees) R.M.Schust., *J. Hattori Bot. Lab.* 26: 225, 1963 (Schuster 1963a).

≡ *Monoclea blumei* Nees, *Enum. Pl. Crypt. Javae*: 2, 1830 (Nees 1830). Type: Java.

≡ *Scalius andinus* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 532, 1885 (Spruce 1885), syn. fide Bartholomew-Began (1991). Type: Peru.

≡ *Calobryum andinum* (Spruce) Steph., *Mém. Herb. Boissier* 16: 46 (= *Sp. Hepat.* [Stephani] 1: 400), 1900 (Stephani 1900a).

≡ *Haplomitrium andinum* (Spruce) R.M.Schust., *J. Hattori Bot. Lab.* 26: 225, 1963 (Schuster 1963a).

COSTA RICA. S. loc. (Grolle 1993; Churchill et al. 2015; Ellis et al. 2016b; Gradstein 2021). **SAN JOSÉ:** Las Vueltas area, moist valley of Río Patria, vicinity of where regional road 113 crosses the river, 18 km of city center of San José, 10.06°N, 84.06°W, 2,100 m, 29 Mar 1973, *Crosby & Crosby* 6427, det. Gradstein 1999 (MO-2101719, Morales 1991 as *Haplomitrium andinum*; Kappelle 1996 as *Haplomitrium andinum*; Dauphin 2005).

Also reported from West-Central Tropical Africa, China, Eastern Asia, Indian Subcontinent, Malesia, Papuasias, South-western Pacific, the Caribbean, Western South America.

Harpalejeunea (Spruce) Schiffn., Hepat. (Engl.-Prantl): 126, 1893 (Schiffner 1893a).

Harpalejeunea cinchonae (Nees) Schiffn., *Hepat. (Engl.-Prantl)*: 127, 1893 (Schiffner 1893a).

≡ *Lejeunea cinchonae* Nees, *Syn. Hepat.* 3: 342, 1845 (Gottsche et al. 1845a). Type: Peru.

COSTA RICA. S. loc. (Schäfer-Verwimp and Pócs 2009). **PUNTARENAS:** Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995); S. loc. (Merwin et al. 2001). **SAN JOSÉ:** Pérez Zeledón cantón, R. F. Los Santos, Cerro de La Muerte, cima, 9°33'20"N, 83°45'30"W, 1,475–3,400 m, 26 Dec 1999, *Schäfer-Verwimp &*

Holz SV/H-0152, det. Dauphin Oct 2020 (CR-0003747184!, this publication).

PANAMA. CHIRIQUÍ: Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,600 m, 4 Apr 2006, *Schäfer-Verwimp & Verwimp* 30918 p.p. (JE, Schäfer-Verwimp 2014 as *Harpalejeunea* cf. *cinchonae*); Barú Volcano National Park (Rodríguez-Quiel et al. 2022). ***NASO TJËR DI COMARCA:** Parque Internacional La Amistad, Cerro Fábrega, 9°07'05"N, 82°52'40"W, 3,335 m, 12 Feb 1995, *Dauphin et al.* 1553B, det. Dauphin Jun 2017 (MO-6236082!, CR-1578117!, this publication).

Also reported from the Caribbean, Northern South America, Western South America.

Harpalejeunea oxyphylla (Nees et Mont.) Steph., *Sp. Hepat. (Stephani)* 5: 255, 1913 (Stephani 1913).

≡ *Lejeunea oxyphylla* Nees et Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 19: 264, 1843 (Montagne 1843). Type: French Guiana.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 507 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, Ramírez 2007).

HONDURAS. S. loc. (Lücking 1995; Dauphin et al. 1998; Eggers et al. 2004; Lavocat Bernard and Reeb 2016). **ATLÁN-TIDA:** Tela municipio, Lancetilla Valley, 20–600 m, Dec 1927–Mar 1928, *Standley* 55622 p.p. (JE, Herzog 1951; Grolle and Reiner-Drehwald 1999).

***NICARAGUA. *GRANADA:** Granada municipio, W slope of Volcán Mombacho, 11°49'–50'N, 85°58'W, 950–1,150 m, 1 Oct 1977, *Stevens* 4384, det. Dauphin May 2017 (MO-5238571! <https://tropicos.org/specimen/90108677>, this publication).

COSTA RICA. S. loc. (Lavocat Bernard and Reeb 2016). ***ALAJUELA:** San Carlos, Volcán Arenal, 2 km from the active crater, 14 Dec 1977, *Balázs* 15/E, det. Dauphin Jan 2017 (EGR!, this publication). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 92-624 (hb. Lücking, Lücking 1995; Dauphin et al. 1998; Dauphin 2005); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (Lücking 1997). **PUNTARENAS:** Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a).

PANAMA. *BOCAS DEL TORO: Bocas del Toro distrito, Bastimentos, Salt Creek, Sendero a Long Beach, 9.29456°N, 82.10303°W, 70 m, 16 Aug 2017, *Dauphin* 4634, 4636, det. Dauphin Aug 2017 (PMA, this publication). **COCLÉ:** La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Río Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López* 667, 674, 686 (PMA, Sierra et al. 2019a). ***COLÓN:** Colón distrito, 9 km NW of Gamboa along Pipeline road, 26 Aug 1973, *Nee* 6629, det.

Dauphin Jun 2017 (MO-6236082!, [this publication](#)). **PANAMA WEST:** La Chorrera distrito, Barro Colorado, Fairchild, 2003, *Dauphin* 3131 (CR, PMA, [Dauphin et al. 2022](#)).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Harpalejeunea scabra Gradst. et Schäf.-Verw., *Cryptogamie, Bryologie* 32(2): 102, 2011 (Gradstein and Schäfer-Verwimp 2011). Type: Colombia.

≡ *Harpalejeunea aspera* Grolle ex Gradst., D.G.Griffin, M.I.Morales et Nadkarni, *Caldasia* 23(1): 208, 2001 (Gradstein et al. 2001a), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Gradstein and Schäfer-Verwimp (2011).

COSTA RICA. S. loc. (Gradstein and Uribe 2016; Gradstein 2021). **PUNTARENAS:** Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, 1,550 m, *Dauphin* (GOET, Gradstein and Schäfer-Verwimp 2011); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, [Gradstein et al. 2001a](#) as *Harpalejeunea aspera*).

Also reported from the Caribbean(?), Western South America.

Harpalejeunea stricta (Lindenb. et Gottsche) Steph., *Sp. Hepat. (Stephani)* 5: 259, 1913 (Stephani 1913).

≡ *Lejeunea stricta* Lindenb. et Gottsche, *Syn. Hepat.* 5: 756, 1847 (Gottsche et al. 1847). Type: Mexico.

≡ *Microlejeunea stricta* auct. Note: *Microlejeunea stricta* has many times been erroneously considered to be based on *Lejeunea stricta*, but it is now nomenclaturally a synonym of *Microlejeunea diversiloba*.

GUATEMALA. ALTA VERAPAZ: S. loc., 2007, Pérez, det. Pérez (USCG, [Barillas de Klee et al. 2008](#)); Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, Pérez 131 (USCG, Pérez 2009); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). **EL PROGRESO:** S. loc., 2007, Pérez, det. Pérez (USCG, [Barillas de Klee et al. 2008](#)). **HUEHUETENANGO:** Todos Santos Cuchumatán, Chinhuitz, 15°30'40"N, 91°38'56"W, 2,790 m, 2006, Pérez et al. 1182 (USCG, Pérez 2009). **IZABAL:** Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, Ramírez (USCG, BIGU, [Ramírez 2007](#)). **QUICHÉ:** S. loc., Pérez 2184 (USCG, Pérez 2009 as *Microlejeunea stricta*). **SAN MARCOS:** S. loc., 2007, Pérez, det. Pérez (USCG, [Barillas de Klee et al. 2008](#)). **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, [Ramírez 2007](#)).

***HONDURAS. *ATLÁNTIDA:** El Porvenir municipio, Pico Bonito National Park, trail from confluence to ridge camps, 15°38–39'N, 86°51–52'W, 20 Apr 1996, *Allen* 17430, det. Dauphin Jun 2017 (MO-6230327! <https://tropicos.org/specimen/100367478>, [this publication](#)). ***COMAYAGUA:** San Juanillo, Cordillera de Montecillos Biological Forest Reserve, 14°30'N, 87°53'W, 3 Jun 1993, *Liesner* 26780 p.p., det. Dauphin Jun 2017 (MO-6699917! <https://tropicos.org/specimen/100988214>, [this publication](#)).

EL SALVADOR. S. loc. (Fulford and Sharp 1990 as *Microlejeunea stricta*; Schäfer-Verwimp 2014 as *Microlejeunea stricta*). **SANTA ANA:** Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler* A/1/12, A/26/8, A/6/2, A/7/4, A/8/3 (*Winkler* 1967 as *Microlejeunea stricta*).

***NICARAGUA. *ATLÁNTICO NORTE:** Waspán municipio, ~13 km above Kururia, 14°42'N, 84°11'W, 200 m, 2 Mar 1979, *Pipoly* 3762, det. Dauphin Jun 2017 (MO-5238572! <https://tropicos.org/specimen/90108676>, [this publication](#)).

COSTA RICA. Cordillera de Talamanca ([Holz and Gradstein 2005b](#); Holz 2006); S. loc. (Schäfer-Verwimp 2014 as *Microlejeunea stricta*). **CARTAGO:** Paraíso cantón, Orosi, Tapantí National Park, *Morales* 2252 p.p., det. Morales (USJ, [Morales 1991](#) as *Microlejeunea stricta*; [Dauphin 2005](#) as *Microlejeunea stricta*). **PUNTARENAS:** Monteverde (Dauphin 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, [Gradstein et al. 2001a](#) as *Microlejeunea stricta*); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995 as *Harpalejeunea* cf. *stricta*); S. loc. (Merwin et al. 2001 as *Harpalejeunea* cf. *stricta*). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, [Holz et al. 2002](#)); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, *Holz* ([Holz 2003](#)); Los Santos Forest Reserve, ~2,900 m ([Holz and Gradstein 2005a](#)).

PANAMA. S. loc. (Schäfer-Verwimp and Pócs 2009). **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, foothills of Cerro Pinola, 1,280–2,000 m ([Salazar Allen et al. 2021](#)); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,650 m, *Schäfer-Verwimp & Verwimp* 34420/C (JE, Schäfer-Verwimp 2014 as *Microlejeunea stricta*); Tierras Altas distrito, Volcán, road to Rio Sereno, 8°49.5'N, 82°41.5'W, 1,580 m, 2 Apr 2009, *Schäfer-Verwimp & Verwimp* 34685, 34700 (JE, Schäfer-Verwimp 2014 as *Microlejeunea stricta*). **COCLÉ:** Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 700–1,000 m, 31 Mar 2006, *Schäfer-Verwimp & Verwimp* 30759 (JE, Schäfer-Verwimp 2014 as *Microlejeunea stricta*); Antón distrito, El Valle de Antón, along road to Mato Ahogado, 8°37.05'N, 82°06.60'W, 670 m, 4 Apr 2009, *Schäfer-Verwimp & Verwimp* 34756, 34758 (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, *Schäfer-Verwimp & Verwimp* 34136/C (JE, Schäfer-Verwimp 2014 as *Microlejeunea stricta*); Antón distrito, El Valle de Antón, 8°36.6'N, 80°06.6'W, 640–650 m, 7 Apr 2006, *Schäfer-Verwimp & Verwimp* 31042 (JE, Schäfer-Verwimp 2014); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Río Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López* 668, 671, 673, 691 p.p., 692, 716 (PMA, [Sierra et al. 2019a](#) as *Microlejeunea stricta*). **DARIÉN:** Cerro Pirre (Stotler et al. 1998);

Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992); S. loc. (Schäfer-Verwimp 2014). PANAMA WEST: Capiro distrito, Altos de Campana National Park, Sendero de Interpretación, 850 m, *Salazar Allen et al.* 9445 (PMA, *Stotler et al.* 1998). PANAMA: S. loc. (Schäfer-Verwimp 2014). Note: We are not aware of any firsthand report from Panama Province. This is probably referring to Panama West. VERAGUAS: Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, *Schäfer-Verwimp & Verwimp* 30847 (JE, *Schäfer-Verwimp* 2014).

Also reported from Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Harpalejeunea subacuta A. Evans, *Bull. Torrey Bot. Club* 30(10): 547, 1903 (Evans 1903c). Type: Puerto Rico.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). ?ZACAPA: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007 as *Harpalejeunea* aff. *subacuta*). Note: We are not aware of any positively identified specimen from Zacapa.

EL SALVADOR. S. loc. (Schäfer-Verwimp 1999; Lavocat Bernard et al. 2009; Schäfer-Verwimp and Pócs 2009; Schäfer-Verwimp and Reiner-Drehwald 2009). SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hacienda Montecristo, *Winkler* A/2/5, A/16/1, A/26/1, etc. (*Winkler* 1967).

COSTA RICA. S. loc. (Dauphin et al. 2008; Lavocat Bernard et al. 2009; Schäfer-Verwimp and Pócs 2009; Schäfer-Verwimp and Reiner-Drehwald 2009). SAN JOSÉ: Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, San Gerardo, Chacón Holiday Camp to waterfall, 9°32'13.81440"N, 83°49'27.2480"W, 1,950 m, *Schäfer-Verwimp & Holz* SV/H-0097, det. Dauphin (CR, *Dauphin* 2005); Dota cantón, San Gerardo, Chacón Holiday Camp to waterfall, 9°32'13.81440"N, 83°49'27.2480"W, 1,950 m, 25 Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0097, det. Dauphin (CR!, *this publication*).

PANAMA. CHIRIQUÍ: Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,260 m, 4 Apr 2006, *Schäfer-Verwimp & Verwimp* 30876 (JE, *Schäfer-Verwimp* 2014).

Also reported from Southeastern USA, the Caribbean, Northern South America, Western South America, Brazil.

Harpalejeunea tridens (Besch. et Spruce) Steph., *Sp. Hepat. (Stephani)* 5: 263, 1913 (Stephani 1913).

=*Lejeunea tridens* Besch. et Spruce, *Bull. Soc. Bot. France (Congr. Bot.)* 36: clxxx, 1890 (Bescherelle and Spruce 1889). Type: Guadeloupe.

=*Harpalejeunea heterodonta* A. Evans, *Bull. Torrey Bot. Club* 30: 551, 1903 (Evans 1903c), syn. fide Gradstein (1989). Type: Puerto Rico.

=*Harpalejeunea exocellata* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 144, 1951 (Herzog 1951). Lectotype (Grolle and Reiner-Drehwald 1999: 37): Costa Rica, Heredia, Cerro de las Caricias, 2,000–2,400 m, *Standley* 51998 (JE-04002123! <https://je.jacq.org/JE04002123>, islectotype

JE-04002124 <https://je.jacq.org/JE04002124>), syn. nov. Note: based on description and illustration of the type, S. R. Gradstein considers it a synonym, and we publish it here as a new synonym with his approval.

COSTA RICA. S. loc. (Schäfer-Verwimp and Pócs 2009).

CARTAGO: Paraíso cantón, Tapantí National Park, Orosi Valley, ~9°46'N, 83°48'W, 600 m, 30 Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0365/A (CR, JE, *Blockeel et al.* 2009). GUANACASTE: Liberia cantón, Guanacaste National Park, Sector Pitilla, Sendero Orosilito, *Dauphin et al.* 2604 (USJ, *Dauphin* 2005). HEREDIA: San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, *Standley* 47157 (Herzog 1951; Morales 1991 as *Harpalejeunea exocellata*); San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, *Standley* 51988 p.p. (JE-04002124, TYPE of *Harpalejeunea exocellata*, Herzog 1951; Morales 1991; Grolle and Reiner-Drehwald 1999; Dauphin 2005 as *Harpalejeunea exocellata*). LIMÓN: Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 92-529 (hb. Lücking, *Lücking* 1995 as *Harpalejeunea heterodonta*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (*Lücking* 1997 as *Harpalejeunea heterodonta*); Pococí cantón, Braulio Carrillo National Park, Quebrada González, 10°12'N, 83°55'W, 480 m, Jun 1992, *Lücking* 92-468 (USJ, hb. Lücking, *Lücking* 1995 as *Harpalejeunea heterodonta*; Dauphin et al. 1998 as *Harpalejeunea heterodonta*; Dauphin 2005). PUNTARENAS: R. B. Santa Elena, 10°20'N, 84°48'W, 26 Mar 1992, Lyon 546, det. Whittemore 1995 (MO-4411437 <https://tropicos.org/specimen/90029478>).

PANAMA. S. loc. (Sierra et al. 2019b). COCLÉ: Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8'N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34216 (JE, *Schäfer-Verwimp* 2014); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Río Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López* 697 p.p., 773 (PMA, *Sierra et al.* 2019a). VERAGUAS: Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, *Schäfer-Verwimp & Verwimp* 30824, 30841 (JE, *Schäfer-Verwimp* 2014).

Also reported from the Caribbean, Northern South America, Western South America, Brazil, Southern South America(?).

Harpalejeunea uncinata Steph., *Hedwigia* 35(3): 97, 1896 (Stephani 1896) var. *uncinata*. Lectotype: Cuba.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 157 (USCG, *Freire et al.* 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

BELIZE. S. loc. (Fulford 1938; Whittemore and Allen 1996). *TOLEDO: Punta Gorda, Feb 1933, *White* 90, det. Fulford 1937 (MO-5375157!, *this publication*).

COSTA RICA. S. loc. (Schäfer-Verwimp and Pócs 2009; Schäfer-Verwimp and Reiner-Drehwald 2009). GUANACASTE: La Cruz cantón, Guanacaste National Park, Cerros Santa Elena,

10°53'24"N, 85°50'55"W, 650–700 m, 27 Aug 2003, *Dauphin et al.* 3311 (CR, Dauphin 2005; Dauphin and Grayum 2005). **HEREDIA**: San Miguel de Sarapiquí, 850 m, 30 Jan 1985, Eggers (hb. Eggers, Eggers 2001). **LIMÓN**: Braulio Carrillo National Park, 400–500 m (Eggers 2001); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480–700 m, *Lücking* 92-380 (Dauphin 2005); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 92-380 (hb. Lücking, Lücking 1995; Dauphin et al. 1998); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 92-551 (hb. Lücking, Lücking 1995); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (Lücking 1997). **PUNTARENAS**: Monteverde, 1,600 m, Eggers (hb. Eggers, Eggers 2001). **SAN JOSÉ**: Pérez Zeledón cantón, Cordillera de Talamanca, Quizarra east of San Isidro El General, ~700 m, 12 Jul 1985, Eggers CR 7/12 (Eggers et al. 2001); Pérez Zeledón cantón, Quizarra near San Isidro, 700 m, Eggers (hb. Eggers, Eggers 2001).

PANAMA. Canal Zone (Schäfer-Verwimp 2014); S. loc. (Fulford et al. 1970; Lücking 1995; Dauphin et al. 1998; Schäfer-Verwimp and Pócs 2009; Schäfer-Verwimp and Reiner-Drehwald 2009). ***BOCAS DEL TORO**: Bocas del Toro distrito, Bastimentos, Salt Creek, Sendero a Long Beach, 9.29456°N, 82.10303°W, 70 m, 16 Aug 2017, *Gudiño & Salazar Allen* 3360, det. Gudiño Aug 2017 (PMA, this publication). **CHIRIQUÍ**: Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,620–1,630 m, *Schäfer-Verwimp & Verwimp* 34407/C, 34414/B (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Volcán, road to Rio Sereno, 8°49.5'N, 82°41.5'W, 1,580 m, 2 Apr 2009, *Schäfer-Verwimp & Verwimp* 34669, 34676/B (JE, Schäfer-Verwimp 2014). **PANAMA WEST**: La Chorrera distrito, Barro Colorado Island, *Shattuck* 568 p.p. (Haynes 1933; Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Camino Lutz, *Shattuck* 568 p.p. (F, PMA, Stotler et al. 1998). **PANAMA**: Panamá distrito, Canal Zone Forest Preserve, Aug 1950, *Chickering* (MICH, Crum and Arzeni 1953; Stotler et al. 1998). **VERAGUAS**: Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, *Schäfer-Verwimp & Verwimp* 30846/A (JE, Schäfer-Verwimp 2014).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

***Herbertus* Gray, Nat. Arr. Br. Pl. 1: 705, 1821 (Gray 1821).**

Herbertus acanthelium Spruce, Trans. & Proc. Bot. Soc. Edinburgh 15: 341, 1885 (Spruce 1885). Type: Ecuador.

≡*Herbertus juniperoideus* subsp. *acanthelium* (Spruce) K.Feldberg et Heinrichs, Bot. J. Linn. Soc. 151: 326, 2006 (Feldberg and Heinrichs 2006).

≡*Herbertus serratus* Spruce, Mem. Torrey Bot. Club 1(3): 128, 1890 (Spruce 1890), syn. fide Feldberg and Heinrichs (2006). Type: Bolivia.

≡*Schisma subdentatum* Steph., Trans. Linn. Soc. London, Bot. 6(1): 99, 1901 (Stephani 1901e), syn. fide Feldberg and Heinrichs (2006). Type: Guyana.

≡*Herbertus subdentatus* (Steph.) Fulford, Mem. New York Bot. Gard. 11(1): 104, 1963 (Fulford 1963a). Note: All material from Central America identified as *Herbertus subdentatus* belongs to *Herbertus sendtneri* (cf. Feldberg and Heinrichs 2006).

≡*Schisma limbatum* Steph., Sp. Hepat. (Stephani) 4: 14, 1909 (Stephani 1909a), syn. fide van Reenen (1982). Type: Ecuador.

≡*Herbertus limbatus* (Steph.) Herzog, Rev. Bryol. Lichénol. 11(1): 24, 1939 (Herzog 1938).

≡*Schisma vulcanicum* Warnst., Hedwigia 57(1/2): 69, 1916 (Warnstorf 1916), syn. fide Dauphin (2005). Lectotype (Grolle 1964c: 173) or possibly holotype: Costa Rica, vulkan de Barba, mit *Macromitrium*, 1855, Hoffmann (B-300004253 <https://herbarium.bgbm.org/object/B300004253>).

≡*Herbertus cancerinus* Herzog, Rev. Bryol. Lichénol. 11(1/2): 25, 1938 (Herzog 1938), syn. with *Herbertus serratus* fide Fulford (1963a). Lectotype (Fulford 1963a: 100): Costa Rica, Cerro de Las Lajas, 2,000–2,400 m, *Standley & Valerio* 51629 (JE-04010836 <https://je.jacq.org/JE04010836>, isoelectotype US-00072895 <http://n2t.net/ark:/65665/3e397f894-9316-4d72-b1e1-3548c1ddac53>).

≡*Herbertus cancerinus* f. *foliis-minus-serratis* Herzog, Rev. Bryol. Lichénol. 11(1): 24, 1939 (Herzog 1938), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Costa Rica: Yerba Buena, Prov. de Heredia, 2,000 m on tree, *Standley* 50011 (JE-04010804 <https://je.jacq.org/JE04010804>, US-00072896 <http://n2t.net/ark:/65665/3c32b5dad-1dc9-40a1-8661-a5b08bd9be68>).

≡*Herbertus pectinatus* Herzog, Rev. Bryol. Lichénol. 11(1/2): 27, 1938 (Herzog 1938), syn. with *Herbertus serratus* fide Fulford (1963a). Lectotype (Fulford 1963a: 100): Costa Rica, Cerros de Zurquí, *Standley & Valerio* 50642 (JE-04010834 <https://je.jacq.org/JE04010834>, isoelectotype US-00072897 <http://n2t.net/ark:/65665/366cd81be-dd7d-4644-98a0-dc0ecb803a53>).

≡*Herbertus stenochizon* Herzog, Rev. Bryol. Lichénol. 11(1/2): 27, 1938 (Herzog 1938), syn. with *Herbertus serratus* fide Fulford (1963a). Lectotype (Fulford 1963a: 100): Costa Rica, Cerros de Zurquí, Prov. de Heredia, 2,000–2,400 m, on tree, *Standley* 50392 (JE-04010833 <https://je.jacq.org/JE04010833>, isoelectotype US-00072900 <http://n2t.net/ark:/65665/396f4181d-de9a-47ab-a37c-8b5c8fa53106>).

≡*Herbertus vulcanicola* Herzog, Rev. Bryol. Lichénol. 11(1/2): 25, 1938 (Herzog 1938), syn. with *Herbertus limbatus* fide Fulford (1963a). Lectotype (Fulford 1963a: 102, supplemented by Söderström and Hentschel 2023: 10): Costa Rica, slope Volcán Turrialba, 2,000–2,400 m, *Standley* 35297 (JE-04010853 <https://je.jacq.org/JE04010853>, isoelectotypes JE-04010808 <https://je.jacq.org/JE04010808>, US-00072901 <http://n2t.net/ark:/65665/372d95699-cfe6-4040-b231-f01ae6f6a9b7>).

GUATEMALA. **ALTA VERAPAZ**: Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Herbertus serratus*). **QUETZALTENANGO**: San Carlos Sija municipio, Getena area N of Sija, 2,895 m, 26 Jan 1945, Sharp 2212, det. Feldberg 2006 (NY, Pérez 2009 as *Herbertus limbatus*).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); Cordillera de Talamanca, *Kappelle* 101

(U, Kappelle 1996); S. loc. (Bonner 1966 as *Herbertus cancerinus*, *Herbertus pectinatus*, *Herbertus stenochizon*, and *Herbertus limbatus*; Fulford 1967 as '*Herberta limbata*'; Gradstein et al. 1977 as *Herbertus limbatus*; Cole 1982, 1983, both as *Herbertus limbatus*; van Reenen 1982; Fulford and Sharp 1990 as *Herbertus limbatus*; Gradstein 1999a, 2013b as *Herbertus juniperoideus* subsp. *acanthelium*, 2021; Gradstein and Costa 2003 as *Herbertus serratus*; Dauphin 2005; Gradstein and Holz 2005; Santos 2008 as *Herbertus juniperoideus* subsp. *acanthelium*; Schäfer-Verwimp and Pócs 2009 as *Herbertus juniperoideus* subsp. *acanthelium*; Costa et al. 2020 as *Herbertus juniperoideus* subsp. *acanthelium*; Gradstein and Pócs 2021). **ALAJUELA**: Poás National Park, 10°12'N, 84°14'W, Aug 1973, Griffin et al. (Griffin et al. 1974 as '*Herberta limbata*'); Poás Volcano, Griffin et al. 159 (FLAS, Morales 1991 as *Herbertus limbatus*; Dauphin 2005); Poás Volcano, Morales & Canessa 472 (USJ, Morales and Griffin 1983 as *Herbertus serratus*; Morales 1991 as *Herbertus serratus*; Dauphin 2005 as *Herbertus serratus*); S. loc., Aug 1973, Griffin et al. (FLAS-020492, Morales and Griffin 1983 as *Herbertus limbatus*). **CARTAGO**: Jimenéz cantón, Pejibaye, 900 m, Standley & Valerio 47024 (hb. Herzog, Fulford 1963a as *Herbertus limbatus*; Morales 1991 as *Herbertus limbatus*); La Estrella, Standley 39245b (hb. Herzog, Fulford 1963a as *Herbertus limbatus*; Morales 1991 as *Herbertus limbatus*); Paraíso cantón, Cerro Asunción, 3,080 m, 1986, Kappelle MK2073 (GOET, U, Feldberg and Heinrichs 2006 as *Herbertus juniperoideus* subsp. *acanthelium*); Paraíso cantón, Tapanti National Park, Morales 1705 (Morales 1991 as *Herbertus limbatus*); Turrialba cantón, Volcán Turrialba, S slope near the Finca, 2,000–2,400 m, Standley 35297 (B-04312, Herzog 1938 as '*Herberta vulcanicola*'; Fulford 1963a as *Herbertus limbatus*; Bonner 1966 as *Herbertus vulcanicola*; Morales 1991 as *Herbertus limbatus*; Dauphin 2005; Feldberg and Heinrichs 2006 as *Herbertus juniperoideus* subsp. *acanthelium*); Turrialba cantón, Volcán Turrialba, S slope near the Finca, 2,000–2,400 m, Standley 35316 (hb. Herzog, Herzog 1938 as '*Herberta limbata*'; Fulford 1963a as *Herbertus limbatus*; Morales 1991 as *Herbertus limbatus*). **HEREDIA**: Barva cantón, Braulio Carrillo National Park, Sector Volcán Barva, Morales 1493 p.p. (USJ, Morales 1991 also as *Herbertus limbatus*; Dauphin 2005); Barva cantón, Braulio Carrillo National Park, Sector Volcán Barva, Morales 1787 (Morales 1991; Dauphin 2005); Barva cantón, Braulio Carrillo National Park, Sector Volcán Barva, Pittier 6029, 6046 (Stephani 1893c as '*Herberta acanthelia*'; Morales 1991; Dauphin 2005); Barva cantón, Braulio Carrillo National Park, Sector Volcán Barva, 1855, Hoffmann (B-04253, Dauphin 2005); Barva cantón, Volcán Barva, Morales 1488, 1524, 1590, 1641, 1642, 1654 p.p., 1667 (Morales 1991 as *Herbertus limbatus*); Barva cantón, Volcán Barva, Morales 1786 (USJ, Morales 1991 as *Herbertus serratus*; Dauphin 2005 as *Herbertus serratus*); Barva cantón, Volcán Barva, 2,800 m, Valerio 26 (hb. Herzog, Fulford 1963a as *Herbertus limbatus*; Morales 1991 as *Herbertus limbatus*); Barva cantón, Volcán Barva, 1855, Hoffman (B-300004253 <https://herbarium.bgbm.org/object/B300004253>, Grolle 1964c as '*Herberta limbata*'); San

Isidro cantón, Cerro de Las Lajas, 2,000–2,400 m, Standley & Valerio 51629 (hb. Herzog, Fulford 1963a as *Herbertus serratus*; Morales 1991 as *Herbertus serratus*; Dauphin 2005 as *Herbertus serratus*; Feldberg and Heinrichs 2006 as *Herbertus juniperoideus* subsp. *acanthelium*); San Isidro cantón, Cerro de Las Lajas, 2,000–2,400 m, Standley 51629 (Herzog 1938 as '*Herberta cancerina*'); San Isidro cantón, Cerro Zurquí, Standley & Valerio 50330 (hb. Herzog, Morales 1991 as *Herbertus limbatus*); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, Standley & Valerio 50574, 50666, 50714 (hb. Herzog, Fulford 1963a as *Herbertus limbatus*; Morales 1991 as *Herbertus limbatus*); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, Standley 50330 (Herzog 1938 as '*Herberta limbata*'); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, Standley 50380, 50392, 50529 (B-04310, Herzog 1938 as *Herbertus stenochizon*; Dauphin 2005 as *Herbertus serratus*); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, Standley 50642 (B-04269, Herzog 1938 as '*Herberta pectinata*'); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, Standley 50574, 50666, 50714 (Herzog 1938 as '*Herberta limbata*'); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, 1926, Standley & Valerio 50380 (JE, Feldberg and Heinrichs 2006 as *Herbertus juniperoideus* subsp. *acanthelium*); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, 1926, Standley & Valerio 50392, 50529, 50642 (JE, hb. Herzog, Fulford 1963a as *Herbertus serratus*; Morales 1991 as *Herbertus serratus*; Feldberg and Heinrichs 2006 as *Herbertus juniperoideus* subsp. *acanthelium*); San Isidro cantón, Yerba Buena, 2,000 m, Standley & Valerio 50011 (hb. Herzog, Fulford 1963a as *Herbertus serratus*; Morales 1991 as *Herbertus serratus*; Dauphin 2005 as *Herbertus serratus*; Feldberg and Heinrichs 2006 as *Herbertus juniperoideus* subsp. *acanthelium*); San Isidro cantón, Yerba Buena, 2,000 m, Standley & Valerio 50099 (hb. Herzog, Fulford 1963a as *Herbertus limbatus*; Morales 1991 as *Herbertus limbatus*); San Isidro cantón, Yerba Buena, 2,000 m, Standley 50011 (Herzog 1938 as '*Herberta cancerina* f. *foliis minus serratis*'); San Isidro cantón, Yerba Buena, 2,000 m, Standley 50099 (B, Herzog 1938 as '*Herberta limbata*'; Dauphin 2005). **PUNTARENAS**: Buenos Aires cantón, Parque Internacional La Amistad, Valle del Silencio, Quesada 1184 (CR, Dauphin 2005). **SAN JOSÉ**: Dota cantón, Laguna de La Chonta, NE of Sta María de Dota, 2,000–2,100 m, Standley 42238 (Morales 1991 as *Herbertus limbatus*; Dauphin 2005); Moravia cantón, La Palma, 1,500 m, Valerio 31 (hb. Herzog, Fulford 1963a as *Herbertus limbatus*; Morales 1991 as *Herbertus limbatus*); Pérez Zeledón cantón, Cerro Buenavista, Kubbier 339 (B, Dauphin 2005); Pérez Zeledón cantón, Páramo Buena Vista, Griffin & Eakin 576, 599 (FLAS, Morales 1991 as *Herbertus limbatus*); Pérez Zeledón cantón, Valle de Los Conejos, Kubbier 602, det. Grolle (B, this publication).

PANAMA. CHIRIQUÍ: N of San Felix, Mori & Kallunki 5850 (MO, Stotler et al. 1998 as *Herbertus serratus*). **NASO TJÉR DI COMARCA**: Cerro Fábrega, De Gracia 373 (PMA, Dauphin 2007); Parque Internacional La Amistad, Cerro Fábrega, 3,150–3,353 m, Dauphin 1553 (GOET, CR, PMA, U, Feldberg and Heinrichs 2006 as *Herbertus juniperoideus* subsp. *acanthelium*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Herbertus bivittatus Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 343, 1885 (Spruce 1885). Type: Peru.

≡*Schisma bivittatum* (Spruce) Steph., *Sp. Hepat. (Stephani)* 4: 11, 1909 (Stephani 1909a).

≡*Herbertus juniperoideus* (Sw.) Grolle subsp. *bivittatus* (Spruce) K.Feldberg et Heinrichs, *Bot. J. Linnean Soc.* 151: 328, 2006 (Feldberg and Heinrichs 2006).

≡*Schisma divergens* Steph., *Sp. Hepat. (Stephani)* 4: 10, 1909 (Stephani 1909a), syn. fide Feldberg and Heinrichs (2006). Lectotype (van Reenen 1982: 118 as “holotype”) if not holotype: Costa Rica: Hacum près Buenos Aires, *Tonduz*, ex hb. Levier 15674 (G-00052081 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=56194&lang=en>).

≡*Herbertus divergens* (Steph.) Herzog, *Hedwigia* 74(2): 94, 1934 (Herzog 1934).

≡*Herbertus bivittatus* Spruce var. *latilobus* Herzog, *Rev. Bryol. Lichénol.* 11(1): 24, 1939 (Herzog 1938), syn. fide Fulford (1963a). Lectotype (Fulford 1963a: 98): Costa Rica, Cartago: Near Pejivalle, *Standley & Valerio* 47021 (JE-04010828 <https://je.jacq.org/JE04010828>, isolectotype US-00072894 <http://n2t.net/ark:/65665/36cd9e300-ab36-4b54-b30f-f9e3530bd2f1>).

≡*Herbertus penicillatus* Herzog, *Rev. Bryol. Lichénol.* 11(1): 27, 1939 (Herzog 1938), syn. fide Fulford (1963a). Lectotype (Fulford 1963a: 98): Costa Rica, San José, La Palma, *Standley* 38080 (JE-04010854 <https://je.jacq.org/JE04010854>, isolectotypes B-04270, US-00072898 <http://n2t.net/ark:/65665/31e26bb06-3bb1-4a25-9f0a-80f944fd77ce>).

GUATEMALA. ?**ALTA VERAPAZ:** Tucurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Herbertus* cf. *divergens*). Note: We are not aware of any positively identified specimen from Alta Verapaz. ***BAJA VERAPAZ:** On Highway 14 to Cobán, 3 mi (4.8 km) S of Purulhá, 1,500 m, 16 Jul 1977, *Croat* 41233, det. Feldberg 2005 (MO-3678998!, **this publication**).

BELIZE. **TOLEDO:** Bladen Nature Reserve, lower slopes of Richardson Peak, 16°33–35'N, 88°46'30"W, 4 Mar 1987, *Davidse & Brant* 32162, det. Feldberg 2005 (MO-36777984!, **this publication**); Columbia River Forest Reserve, 980 m, 1997, *Allen* 19015 (GOET, Feldberg and Heinrichs 2006 as *Herbertus juniperoideus* subsp. *bivittatus*).

***HONDURAS.** ***CORTÉS:** Santa Cruz de Yojoa, N of Lago Yojoa 14°55'25"N, 87°58'39"W, 600 m, 4 Aug 1977, *Croat* 42728A, det. Dauphin Jun 2017 (MO-6697254! <https://tropicos.org/specimen/100954512>, **this publication**).

COSTA RICA. Cordillera de Talamanca (Holz and Gradstein 2005b as *Herbertus divergens*; Holz 2006 as *Herbertus divergens*); Cordillera de Talamanca, 3,325 m, Cleef et al. (USJ, Kappelle 1996 as *Herbertus divergens*); S. loc. (Stephani 1909a as *Schisma divergens*; Arnell 1956b as *Herbertus divergens*; Jovet-Ast 1959 as *Herbertus divergens*; Bonner 1966 as *Herbertus bivittatus* var. *latilobus* and *Herbertus divergens*; Fulford 1967 as *Herbertus divergens*; Fulford et al. 1970 as *Herbertus divergens*; Cole 1982, 1983, both as ‘*Herberta divergens*’; Geissler and Bischler 1990 as *Schisma divergens*; Frahm 2012b

as *Herbertus divergens*; Oliveira-e-Silva and Yano 2000 as *Herbertus divergens*). **ALAJUELA:** San Ramón cantón, Nectandra Cloud Forest (UC, Norris et al. 2017 as *Herbertus divergens*). **CARTAGO:** El Guarco cantón, La Chonta (Dauphin 2005 as *Herbertus divergens*); Jimenéz cantón, Pejibaye, 900 m, *Standley* 47024 (Herzog 1938 as ‘*Herberta bivittata*’; Dauphin 2005 as *Herbertus divergens*); Jimenéz cantón, Pejibaye, 900 m, *Standley* 47173 (Herzog 1938 as *Herbertus bivittatus* var. *latilobus* ‘*Herberta bivittata* var. *latiloba*’; Dauphin 2005 as *Herbertus divergens*); Jimenéz cantón, Pejibaye, 900 m, 1926, *Standley & Valerio* 47021 (JE, TYPE of *Herbertus bivittatus* var. *latilobus*, Herzog 1938 as ‘*Herberta bivittata* var. *latiloba*’; Fulford 1963a as *Herbertus divergens*; Morales 1991 as *Herbertus divergens*; Dauphin 2005 as *Herbertus divergens*; Feldberg and Heinrichs 2006 as *Herbertus juniperoideus* subsp. *bivittatus*); La Estrella, *Standley* 39255 (Herzog 1938 as ‘*Herberta bivittata*’; Dauphin 2005 as *Herbertus divergens*); Pococí cantón, La Georgina (Dauphin 2005 as *Herbertus divergens*); Pococí cantón, La Georgina, Griffin et al. 428, 476 (FLAS, Morales 1991 as *Herbertus divergens*). **GUANACASTE:** Liberia cantón, Guanacaste National Park, Sector Pitilla, *Hammel* 17360 (CR, Dauphin 2005 as *Herbertus divergens*). **LIMÓN:** Cerro Chirripó, *Chaverri et al.* (USJ, Morales 1991 as *Herbertus divergens*). **PUNTARENAS:** Buenos Aires, 1892, *Tonduz* 15674 (G-52081 (ex hb. Levier), TYPE of *Schisma divergens*, Fulford 1963a as *Herbertus divergens*; van Reenen 1982 as *Herbertus divergens*; Morales 1991 as *Herbertus divergens*; Dauphin 2005 as *Herbertus divergens*; Feldberg and Heinrichs 2006 as *Herbertus juniperoideus* subsp. *bivittatus*); Coto Brus cantón, Fila Pittier, *Dauphin* 1494 (CR, Dauphin 2005 as *Herbertus divergens*); Coto Brus cantón, Parque Internacional La Amistad, Valle de Silencio, *Quesada* 1184 (CR, Dauphin 2005 as *Herbertus divergens*); Monteverde, <1,500 m (Dauphin 2005 as *Herbertus divergens*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a as *Herbertus divergens*); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995 as *Herbertus divergens*); Monteverde, 1,550 m, 1993, *Gradstein* 9567 (GOET, Feldberg and Heinrichs 2006 as *Herbertus juniperoideus* subsp. *bivittatus*); S. loc. (Merwin et al. 2001 as *Herbertus divergens*). **SAN JOSÉ:** Chirripó National Park (Dauphin 2005 as *Herbertus divergens*); Chirripó National Park, Cleef et al. (USJ!, **this publication**); Cordillera de Talamanca, 2,900 m, 1999, Holz 99-0535 (GOET, Feldberg and Heinrichs 2006 as *Herbertus juniperoideus* subsp. *bivittatus*); Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002 as *Herbertus divergens*); Dota cantón, Laguna de La Chonta, *Standley* 42338 (Fulford 1963a as *Herbertus divergens*; Morales 1991 as *Herbertus divergens*); Dota cantón, Laguna de La Chonta, NE of Sta María de Dota, 2,000–2,100 m, *Standley* 42238 (Herzog 1938 as ‘*Herberta bivittata*’); Dota cantón, San Gerardo (Dauphin 2005 as *Herbertus*

divergens); Dota cantón, San Gerardo, Holz (Holz 2003 as *Herbertus divergens*); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a as *Herbertus divergens*); Moravia cantón, La Palma, 1,600 m, 1924, Standley 38080 (B-04270, JE, TYPE of *Herbertus penicillatus*, Herzog 1938 as '*Herberta penicillata*'; Fulford 1963a as *Herbertus divergens*; Bonner 1966 as *Herbertus penicillatus*; Morales 1991 as *Herbertus divergens*; Dauphin 2005 as *Herbertus divergens*; Feldberg and Heinrichs 2006 as *Herbertus juniperoideus* subsp. *bivittatus*); Pérez Zeledón cantón, upper Río Talari, Kubbier 561 (B, Dauphin 2005 as *Herbertus divergens*).

PANAMA. S. loc. (Gradstein 1993 as *Herbertus divergens*; Stotler et al. 1998 as *Herbertus divergens*). **CHIRIQUÍ:** Boquete distrito, Cerro Azul, Croat 26895 (Stotler et al. 1998 as *Herbertus divergens*); Gualaca distrito, Fortuna Forest Reserve (Salazar Allen et al. 2021); Gualaca distrito, Hornito, Fortuna, Spörle 1.42 (PMA, Spörle 1990 as *Herbertus divergens*); Gualaca distrito, Hornito, Fortuna, 1,170 m, Stotler & Crandall-Stotler 3503 (ABSH, PMA, Stotler et al. 1998 as *Herbertus divergens*); Barú Volcano National Park (Rodríguez-Quiel et al. 2022). **COCLÉ:** La Pintada distrito, El Copé, Vinda 344, 356 (PMA, Stotler et al. 1998 as *Herbertus divergens*); La Pintada distrito, N of El Copé, Croat 44693b, 44711 (MO, Stotler et al. 1998 as *Herbertus divergens*). **DARIÉN:** Cerro Pirre, 1,200–1,300 m, Salazar Allen & Gradstein 9280 (PMA, U, Stotler et al. 1998 as *Herbertus divergens*); Cerro Pirre, Salazar Allen & Gradstein 9286 (H, Stotler et al. 1998 as *Herbertus divergens*; Juslén 2006 as *Herbertus divergens*; Gradstein et al. 2018a); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, Gradstein & Salazar Allen (PMA, U, Gradstein and Salazar Allen 1992 as *Herbertus divergens*). **NGÄBE-BUGLÉ COMARCA:** Kankintú distrito, Cerro Colorado, Allen 5416 (MO, Stotler et al. 1998 as *Herbertus divergens*). **PANAMA WEST:** S. loc. (He et al. 2016 as *Herbertus divergens*). Note: We are not aware of any firsthand report from Panama West. **PANAMA:** Panamá distrito, Cerro Jefe, 900–1,000 m, Spörle (PMA, Stotler et al. 1998 as *Herbertus divergens*); Panamá distrito, Cerro Jefe, 1967, Stimson 5415 (G, MO, Stotler et al. 1998 as *Herbertus divergens*; Feldberg and Heinrichs 2006 as *Herbertus juniperoideus* subsp. *bivittatus*); Panamá distrito, Cerro Jefe, 1,200 m, 1991, Salazar Allen et al. 9286 (G, Feldberg and Heinrichs 2006 as *Herbertus juniperoideus* subsp. *bivittatus*); Panamá distrito, Cerro Jefe, forest behind INTEL tower toward north, 900–1,000 m, Salazar Allen et al. 5199 (PMA, Stotler et al. 1998 as *Herbertus divergens*). **VERAGUAS:** Santa Fe distrito, Cerro Tute, Moran 4017 (MO, Stotler et al. 1998 as *Herbertus divergens*).

COCOS I. Cerro Escondido, 5°32'57"N, 87°03'56"W, 400 m, Dauphin 1146, det. G. Dauphin Feb 2021 (USJ-471981, CR-4468302!, W-0207441! <https://w.jacq.org/W0207441>, this publication); Cerro Escondido, 5°32'57"N, 87°03'56"W, 400 m, 15 Feb 1994, Dauphin 1146 (USJ, Dauphin 1995, 1999, 2005, all as *Herbertus divergens*).

Also reported from Mexico(?), the Caribbean, Northern South America, Western South America, Brazil.

Herbertus durandii (Steph.) Herzog, *Rev. Bryol. Lichénol.* 11(1/2): 25, 1938 (Herzog 1938).

≡ *Schisma durandii* Steph., *Trans. Linn. Soc. London, Bot.* 6(1): 99, 1901 (Stephani 1901e). Type: Guyana.

COSTA RICA. S. loc. (Stephani 1901e as *Schisma durandii*, 1909a as *Schisma durandii*; Bonner 1966). **HEREDIA:** Barva cantón, Volcán Barva, 3,000 m, Valerio 1 (hb. Herzog, Herzog 1938).

Also reported from Northern South America.

Herbertus juniperoideus (Sw.) Grolle, *Rev. Bryol. Lichénol.* 30(1/2): 80, 1961 (Grolle 1961).

≡ *Jungermannia juniperoidea* Sw., *Prodr. (Swartz)*: 144, 1788 (Swartz 1788). Type: Jamaica.

≡ *Herberta juniperina* (Sw.) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 397, 1877 (Trevisan 1877), nom. illeg. (ICN2018 Art. 61.1; orthographic variant).

GUATEMALA. ALTA VERAPAZ: Panzós municipio, Cahabón and/or Senahú, 2012, Pérez & López-Medina, det. M. Pérez (Pérez and López-Medina 2012).

BELIZE. TOLEDO: Bladen Nature Reserve, lower slopes of Richardson Peak, 16°33'–35°N, 88°46'30"W, 4 Mar 1987, Davidse & Brant 32162, det. Feldberg 2005 (MO-36777984!, Whittemore and Allen 1996); S. loc., Dec 1993, Allen 15379 (BRH, MO, Whittemore and Allen 1996); S. loc., Dec 1993, Allen 15397 (BRH, MO, Whittemore and Allen 1996).

HONDURAS. LEMPIRA: Gracias municipio, Montaña de Celaque, Filo Seco, 14°32'N, 88°41'W, 2,700–2,730 m, 14 May 1992, Allen 12097 (H, MO, Juslén 2006).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); Cordillera de Talamanca, Kappelle 1731 (U, Kappelle 1996); S. loc. (Fulford 1963a; Miller et al. 1983; Gradstein 1999a; Gradstein and Holz 2005; Dauphin 2005). **ALAJUELA:** Alajuela cantón, Carrizal, 2,800 m, Jan 1889, Pittier (G-009954, Schuster 1994). **HEREDIA:** Barva cantón, between Barva and Carrizal, Pittier 6013 (Stephani 1893c as '*Herberta juniperina*'; Morales 1991; Dauphin 2005); Barva cantón, Braulio Carrillo National Park, Sector Volcán Barva, Morales 1493 p.p. (USJ, Morales 1991); Barva cantón, Volcán Barva, Griffin et al. 253 (Dauphin 2005); Barva cantón, Volcán Barva, Griffin et al. D253 (USJ, FLAS, Morales 1991); Barva cantón, Volcán Barva, Morales 1593, 1623, 1637 (USJ, Morales 1991); Barva cantón, Volcán Barva, 2,650–2,900 m, 1994, Gradstein et al. 9659 (GOET, Feldberg and Heinrichs 2006). **PUNTARENAS:** Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde cantón, Monteverde Cloud Forest Preserve, 1,500–1,550 m, 1992, Ingram et al. 1380 (GOET, Feldberg and Heinrichs 2006 as *Herbertus juniperoideus* subsp. *juniperoideus*); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, Gradstein et al. (U, Sillett et al. 1995); S. loc. (Merwin et al. 2001).

PANAMA. S. loc. (Gradstein 1999a). **CHIRIQUÍ**: Between Concepción and Volcán, *D'Arcy* (MO, Stotler et al. 1998); Boquete distrito, Cerro Azul, *Croat* 26823 (MO, Stotler et al. 1998); Gualaca distrito, Fortuna Forest Reserve, Cerro Pata de Macho, 1,700–1,800 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, NE of camping site, 900–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Alemán, 1,200–1,400 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Mono, 1,100–1,300 m (Salazar Allen et al. 2021); Tierras Altas distrito, Cerro Punta, *D'Arcy et al.* 13306E (MO, Stotler et al. 1998); Barú Volcano National Park (Rodríguez-Quiel et al. 2022). **COCLÉ**: La Pintada distrito, 4 mi (6.4 km) N of Llano Grande, *Antonio* 3567 (MO, Stotler et al. 1998); La Pintada distrito, El Potroso, *Croat* 44712a (MO, Stotler et al. 1998); La Pintada distrito, El Potroso, *Sytsma* 1798 (Stotler et al. 1998); La Pintada distrito, N of El Copé, *Antonio* 3266 (MO, Stotler et al. 1998); La Pintada distrito, N of El Copé, *Croat* 44690b (MO, Stotler et al. 1998); La Pintada distrito, N of El Copé, *Knapp & Dressler* 3411 (MO, PMA, Stotler et al. 1998). **DARIÉN**: Cerro Pirre, *Folsom* 6391 (MO, Stotler et al. 1998); Chepigana distrito, Cerro Sapo, *Hammel* 1246 (MO, Stotler et al. 1998); Pinogana distrito, Cerro Tacarcuna, *Hammel et al.* 16563 (MO, Stotler et al. 1998); Pinogana distrito, S of El Real, *McPherson* 11623C (MO, Stotler et al. 1998); Summit of Pirre Massif, 1,200–1,350 m, *Allen* 8850, 8874, 8881 (MO, Stotler et al. 1998). **NASO TJIËR DI COMARCA**: Parque Internacional La Amistad, Cerro Fábrega, 3,150–3,353 m, *Dauphin* 1553 (GOET, CR, PMA, U, Stotler et al. 1998; Dauphin 2007; Feldberg et al. 2007). **NGÄBE-BUGLÉ COMARCA**: Nole Duima distrito, Cerro Colorado Copper Mine, *Croat* 33231A (MO, Stotler et al. 1998). **PANAMA**: Panamá distrito, Cerro Jefe, *Croat* 13102B, 13103, 35930 (MO, Stotler et al. 1998); Panamá distrito, Cerro Jefe, *D'Arcy* 11380A (MO, Stotler et al. 1998); Panamá distrito, Cerro Jefe, *Gentry* 6169 (Stotler et al. 1998); Panamá distrito, Cerro Jefe, *Lewis & Dressler* 7588 (Stotler et al. 1998); Panamá distrito, Cerro Jefe, *Nee & Mori* 14212 (Stotler et al. 1998); Panamá distrito, Cerro Jefe, *Sytsma* 1991 (Stotler et al. 1998). **VERAGUAS**: Santa Fe distrito, Escuela Agrícola Alto Piedra, *Croat & Folsom* 33933, 33936 (MO, Stotler et al. 1998).

Also reported from West-Central Tropical Africa, East Tropical Africa, Western Indian Ocean, Indian Subcontinent(?), Indo-China(?), Malesia(?), Southwestern Pacific(?), Northeastern Pacific(?), Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Herbertus pensilis (Taylor) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 397, 1877 (Trevisan 1877).

≡ *Sendtnera pensilis* Taylor, *London J. Bot.* 5: 372, 1846 (Taylor 1846a). Type: Ecuador.

≡ *Herbertus juniperoideus* subsp. *pensilis* (Taylor) K.Feldberg et Heinrichs, *Bot. J. Linn. Soc.* 151: 329, 2006 (Feldberg and Heinrichs 2006).

≡ *Schisma angustifolium* Steph., *Sp. Hepat. (Stephani)* 4: 17, 1909 (Stephani 1909a), syn. fide Fulford (1963a). Type: Puerto Rico.

≡ *Herbertus angustifolius* (Steph.) Herzog, *Rev. Bryol. Lichénol.* 11(1/2): 24, 1939 (Herzog 1938).

≡ *Herbertus costaricensis* Steph., *Bull. Soc. Roy. Bot. Belgique* 31: 178, 1893 (Stephani 1893c), syn. fide Feldberg and Heinrichs (2006). Lectotype (Fulford 1963a: 96): Costa Rica, forêts du Barba, *Pittier* 6048 (G-00042653 <https://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=56286&lang=en, isolectotype PC>).

≡ *Schisma costaricensis* (Steph.) Steph., *Sp. Hepat. (Stephani)* 4: 16, 1909 (Stephani 1909a).

≡ *Herbertus costaricensis* f. *brevifolius* Herzog, *Rev. Bryol. Lichénol.* 11(1): 24, 1939 (Herzog 1938), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Costa Rica, Cerros de Zurquí, northeast of San Isidro, Provincia de Heredia, altitude 2,000–2,400 m, *Standley & Valerio* 50647 (US-04667618 <http://n2t.net/ark:/65665/30fd8e29b-c44b-4a60-9875-95b792d5df99>).

≡ *Herbertus angustifolius* f. *minor* Herzog, *Rev. Bryol. Lichénol.* 11(1): 24, 1939 (Herzog 1938), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Morales (1991). Original material: Costa Rica, Heredia, Cerros de Zurquí, 2,000–2,400 m, *Standley & Valerio* 50292 (JE-04010823 <https://je.jacq.org/JE04010823>).

GUATEMALA. ALTA VERAPAZ: Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). **BAJA VERAPAZ**: Purhulhá municipio, 4 mi NE of Purulhá, 17 Jul 1977, *Croat* 41312B, det. Feldberg 2005 (MO-3955383, Pérez 2009 as *Herbertus juniperoideus* subsp. *pensilis*); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 62, 88, 210, 244, 453, 473 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

***NICARAGUA. ATLÁNTICO NORTE**: Siuna municipio, Cerro La Pimienta, 13°44'40"N, 84°59'55"W, 14 Apr 1979, *Grijalva* 348, det. Allen 2016 (MO-6692295! <https://tropicos.org/specimen/100896353>, this publication as *Herbertus juniperoideus* subsp. *pensilis*); Siuna municipio, Cerro La Pimienta, 13°44'40"N, 84°59'55"W, 17 Apr 1979, *Pipoly* 5278, det. Feldberg 2005 (MO-5223961! <http://tropicos.org/specimen/190243563>, this publication).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); Cordillera de Talamanca, *Kappelle & Abarca* 637 (CR, Kappelle 1996); S. loc. (Stephani 1909a as *Schisma costaricensis*; Bonner 1966 as *Herbertus costaricensis* and *Herbertus angustifolius*; Pócs et al. 1967; Fulford et al. 1970; van Reenen 1982; Cole 1982, 1983, both as '*Herberta pensilis*' and '*Herberta costaricensis*'; Fulford 1987; Fulford and Sharp 1990; Geissler and Bischler 1990 as *Schisma costaricensis*; Lavocat Bernard et al. 2009 as *Herbertus juniperoideus* subsp. *pensilis*; Schäfer-Verwimp and Reiner-Drehwald 2009 as *Herbertus juniperoideus* subsp. *pensilis*); S. loc., Brenes 16207 (Fulford 1963a; Dauphin 2005). **ALAJUELA**: Poás Volcano, *Griffin & Eakin* (FLAS, Morales 1991; Dauphin 2005); Poás Volcano, Morales 483 (USJ, Morales 1991; Dauphin 2005); San Ramón cantón, Nectandra Cloud Forest, 5 Jul 2007, *Norris* 109973

(UC, Norris et al. 2017). **CARTAGO:** La Unión cantón, Cerro de La Carpintera, 1,500–1,800 m, *Standley 53719* (Herzog 1938 as *Herbertus costaricensis*; Morales 1991; Dauphin 2005); Paraíso cantón, Tapanti National Park, *Griffin & Morales 177, 188, 241* (USJ, FLAS, Morales 1991). **GUANACASTE:** Liberia cantón, Guanacaste National Park, Sector Pitilla, *Traña 55* (CR, Dauphin 2005); Liberia cantón, Guanacaste National Park, Sector Volcán Cacao, 10°55'43"N, 85°28'10"W, *Dauphin 1841* (CR, Dauphin 2005); Tenorio Volcano, 1,600–1,900 m, *Morales 1852* (GOET, Feldberg and Heinrichs 2006 as *Herbertus juniperoideus* subsp. *pensilis*). **HEREDIA:** Barva cantón, Volcán Barva, 1,950 m (Dauphin 2005); Barva cantón, Volcán Barva, 1890, *Pittier 6048* (G, Stephani 1893c as *Herbertus costaricensis*; Fulford 1963a; Morales 1991; Feldberg and Heinrichs 2006 as *Herbertus juniperoideus* subsp. *pensilis*); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley & Valerio 50292, 50506, 50520, 50647* (Fulford 1963a; Morales 1991; Dauphin 2005); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley 50292* (Herzog 1938 as *Herbertus angustifolius* f. *minor*); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley 50506* (Herzog 1938 as *Herbertus costaricensis*; Morales 1991); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley 50520* (Herzog 1938 as *Herbertus angustifolius*); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley 50642* (B-04269, Dauphin 2005); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley 50647* (Herzog 1938 as *Herbertus costaricensis* f. *brevifolius*; Morales 1991). **PUNTARENAS:** Coto Brus cantón, Cerro Paraguas, *Dauphin 1776* (CR, Dauphin 2005); Coto Brus cantón, Parque Internacional La Amistad, Sector Pittier, La Escuadra, *Dauphin 1517* (CR, Dauphin 2005); Monteverde, <1,500 m (Morales 1991; Dauphin 2005); Monteverde cantón, Checo Trail near Adono clearing, 3 Aug 1968, *James, W.* (US, R, Reed and Robinson 1971); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995); Monteverde, Feb 1969, *James, W.* 1969-14 (US, Reed and Robinson 1971); Monteverde, 1,830 m, 1992, *Lyon 399* (GOET, Feldberg and Heinrichs 2006 as *Herbertus juniperoideus* subsp. *pensilis*); Monteverde, 1,550 m, 1993, *Gradstein 9607* (GOET, Feldberg and Heinrichs 2006 as *Herbertus juniperoideus* subsp. *pensilis*); S. loc. (Merwin et al. 2001). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, San Gerardo (Dauphin 2005); Moravia cantón, Camino a La Hondura, *Griffin et al.* 372 (FLAS, Morales 1991; Dauphin 2005); Moravia cantón, La Palma, ~1,600 m, *Standley 38036* (Herzog 1938 as *Herbertus costaricensis*; Morales 1991; Dauphin 2005); Vásquez de Coronado cantón, Las Nubes, 1,500–1,900 m, *Standley 38482* (Herzog 1938 as *Herbertus costaricensis*; Morales 1991; Dauphin 2005).

PANAMA. CHIRIQUÍ: Boquete distrito, summit of Volcán Barú, 8°48'30"N, 82°32'30"W, 27 Nov 1975, *D'Arcy 10182A*, det. Dauphin Jun 2017 (MO-6692250!, this publication); Gualaca distrito, Fortuna Dam, *McPherson 13595H* (MO, Stotler et al. 1998); Gualaca distrito, Fortuna Forest Reserve, Cerro Pata de Macho, 1,700–1,800 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, NE of camping site, 900–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Alemán, 1,200–1,400 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Mono, 1,100–1,300 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna, *Spörle 1.26* (PMA, Spörle 1990; Stotler et al. 1998); Gualaca distrito, Hornito, Fortuna, 1,000–1,200 m, *Salazar Allen 698* (PMA, Stotler et al. 1998); Renacimiento distrito, Cerro Pando, *Mori & Bolten 7314* (MO, Stotler et al. 1998); Tierras Altas distrito, Cerro Punta, *McPherson 9375* (MO, Stotler et al. 1998). **COCLÉ:** Antón distrito, N of El Valle, *Knapp & Dressler 4921* (MO, Stotler et al. 1998); Penonomé distrito, Cerro Pillon, 1973, *Croat 22940* (GOET, Feldberg and Heinrichs 2006 as *Herbertus juniperoideus* subsp. *pensilis*). **NGÄBE-BUGLÉ COMARCA:** Nole Duima distrito, Cerro Colorado Copper Mine, *Croat 33231B* (MO, Stotler et al. 1998); Nole Duima distrito, Cerro Colorado Copper Mine, *Croat 33232* (MO, Stotler et al. 1998). **PANAMA:** Panamá distrito, Cerro Jefe, *Knapp 3510* (MO, Stotler et al. 1998); Panamá distrito, Cerro Jefe, forest behind INTEL tower toward north, 900–1,000 m, *Salazar Allen et al.* 5206 (PMA, Stotler et al. 1998).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Herbertus sendtneri (Nees) Lindb., *Hepat. Scand. Exsicc.*: no. 4, 1874 (Lindberg aström 1874).

≡ *Schisma sendtneri* Nees, *Naturgesch. Eur. Leberm.* 3: 575, 1838 (Nees 1838b). Type: Austria.

≡ *Schisma grossispinum* Steph., *Sp. Hepat. (Stephani)* 4: 10, 1909 (Stephani 1909a), syn. fide Feldberg and Heinrichs (2005a). Type: Guyana.

≡ *Herbertus grossispinus* (Steph.) Fulford, *Mem. New York Bot. Gard.* 11(1): 98, 1963 (Fulford 1963a).

≡ *Herbertus durandii* (Steph.) Herzog var. *dissectus* Herzog, *Rev. Bryol. Lichénol.* 11(1/2): 25, 1939 (Herzog 1938), nom. inval. (ICN2018 Art. 39.1; no Latin description), syn. fide Feldberg and Heinrichs (2005a). Original material (Fulford 1963a: 104 as “lectotype”): Costa Rica, Heredia: Cerros de Zurquí, 2,000–2,400 m, *Standley & Valerio 50338* (JE-04010809 <https://je.jacq.org/JE04010809>, also in US-04667650 <http://n2t.net/ark:/65665/3ed9e4d50-7465-4b82-8d46-2c605294398c>).

≡ *Herbertus subdentatus* auct. (cf. Feldberg and Heinrichs 2006).

COSTA RICA. Cordillera de Talamanca (Holz 2003 as *Herbertus subdentatus*; Holz and Gradstein 2005b as *Herbertus subdentatus*); Cordillera de Talamanca, *Kappelle 4669* (U, Kappelle 1996 as *Herbertus subdentatus*); S. loc. (Fulford 1967 as *Herbertus subdentatus*; Cole 1982, 1983, both as ‘*Herberta subdentatus*’ and ‘*Herberta grossispina*’; Fulford and Sharp 1990 as *Herbertus subdentatus*; Gradstein 1999a as *Herbertus*

subdentatus; Dauphin 2005 as *Herbertus subdentatus*; Gradstein and Holz 2005 as *Herbertus subdentatus*; Schäfer-Verwimp and Pócs 2009; Váňa and Engel 2013); S. loc., Holz & Schäfer-Verwimp CR 00-077 (GOET, Feldberg et al. 2004; Feldberg and Heinrichs 2005b, 2006; Heinrichs et al. 2010; Gradstein et al. 2018a). ALAJUELA: San Ramón cantón, 10°08'N, 84°29'W, 10 Sep 1979, Stevens 14067, det. Whittemore (CR, Dauphin 2005 as *Herbertus grossispinus*). CARTAGO: El Guarco cantón, Cerro de La Muerte, 3 de Junio, 2,650–2,800 m, Gradstein & Mues 9711 (GOET, Feldberg et al. 2004; Feldberg and Heinrichs 2005b, 2006; Gradstein et al. 2018a); Pococí cantón, La Georgina, Griffin et al. 557 (FLAS, Morales 1991 as *Herbertus subdentatus*; Dauphin 2005 as *Herbertus subdentatus*). HEREDIA: Barva cantón, Volcán Barva, 3,000 m, Valerio 1, 5 (hb. Herzog, Fulford 1963a as *Herbertus subdentatus*; Morales 1991 as *Herbertus subdentatus*; Dauphin 2005 as *Herbertus subdentatus*); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, Standley 50338 (Herzog 1938 as '*Herberta durandii* var. *dissecta*'); San Isidro cantón, Cerro Zurquí, NE of San Isidro, 2,000–2,400 m, 3 Mar 1926, Standley & Valerio 50338 (JE, US, Fulford 1963a as *Herbertus subdentatus*; Bonner 1966 as *Herbertus durandii* var. *dissectus*; Morales 1991 as *Herbertus subdentatus*; Dauphin 2005 as *Herbertus subdentatus*; Feldberg and Heinrichs 2005a). LIMÓN: Talamanca cantón, Cerro Kámuk, Morales 1695 (Morales 1991 as *Herbertus subdentatus*; Dauphin 2005 as *Herbertus subdentatus*). SAN JOSÉ: Chirripó, Morales 1848 (Morales 1991 as *Herbertus subdentatus*; Dauphin 2005 as *Herbertus subdentatus*); Dota cantón, "Los Robles" (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002 as *Herbertus subdentatus*); Dota cantón, San Gerardo (Dauphin 2005 as *Herbertus subdentatus*); Dota cantón, San Gerardo, 2,450 m, 11 Dec 1999, Holz CR 99/910 (He and Sun 2017); Pérez Zeledón cantón, Cerro Cuericú, Dauphin et al. 3584 (CR!, this publication); Pérez Zeledón cantón, Cerro de La Muerte, Páramo Buena Vista, 3,300 m, 30 Sep 1999, Heinrichs et al. 4337 (GOET, Feldberg et al. 2004; Feldberg and Heinrichs 2006; He and Sun 2017); Pérez Zeledón cantón, Páramo Buena Vista, Dauphin 2635 (CR, Dauphin 2005 as *Herbertus subdentatus*); Pérez Zeledón cantón, Páramo Buenavista, 9°33'20"N, 83°45'30"W, Schäfer-Verwimp & Holz SV/H-0142, det. Dauphin (CR, Dauphin 2005 as *Herbertus grossispinus*); Pérez Zeledón cantón, Valle de Los Conejos, Kubber 602, det. Grolle (B, Dauphin 2005 as *Herbertus subdentatus*).

PANAMA. S. loc. (Gradstein 1999a as *Herbertus subdentatus*; Váňa and Engel 2013). CHIRIQUÍ: Boquete distrito, Alto Respinga, above Cerro Punta, 8°51'N, 82°32'W, 27 Nov 1975, D'Arcy 10100E, det. Dauphin Jun 2017 (MO-6691272!, this publication); Volcán Barú, Mori & Bolten 7349, 7448 (MO, Stotler et al. 1998 as *Herbertus subdentatus*); Barú Volcano National Park (Rodríguez-Quiel et al. 2022). COCLÉ: La Pintada distrito, El Copé, McPherson 7694G (MO, Stotler et al. 1998 as *Herbertus grossispinus*). NASO TJEËR DI COMARCA: Parque Internacional La Amistad, Cerro Fábrega, 3,150–3,353 m, Dauphin 1576 p.p. (GOET, CR, PMA, U, Stotler et al. 1998 as *Herbertus*

subdentatus; Dauphin 2007 as *Herbertus subdentatus*); Parque Internacional La Amistad, Cerro Fábrega, 3,200 m, 1995, Dauphin et al. 1576 (GOET, Feldberg and Heinrichs 2005b, 2006; Heinrichs et al. 2010; Gradstein et al. 2018a).

Also reported from Middle Europe, Macaronesia, East Tropical Africa, Middle Atlantic Ocean, China, Indian Subcontinent, Indo-China, Malesia, Papuasias, Subarctic America, Western Canada, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Subantarctic Islands.

***Heteroscyphus* Schiffn., Österr. Bot. Z. 60(5): 171, 1910 (Schiffner 1910).**

Heteroscyphus combinatus (Nees) Schiffn., Österr. Bot. Z. 60(5): 172, 1910 (Schiffner 1910).

≡ *Jungermannia combinata* Nees, Enum. Pl. Crypt. Javae: 22, 1830 (Nees 1830). Type: Brazil.

≡ *Chiloscyphus combinatus* (Nees) Nees, Syn. Hepat.: 182, 1845 (Gottsche et al. 1845b).

GUATEMALA. S. loc. (Fulford and Sharp 1990). ALTA VERAPAZ: Cobán, Türckheim 5984 (G, JE, Fulford 1976; Freire 2006); Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, Pérez 214 (USCG, Pérez 2009); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). HUEHUETENANGO: Barillas municipio, San José Maxbal, Laguna Maxbal, 15°56'23"N, 91°18'19"W, Pérez 1397 (USCG, Pérez 2009). QUETZALTENANGO: S. loc., Standley 83745A (F, Fulford 1976; Freire 2006; Pérez 2009); S. loc., Standley 83748 p.p. (F, Fulford 1976; Freire 2006). ZACAPA: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007).

HONDURAS. S. loc. (Fulford and Sharp 1990). COMAYAGUA: Siguatopeque municipio, El Achote, Yuncker 6407 (DPU, Fulford 1976).

COSTA RICA. PUNTARENAS: Monteverde, 3 Aug 1968, James s.n. (R, US, Reed and Robinson 1971; Morales 1991); Monteverde cantón, Lee's Tract, 10 Nov 1970, James 1970-67, det. Dauphin Jun 2017 (MO-6163053!, this publication).

PANAMA. S. loc. (Mitten 1854b as *Chiloscyphus combinatus*; Schiffner 1898a as *Chiloscyphus combinatus*; Fulford and Sharp 1990; Stotler et al. 1998). PANAMA: Panamá distrito, Taboga, Seemann (NY, Fulford 1976; Stotler et al. 1998).

Also reported from Australia, New Zealand, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Heteroscyphus elliottii (Steph.) Pagán, Bryologist 42(1): 7, 1939 (Pagán 1939a) var. *elliottii*.

≡ *Chiloscyphus elliottii* Steph., Bull. Herb. Boissier, sér. 2, 8(1): 55(231), 1908 (Stephani 1908c). Type: Dominica.

GUATEMALA. S. loc. (Fulford 1987; Fulford and Sharp 1990; Yano and Peralta 2008; Lavocat Bernard et al. 2009; Schäfer-Verwimp and Reiner-Drehwald 2009). CHIQUMULA: Monte Virgen, Steyermark 42670 p.p. (F, Fulford 1976; Freire

2006); S. loc., *Steyermark* 31015 p.p., 32485 (F, Fulford 1976; Freire 2006; Pérez 2009). EL PROGRESO: Summit of Volcán Luisa, *Steyermark* 43118 (F, Fulford 1976; Freire 2006; Pérez 2009).

Also reported from Mexico, the Caribbean, Northern South America.

Heteroscyphus marginatus (Steph.) Fulford, *Mem. New York Bot. Gard.* 11(4): 491, 1976 (Fulford 1976).

≡ *Lophocolea marginata* Steph., *Sp. Hepat. (Stephani)* 6: 282, 1922 (Stephani 1922). Type: Ecuador.

= *Lophocolea effusidens* auct. (Costa Rican synlectotype, cf. Fulford 1976).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); Cordillera de Talamanca, *Levier* 15676 (NY, Kappelle 1996); S. loc. (Schäfer-Verwimp 2014; Gradstein 2021); S. loc., *Tonduz (Stephani 1907a as Lophocolea effusidens)*. PUNTARENAS: Coto Brus cantón, Parque Internacional La Amistad, Pittier, *Dauphin* 1495 (CR, Dauphin 2005). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, Alto de Dota, *Tonduz* 15676 (G, NY, JE, SYNTYPE of *Lophocolea effusidens*, *Stephani* 1907a as *Lophocolea effusidens*; Fulford 1976; Morales 1991; Dauphin 2005); Dota cantón, San Gerardo (Dauphin 2005).

PANAMA. S. loc. (Gradstein 2021). **CHIRIQUÍ:** Boquete distrito, Palo Alto, 1,300–1,400 m, *Salazar Allen et al.* 751 p.p. (PMA, Stotler et al. 1998); Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,450–1,660 m, *Schäfer-Verwimp & Verwimp* 34384/C, 34428 (JE, Schäfer-Verwimp 2014).

Also reported from Northern South America, Western South America, Brazil.

*****Heteroscyphus miradorensis*** (Steph.) Schiffn., *Österr. Bot. Z.* 60(5): 172, 1910 (Schiffner 1910).

≡ *Chiloscyphus miradorensis* Steph., *Bull. Herb. Boissier*, sér. 2, 8(1): 56 (= *Sp. Hepat. [Stephani]*: 3, 232), 1908 (Stephani 1908c). Type: Mexico.

***HONDURAS.** ***CORTÉS:** San Pedro Sula municipio, Cusuco National Park, along Rio Cusuco, ~22 km W of San Pedro Sula, 15°31'N, 88°14'W, 18 Mar 1993, *Allen* 14134, det. Dauphin Jun 2017 (MO-5227620! <http://tropicos.org/specimen/90096777>, this publication).

***COSTA RICA.** ***CARTAGO:** Paraíso cantón, Orosi, Tapaní National Park, 7 Dec 1982, *Gómez-Pignataro* 19347, det. Dauphin Jun 2017 (MO-6230333! <http://tropicos.org/specimen/100366544>, this publication). ***PUNTARENAS:** Monteverde cantón, Checo Trail, 3 Aug 1968, *James*, det. Dauphin Jun 2017 (MO-6163055!, this publication); Monteverde cantón, Lee's Tract, 10 Nov 1970, *James* 1970-70, det. Dauphin Jun 2017 (MO-6163054!, this publication).

Also reported from Mexico, the Caribbean, Northern South America, Brazil(?).

Heteroscyphus polyblepharis (Spruce) Schiffn., *Österr. Bot. Z.* 60(5): 172, 1910 (Schiffner 1910).

≡ *Chiloscyphus polyblepharis* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 442, 1885 (Spruce 1885). Type: Ecuador.

GUATEMALA. S. loc. (van Zanten and Gradstein 1988; Holz et al. 2001; Gradstein 2021). **HUEHUETENANGO:** Cerro Heutz, *Steyermark* 48574 p.p. (F, Fulford 1976; Freire 2006; Pérez 2009).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo, “Los Robles” trail, 2,260 m, 4 Jan 2000, *Holz* CR 00-236, *Schäfer-Verwimp & Holz* SV/H-0495 (CR, GOET, hb. Schäfer-Verwimp, Holz et al. 2001; Dauphin 2005).

Also reported from Northern South America, Western South America, Brazil.

***Isotachis* Mitt., Bot. Antarct. voy. II (Fl. Nov.-Zel. 2): 148, 1854 (Mitten 1854a).**

Isotachis erythrorhiza (Lehm. et Lindenb.) Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 338, 1885 (Spruce 1885).

≡ *Jungermannia erythrorhiza* Lehm. et Lindenb., *Nov. Stirp. Pug.* 4: 44, 1832 (Lehmann 1832). Type: St. Vincent.

COSTA RICA. **CARTAGO:** Turrialba cantón, Angostura, Polakowsky (Polakowsky 1879 as *Jungermannia erythrorhiza*); Turrialba cantón, Angostura, Nov 1875, *Polakowsky* 468 (BM, Polakowsky 1877 as *Jungermannia erythrorhiza*).

Also reported from the Caribbean, Brazil.

Isotachis lopezii (R.M.Schust.) Gradst., *Mem. New York Bot. Gard.* 84: 66, 1999 (Gradstein 1999a).

≡ *Ruizanthus lopezii* R.M.Schust., *Phytologia* 39(4): 241, 1978 (Schuster 1978a). Type: Venezuela.

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (León et al. 1998; Gradstein 1999a; Gradstein and Holz 2005; Benitez et al. 2013; Gradstein 2021; Gradstein and Pócs 2021). **SAN JOSÉ:** Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,200 m, *Gradstein* 9726, 9729, 9747, 9750, 9751 (USJ, Gradstein et al. 1994 as *Ruizanthus lopezii*; Dauphin 2005).

Also reported from the Caribbean, Northern South America, Western South America.

Isotachis multiceps (Lindenb. et Gottsche) Gottsche, *Mexik. Leverm.*: 105, 1863 (Gottsche 1863).

≡ *Jungermannia multiceps* Lindenb. et Gottsche, *Syn. Hepat.* 5: 687, 1847 (Gottsche et al. 1847). Type: Mexico.

≡ *Hypoisotachis multiceps* (Lindenb. et Gottsche) R.M.Schust. ex J.J.Engel et G.L.Merr., *Fieldiana, Bot.*, n.s., 37: 46, 1997 (Engel and Smith Merrill 1997).

= *Isotachis parva* Steph., *Arch. Mus. Nac. Rio de Janeiro* 13: 113, 1903 (Dusén 1905), syn. fide Fulford (1963a). Type: Brazil.

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Cole 1982, 1983; Fulford and Sharp 1990; Engel and Smith Merrill 1997 as *Hypoisotachis*

multiceps; Gradstein 1999a; Gradstein and Holz 2005; Schäfer-Verwimp and Pócs 2009; Schuster 2021). **ALAJUELA**: Poás Volcano, *Griffin & Araya* 83 (USJ, FLAS, Morales 1991; Dauphin 2005); Poás Volcano, Aug 1977, *Griffin et al.* 146 (FLAS-020491, Morales and Griffin 1983; Morales 1991; Dauphin 2005). **HEREDIA**: San Isidro cantón, Cerro Zurquí, *Standley & Valerio* 50316 (hb. Herzog, B-04778, Hatcher 1960; Fulford 1963a; Morales 1991; Dauphin 2005); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley* 50316 (B-04778, Herzog 1938 as *Isotachis parva*); San Rafael cantón, road between San Rafael and Rio Las Vueltas, 10°05'N, 84°04'W, 4 Sep 1979, *Stevens* 13948, det. Dauphin Jun 2017 (MO-6238934!, [this publication](#)); Sarapiquí cantón, Rara Avis, *Dauphin* 2199 (CR, Dauphin 2005). **LIMÓN**: Pococí cantón, Braulio Carrillo National Park, Quebrada González, 450 m, 19 Apr 2001, *Dauphin* 2956 (NY, Campos and Uribe 2012). **PUNTARENAS**: Coto Brus cantón, Parque Internacional La Amistad, Pittier, 2,300 m, 7 Feb 1995, *Dauphin* 1491 (USJ, NY, Dauphin 2005; Campos and Uribe 2012). **SAN JOSÉ**: Cerro Zurquí (Dauphin 2005); Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,000 m, *Gradstein* 9747 (U, USJ, Gradstein et al. 1994); Turrialba cantón, Angostura, Nov 1875, *Polakowsky* 468 (BM, Hatcher 1960; Fulford 1963a; Morales 1991; Dauphin 2005).

PANAMA. CHIRIQUÍ: Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,900 m, 6 Apr 2006, *Schäfer-Verwimp & Verwimp* 31001 (JE, Schäfer-Verwimp 2014); Gualaca distrito, Fortuna Forest Reserve, NE of camping site, 900–1,200 m (*Salazar Allen et al.* 2021); Gualaca distrito, Hornito, Fortuna, 1,000–1,200 m, *Salazar Allen* 698 (PMA, Stotler et al. 1998); Tierras Altas distrito, Parque Internacional La Amistad, trail to Cerro Punta, 2,462 m, *Stotler & Crandall-Stotler* 3478 (ABSH, Stotler et al. 1998; Forrest and Crandall-Stotler 2004, 2005; Crandall-Stotler et al. 2005; Forrest et al. 2006; Hentschel et al. 2006a, 2007c; Masuzaki et al. 2010; Cailliau et al. 2013). **NASO TJËR DI COMARCA**: Cerro Fábrega, *De Gracia* 258 (Dauphin 2007).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Isotachis serrulata (Sw.) Gottsche, *Ann. Sci. Nat. Bot.*, sér. 5, 1: 121, 1864 (Gottsche 1864).

≡ *Jungermannia serrulata* Sw., *Prodr. (Swartz)*: 143, 1788 (Swartz 1788).

Type: Jamaica.

≡ *Jungermannia haematodes* Lehm. et Lindenb., *Nov. Stirp. Pug.* 4: 42, 1832 (Lehmann 1832), syn. fide Gradstein et al. (2003). Type: Guadeloupe.

≡ *Isotachis haematodes* (Lehm. et Lindenb.) Gottsche, *Ann. Sci. Nat., Bot.*, ser. 5, 1: 122, 1864 (Gottsche 1864).

≡ *Isotachis lindigiana* Gottsche, *Ann. Sci. Nat., Bot.*, ser. 5, 1: 123, 1864 (Gottsche 1864), syn. fide Campos and Uribe (2012).

≡ *Isotachis madida* auct. non typus. Note: syn. to *Isotachis humectata* and restricted to temperate South America.

GUATEMALA. S. loc. (Fulford 1987; Fulford and Sharp 1990; Rico and Pócs 2004; Schuster 2021). **ALTA VERAPAZ**: Cobán, 1,350 m, *Türckheim* (NY, BM, Hatcher 1960; Fulford

1963a; Pérez 2009); S. loc., 5 Apr 1892, *Türckheim* (NY, BM, W, Freire 2006).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Cole 1982, 1983). **ALAJUELA**: Poás Volcano, Aug 1973, *Griffin et al.* 20063, det. Campos 2009 (MO-5142594!, [this publication](#)); Poás Volcano, Jul 1977, *Griffin & Araya* 1, 30, 68, 69, 82 (USJ, FLAS, Morales and Griffin 1983; Morales 1991; Dauphin 2005); Poás Volcano, Aug 1977, *Griffin et al.* 91 (FLAS-020063, USJ, Morales and Griffin 1983 as *Isotachis lindigiana*; Morales 1991 as *Isotachis lindigiana*; Dauphin 2005 as *Isotachis lindigiana*); Poás Volcano, Aug 1977, *Griffin et al.* 97 (FLAS-019970, USJ, Morales and Griffin 1983 as *Isotachis haematodes*; Morales 1991 as *Isotachis haematodes*); Poás Volcano, *Griffin & Araya* 67 (USJ, FLAS, Morales 1991 as *Isotachis madida*); Poás Volcano, 31 Jul 1977, *Griffin & Araya* 69 (USJ, FLAS, Morales and Griffin 1983 as *Isotachis madida*; Morales 1991 as *Isotachis madida*). **CARTAGO**: Paraíso cantón, Tapanti National Park, *Griffin & Eakin* 287 (FLAS, Morales 1991; Dauphin 2005); Paraíso cantón, Tapanti National Park, *Griffin & Morales* 163 (USJ, FLAS, Morales 1991); Paraíso cantón, Tapanti National Park, *Griffin et al.* 163 (B-209852, Dauphin 2005); Paraíso cantón, Tapanti National Park, 9°43'12"N, 83°46'48"W, 7 Dec 1982, *Gómez-Pignataro* 19328, det. Dauphin Jun 2017 (MO-6230255!, [this publication](#)); Pococí cantón, La Georgina, *Griffin et al.* 483 (FLAS, Morales 1991 as *Isotachis madida*; Kappelle 1996 as *Isotachis madida*). **GUANACASTE**: Liberia cantón, Rincón de La Vieja National Park, *Dauphin* 1864 (CR, Dauphin 2005). **PUNTARENAS**: Coto Brus cantón, Fila Cruces, *Dauphin* 1770 (CR, Dauphin 2005); Coto Brus, 1,000–1,200 m, 30 Oct 1995, *Dauphin* 2037 (NY, Campos and Uribe 2012). **SAN JOSÉ**: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, Cerro de Las Vueltas, *Dauphin et al.* 3574 (CR!, [this publication](#)); Dota cantón, El Jardín, 1,510 m, *Morales* 394 (FLAS, Morales 1991; Kappelle 1996; Dauphin 2005).

PANAMA. S. loc. (Gradstein 1999a). **CHIRIQUÍ**: Tierras Altas distrito, Parque Internacional La Amistad, along trail to Cerro Punta, 2,462 m, *Stotler & Crandall-Stotler* 3483 (ABSH, PMA, Stotler et al. 1998). **NASO TJËR DI COMARCA**: Cerro Fábrega, *De Gracia* 293 (PMA, Dauphin 2007).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands.

***Jensenia* Lindb., Not. Sällsk. Fauna Fl. Fenn. Förh. 9: 13, 1868 (Lindberg 1868).**

Jensenia difformis (Nees) Grolle, *Rev. Bryol. Lichénol.* 33(1/2): 228, 1965 (Grolle 1964d).

≡ *Jungermannia difformis* Nees, *Fl. Bras. (Martius)* 1(1): 329, 1833 (Nees 1833b). Type: Brazil.

COSTA RICA. S. loc. (Váša and Engel 2013; Váša et al. 2014c). **CARTAGO**: Turrialba cantón, Villa Mills, CATIE Station Siberia, 2,700 m, 24 Jan 2000, *Holz* CR 00-224 (CR, GOET,

Holz et al. 2001; Dauphin 2005). **HEREDIA**: San Rafael cantón, Río Las Vueltas, 10°05'N, 84°04'W, 2,040–2,700 m, Stevens 13958, det. Whittemore (CR, Dauphin 2005).

Also reported from Australia, the Caribbean, Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands.

Jensenia spinosa (Lindenb. et Gottsche) Grolle, *Acta Bot. Fenn.* 133: 65, 1986 (Grolle and Piippo 1986).

≡ *Symphyogyna spinosa* Lindenb. et Gottsche, *Syn. Hepat.* 5: 786, 1847 (Gottsche et al. 1847). Type: Mauritius, Bory s.n.

≡ *Mittenia erythropus* Gottsche, *Ann. Sci. Nat., Bot.*, ser. 5, 1: 178, 1864 (Gottsche 1864), syn. fide Schuette and Stotler (2005). Type: Colombia.

≡ *Jensenia erythropus* (Gottsche) Grolle, *Rev. Bryol. Lichénol.* 33(1/2): 228, 1964 (Grolle 1964d).

COSTA RICA. Cordillera de Talamanca (Holz 2003 as *Jensenia erythropus*; Holz and Gradstein 2005b as *Jensenia erythropus*); S. loc. (Gradstein 1999a as *Jensenia erythropus*; Gradstein et al. 2001b as *Jensenia erythropus*; Gradstein and Costa 2003 as *Jensenia erythropus*; Dauphin 2005 as *Jensenia erythropus*; Gradstein and Holz 2005 as *Jensenia erythropus*; Schuette and Stotler 2005; Santos 2008). **ALAJUELA**: Poás National Park, 2,650 m, Gradstein 9625 (Gradstein et al. 1994 as *Jensenia erythropus*; Dauphin 2005 as *Jensenia erythropus*). **CARTAGO**: Páramo Buenavista, Dauphin 1692 (CR, Dauphin 2005 as *Jensenia erythropus*). **LIMÓN**: Talamanca cantón, Parque Internacional La Amistad Atlántico, Valle del Silencio, Quesada 1516 (CR, Dauphin 2005 as *Jensenia erythropus*); Talamanca cantón, Quebrada Kuiza, Bittner 1842 (CR, Dauphin 2005 as *Jensenia erythropus*). **SAN JOSÉ**: Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,200 m, Gradstein 9726 (USJ, Gradstein et al. 1994 as *Jensenia erythropus*); Pérez Zeledón cantón, Páramo Buenavista, 3,200 m, Gradstein 9729 (USJ, Gradstein et al. 1994 as *Jensenia erythropus*; Dauphin 2005 as *Jensenia erythropus*); Pérez Zeledón cantón, Páramo Buenavista, Schäfer-Verwimp 156 (CR, Dauphin 2005 as *Jensenia erythropus*).

PANAMA. S. loc. (Gradstein 1999a as *Jensenia erythropus*; Schuette and Stotler 2005). **NASO TJIÉR DI COMARCA**: Parque Internacional La Amistad, Cerro Fábrega, 3,150–3,353 m, Dauphin 1572, 1781 (GOET, CR, PMA, U, Stotler et al. 1998 as *Jensenia erythropus*; Dauphin 2007 as *Jensenia erythropus*).

Also reported from West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Middle Atlantic Ocean, Western Indian Ocean, the Caribbean, Northern South America, Western South America, Brazil, Southern South America(?).

Jensenia wallisii (J.B. Jack et Steph.) Grolle, *Rev. Bryol. Lichénol.* 33(1/2): 228, 1964 (Grolle 1964d).

≡ *Pallavicinia wallisii* J.B. Jack et Steph., *Hedwigia* 31(1): 23, 1892 (Jack and Stephani 1892). Type: Colombia.

COSTA RICA. S. loc. (Schuette and Stotler 2005; Schäfer-Verwimp and Van Melick 2016). **ALAJUELA**: Poás Volcano,

1940, Haupt (Haupt 1942 as *Pallavicinia wallisii*; Morales and Griffin 1983 as *Pallavicinia wallisii*).

?**PANAMA**. S. loc. (Schuette and Stotler 2005; Schäfer-Verwimp and Van Melick 2016). Note: We are not aware of any firsthand report from Panama.

Also reported from the Caribbean, Northern South America, Western South America, Brazil(?).

Jubula Dumort., Commentat. Bot. (Dumortier): 112, 1822 (Dumortier 1822).

Jubula hutchinsiae (Hook.) Dumort. subsp. *bogotensis* (Steph.) Verd., *Ann. Cryptog. Exot.* 1(2): 215, 1928 (Verdoorn 1928).

≡ *Jubula bogotensis* Steph., *Sp. Hepat. (Stephani)* 4: 687, 1911 (Stephani 1911b). Type: Colombia.

≡ *Jubula pennsylvanica* subsp. *bogotensis* (Steph.) W.R. Guerke, *Bryophyt. Biblioth.* 17: 83, 1978 (Guerke 1978).

≡ *Jubula hutchinsiae* var. *costaricensis* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 128, 1951 (Herzog 1951), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Guerke (1978). Original material: Costa Rica, Cartago, La Carpintera, Standley 35674 p.p. (JE-04010824 <https://je.jacq.org/JE04010824>, US-04544769 <http://n2t.net/ark:/65665/305f56692-050d-4ed4-a7d0-0502815b0baf>).

≡ *Jubula costaricensis* Herzog ex W.R. Guerke, *Bryophyt. Biblioth.* 17: 84, 1978 (Guerke 1978), nom. inval. (ICN2018 Art. 36.1(b); publ. in syn.).

GUATEMALA. S. loc. (Schäfer-Verwimp 2014). **ALTA VERAPAZ**: Cobán municipio, Sierra Yalijux, 2,300 m, 1992, Lenz GUA 1/4, det. Eggers (Eggers et al. 2004 as *Jubula pennsylvanica* subsp. *bogotensis*; Freire 2006 as *Jubula pennsylvanica* subsp. *bogotensis*); S. loc., Lenz 1922 (GUA, Pérez 2009 as *Jubula pennsylvanica* subsp. *bogotensis*).

COSTA RICA. Cordillera de Talamanca, Kappelle 3355 (U, Kappelle 1996 as *Jubula bogotensis*); S. loc. (Bonner 1966 also as *Jubula bogotensis*; Fulford and Sharp 1990 as *Jubula pennsylvanica* subsp. *bogotensis*; Schuster 1992a as *Jubula pennsylvanica* subsp. *bogotensis*; Gradstein et al. 2001b as *Jubula bogotensis*; Linares and Uribe 2002 as *Jubula bogotensis*; Eggers et al. 2004; Schäfer-Verwimp 2014). **CARTAGO**: Alvarado cantón, Coliblanco, Maxon 235 (NY, Guerke 1978 as *Jubula pennsylvanica* subsp. *bogotensis*); Jiménez cantón, Peijivalle, 900 m, Standley 47017 (Herzog 1951 as *Jubula hutchinsiae* var. *costaricensis*; Morales 1991; Dauphin 2005); Jiménez cantón, Peijivalle, 900 m, 1926, Standley & Valerio 47017 (Verdoorn 1928); Jimenez cantón, Pejibaye, Standley 49219, 49678 (B, FH, JE, M, US, Guerke 1978 as *Jubula pennsylvanica* subsp. *bogotensis*); Jiménez cantón, Pejibaye, 900 m, Feb 1926, Standley & Valerio 46997 (M, Verdoorn 1928 as *Jubula pennsylvanica* subsp. *bogotensis*; Crandall-Stotler and Guerke 1980 as *Jubula pennsylvanica* subsp. *bogotensis*); La Unión cantón, Carpintera, 1,500 m, Standley 35674 p.p. (JE, US, Herzog 1951 as *Jubula hutchinsiae* var. *costaricensis*; Guerke 1978 as *Jubula pennsylvanica* subsp. *bogotensis*; Morales 1991; Dauphin 2005); Turrialba cantón, Cordillera de Talamanca, Chirripó National Park, Camino de los Indios, Atlantic slope, 9°30'N, 83°30'W, 2,200 m,

12 Mar 1989, *Kappelle* CR5469 R80, det. G. Dauphin Sep 2020 (CR!, this publication). **HEREDIA**: San Isidro cantón, Yerba Buena, 2,000 m, Feb 1926, *Standley & Valerio* 49219, 49678 (*Verdoorn* 1928; *Herzog* 1951 as *Jubula hutchinsiae* var. *costaricensis*; *Morales* 1991; *Dauphin* 2005). **PUNTARENAS**: Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a as *Jubula bogotensis*); Monteverde cantón, Monteverde Forest Reserve, 10°15'N, 84°45'W, 5 Aug 1993, *Timme* 11397, det. Atwood 2016 (MO-6690110!, this publication); S. loc. (*Merwin et al.* 2001 as *Jubula bogotensis*); S. loc., *Gradstein* 9449 (*GOET, Pötsch et al.* 2010; *Konstantinova and Vilnet* 2011; *Larraín et al.* 2015). **SAN JOSÉ**: Moravia cantón, La Hondura, *Standley* 37803 (FH, JE, *Guerke* 1978 as *Jubula pennsylvanica* subsp. *bogotensis*; *Dauphin* 2005); Moravia cantón, La Hondura, 1,300–1,500 m, Mar 1924, *Standley* 37503 (*Verdoorn* 1928).

PANAMA. VERAGUAS: Santa Fe distrito, Piedra Alto, 8°30'–31'N, 81°07'–08'W, 800–850 m, 27 Mar 2009, *Schäfer-Verwimp & Verwimp* 34308 (JE, *Schäfer-Verwimp* 2014).

Also reported from Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America.

***Kurzia* G.Martens, *Flora* 53(27): 417, 1870 (von Martens 1870).**

Kurzia brasiliensis (Steph.) Grolle, *Rev. Bryol. Lichénol.* 32(3/4): 174, 1963 (Grolle 1963b).

≡ *Psiloclada brasiliensis* Steph., *Sp. Hepat. (Stephani)* 3: 550, 1909 (Stephani 1909b). Type: Brazil.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al.* 2005).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Kurzia capillaris (Sw.) Grolle, *Rev. Bryol. Lichénol.* 32(3/4): 173, 1964 (Grolle 1963b) subsp. *capillaris* var. *capillaris*.

≡ *Jungermannia capillaris* Sw., *Prodr. (Swartz)*: 144, 1788 (Swartz 1788).

Type: Jamaica.

≡ *Microlepidozia capillaris* (Sw.) Fulford, *Brittonia* 14(1): 122, 1962 (Fulford 1962).

GUATEMALA. S. loc. (Fulford 1987; Fulford and Sharp 1990; Schuster 2000c). **BAJA VERAPAZ**: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 261, 439 (USCG, *Freire et al.* 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al.* 2005). **ZACAPA**: S. loc., *Steyermark* 43304 (F, Pérez 2009); Sierra de Las Minas, *Steyermark* 29965 (F, Fulford 1966 as *Microlepidozia capillaris*; *Freire* 2006; Pérez 2009).

BELIZE. **CAYO**: Southern Maya Mountains, summit of Doyle's Delight, 16°29'N, 89°02'W, 1,098 m, 8 Dec 1993, *Allen* 15248 (BRH, MO-3981781, *Whittemore and Allen* 1996).

***HONDURAS**. ***ATLÁNTIDA**: El Porvenir municipio, Pico Bonito National Park, trail from confluence to ridge camps, 15°38'–39'N, 86°51'–52'W, 1,400 m, 20 Apr 1996, *Allen* 17386, det. Dauphin et al. 2017 (MO-6230320! <http://tropicos.org/specimen/100366549>, this publication).

COSTA RICA. Cordillera de Talamanca (*Holz* 2003; *Holz and Gradstein* 2005b); S. loc. (*Gradstein* 1999a; *Dauphin* 2005; *Gradstein and Holz* 2005). **CARTAGO**: Orosí cantón, Cerro de La Muerte, La Georgina, 3,000 m, *Gradstein* 9718a (*Gradstein et al.* 1994; *Dauphin* 2005). **PUNTARENAS**: Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, *Gradstein et al.* (U, *Sillett et al.* 1995); Monteverde, 1,550 m, *Gradstein & Solano* 9571, 9573 p.p. (U, USJ, *Gradstein et al.* 1994; *Dauphin* 2005); S. loc. (*Merwin et al.* 2001).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, NW of camping site, 1,000–1,200 m (*Salazar Allen et al.* 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (*Salazar Allen et al.* 2021); Gualaca distrito, Hornito, Fortuna, 1,000–1,200 m, *Salazar Allen* 5499 p.p. (PMA, *Stotler et al.* 1998). **DARIÉN**: Pinogana distrito, 1.5 mi (2.4 km) along trail to Boca de Cupé from Cana, *Allen* 8946 (MO, *Stotler et al.* 1998). **NASO TJËR DI COMARCA**: Cerro Fábrega, *De Gracia* 254 (PMA, *Dauphin* 2007). **PANAMA**: Panamá distrito, Cerro Jefe, behind INTEL tower, *Valdespino & Aranda* 222a (PMA, *Stotler et al.* 1998).

COCOS I. Río Genio, 5°32'57"N, 87°03'56"W, 30 m, *Dauphin* 1059, det. G. Dauphin Mar 2021 (USJ-47192!, CR-4468304!, W! <https://w.jacq.org/W0207443>, this publication); Río Genio, 5°32'57"N, 87°03'56"W, 30 m, 15 Feb 1994, *Dauphin* 1059 (USJ, *Dauphin* 1995, 1999, 2005).

Also reported from West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Subantarctic Islands(?).

Kurzia capillaris subsp. *capillaris* var. *verrucosa* (Steph.) Pócs, *Proc. Third Meeting Bryol. C. & E. Europe*: 111, 1984 (Pócs 1984a).

≡ *Lepidozia verrucosa* Steph., *Hedwigia* 24(4): 167, 1885 (Stephani 1885a). Type: Brazil.

≡ *Microlepidozia verrucosa* (Steph.) Fulford, *Los Angeles County Mus. Contr. Sci.* 26: 2, 1958 (Fulford 1958).

≡ *Kurzia verrucosa* (Steph.) Grolle, *Rev. Bryol. Lichénol.* 32(3/4): 173, 1963 (Grolle 1963b).

GUATEMALA. S. loc. (Fulford 1967 as *Microlepidozia verrucosa*, 1987 as *Kurzia verrucosa*; Bizot and Pócs 1974 as *Kurzia verrucosa*; Oliveira-e-Silva and Yano 2000; Schuster 2000c as *Kurzia verrucosa*). **EL PROGRESO**: Volcán Santa Luisa, 2,400–3,333 m, *Steyermark* 43527 p.p. (F, Fulford 1966 as *Microlepidozia verrucosa*; *Freire* 2006 as *Kurzia verrucosa*). **ZACAPA**:

S. loc., *Steyrmark* 43304 (F, Fulford 1966 as *Microlepidozia verrucosa*; Freire 2006 as *Kurzia verrucosa*).

*HONDURAS. *COMAYAGUA: El Plan to Cerro El Ma-neadero, ~11 km E of Lake Yojoa, 12 Mar 1993, Allen 13950, det. Dauphin Jun 2017 (MO-4462844! <https://tropicos.org/specimen/90056123>, this publication). *CORTÉS: San Pedro Sula municipio, Cusuco National Park, from Rio Cusuco to summit of Cerro Jilincó ~22 km W of San Pedro Sula, 16 km S of Cuyamel, 15°31'N, 88°14'W, 20 Mar 1993, Allen 14292, det. Dauphin Jun 2017 (MO-4464598! <http://tropicos.org/specimen/90056125>, this publication). *LEMPIRA: Gracias municipio, Montaña de Celaque, trail to filo overlooking waterfall of Rio Arquecal, 14°33'N, 88°40'W, 16 May 1992, Allen 12188, det. Whittemore 1992 (MO-3965010!, this publication). *OCOTEPEQUE: La Labor municipio, Montana del Candado, 13 km E of Nueva Ocotepeque and Cerro El Cocal, 14°27'N, 89°04'W, 24 Mar 1993, Allen 12186, det. Dauphin Jun 2017 (MO-3968254!, this publication).

Also reported from West-Central Tropical Africa, East Tropical Africa, Southern Africa, New Zealand, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands.

Kurzia flagellifera (Steph.) Grolle, *J. Jap. Bot.* 39(3): 80, 1964 (Grolle 1964f).

≡*Lepidozia flagellifera* Steph., *Sp. Hepat. (Stephani)* 3: 571, 1909 (Stephani 1909b). Type: Venezuela.

≡*Microlepidozia flagellifera* (Steph.) Fulford, *Brittonia* 14(1): 122, 1962 (Fulford 1962).

GUATEMALA. S. loc. (Schuster 2000c; Schäfer-Verwimp et al. 2013). EL PROGRESO: Above Volcán Santa Luisa, *Steyrmark* 43531 (F, Fulford 1966 as *Microlepidozia flagellifera*; Freire 2006; Pérez 2009).

*BELIZE. *TOLEDO: Columbia River Forest Reserve, from Camp 2 along Little Quartz Ridge spur to spur's summit, 16°23'17"N, 89°05'30"W, 16 Feb 1997, Allen 18830, det. Whittemore 1997 (MO-4417205!, this publication).

*HONDURAS. *ATLÁNTIDA: El Porvenir, 15°37'N, 86°53'W, 23 Apr 1996, 2,435 m, Allen 17572 p.p., det. Dauphin May 2017 (MO-6699946! <http://tropicos.org/specimen/100988155>, this publication).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Schäfer-Verwimp et al. 2013; Pócs et al. 2022). ALAJUELA: Poás National Park, 2,650 m, Gradstein 9654 (USJ, Gradstein et al. 1994; Dauphin 2005); San Ramón cantón, Nectandra Cloud Forest, 3 Nov 2010, Norris 17165 (UC, Norris et al. 2017). CARTAGO: El Guarco cantón, Cordillera de Talamanca, Pan-American Highway km 70, Entrada 'Mirador de Quetzales,' S of road, 2,650 m, 19 Jan 2000, Holz CR 00-132, det. J. Váňa (GOET, EGR, MO-5282879, Pócs 2012). SAN JOSÉ: Dota cantón, "Los Robles" (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, Los Robles, 2,000–2,650 m, Schäfer-Verwimp 74769 (CR, Dauphin

2005); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a).

Also reported from Northern South America, Western South America, Brazil.

***Kymatocalyx* Herzog, *Memoranda Soc. Fauna Fl. Fennica* 25: 56, 1950 (Herzog 1950a).**

Kymatocalyx dominicensis (Spruce) Váňa, *Österr. Bot. Z.* 118(5): 575, 1970 (Váňa 1970).

≡*Jungermannia dominicensis* Spruce, *J. Linn. Soc., Bot.* 30(210): 363, 1895 (Gepp 1895). Type: Dominica.

COSTA RICA. S. loc. (Dauphin 2005). SAN JOSÉ: Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, San Gerardo, Río Savegre Valley, 2,000 m, 24 Dec 1999, Schäfer-Verwimp & Holz SV/H-0018 (CR, PRC, hb. Schäfer-Verwimp, Holz et al. 2001; Dauphin 2005).

Also reported from East Tropical Africa, Western Indian Ocean, the Caribbean, Northern South America, Western South America, Brazil.

Kymatocalyx rhizomaticus (Herzog) Gradst. et Váňa, *Haussknechtia, Beih.* 9: 166, 1999 (Gradstein and Váňa 1999).

≡*Stenorhipis rhizomatica* Herzog, *Trans. Brit. Bryol. Soc.* 1(4): 290, 1950 (Herzog 1950b). Type: Sarawak.

COSTA RICA. S. loc. (Gradstein et al. 2001b; Holz et al. 2001). ALAJUELA: San Ramón cantón, San Ramón, Reserva Biológica Alberto Brenes, Dauphin 2932 (NY, Dauphin 2005). HEREDIA: Sarapiquí cantón, Horquetas, Río Villalobos, near Hotel Rara Avis, 10°17'00"N, 84°02'00"W, 600 m, Dauphin & Vargas 2203, det. S. R. Gradstein (CR, GOET, EGR, Dauphin et al. 1998 as *Stenorhipis* sp.; Dauphin 2005); Sarapiquí cantón, llanura de Santa Clara, along Camino Corduroy near Río Villalobos and Hotel Rara Avis, 600 m, 29 Jan 1996, Dauphin 2203 (EGR, GOET, CR, MO, USJ, Gradstein and Váňa 1999 as *Kymatocalyx 'rhizomatica'*).

PANAMA. S. loc. (Gradstein et al. 2001b; Gradstein and Benitez 2017; Gradstein 2021). PANAMA WEST: La Chorrera distrito, Barro Colorado Island, 9°09'N, 79°51'W, 20–170 m, 1993, Gradstein & Salazar Allen 15088 (PMA, GOET, PRC, Gradstein and Váňa 1999; Dauphin et al. 2006, 2022). PANAMA: Capiira distrito, Parque Nacional Altos de Campana, 600–750 m, Salazar Allen et al. 20971 (PMA, Dauphin et al. 2006); Panamá distrito, Cerro Azul, Sendero el Cantar, 300 m, 20 Mar 1996, Dauphin 96-35, Gradstein 9785 (EGR, GOET, PMA, Gradstein and Váňa 1999; Dauphin et al. 2006).

COCOS I. Cascada Río Genio, 130 m, 15 Feb 1994, Dauphin 1024, det. S. R. Gradstein (USJ, U, Dauphin 1995 as *Stenorhipis* sp., 1999 as *Stenorhipis* sp., 2005; Dauphin et al. 1998 as *Stenorhipis* sp., with a question mark; Gradstein and Váňa 1999).

Also reported from Western Indian Ocean, Malesia, Northern South America, Western South America.

***Leiomitra* Lindb., Acta Soc. Sci. Fenn. 10: 515, 1875 (Lindberg 1875).**

Leiomitra argentea (Herzog) T.Katag., *J. Bryol.* 37(4): 304, 2015 (Katagiri 2015).

≡ *Trichocolea argentea* Herzog, *Arch. Bot. São Paulo* 1(2): 40, 1925 (Herzog 1925a). Type: Brazil.

EL SALVADOR. SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler A/12/4* (Winkler 1967 as *Trichocolea argentea*).

Also reported from the Caribbean, Brazil.

Leiomitra brevifissa (Steph.) T.Katag., *Hattoria* 10: 40, 2019 (Katagiri 2019).

≡ *Trichocolea brevifissa* Steph., *Sp. Hepat. (Stephani)* 4: 54, 1909 (Stephani 1909b). Type: Brazil.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 275, 276, 475 (USCG, Freire et al. 2013 as *Trichocolea brevifissa*); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as *Trichocolea brevifissa*).

Also reported from Mexico, the Caribbean, Northern South America, Brazil.

Leiomitra elliottii (Steph.) R.M.Schust., *Nova Hedwigia* 73(3/4): 469, 2001 (Schuster 2001a).

≡ *Trichocolea elliottii* Steph., *Sp. Hepat. (Stephani)* 4: 55, 1909 (Stephani 1909a). Type: Dominica.

BELIZE. TOLEDO: S. loc., Dec 1993, *Allen* 15330 (BRH, MO, Whittemore and Allen 1996 as *Trichocolea elliottii*).

COSTA RICA. ALAJUELA: San Ramón cantón, La Balsa, 10°11'N, 84°30'W, *Stevens* 14259, det. Whittemore (CR!, Dauphin 2005 as *Trichocolea elliottii*). **CARTAGO:** Paraíso cantón, Orosi, Tapantí National Park, *Griffin & Eakin* 265, det. D. A. Breil (FLAS, Morales 1991 as *Trichocolea elliottii*; Dauphin 2005 as *Trichocolea elliottii*); Paraíso cantón, Orosi, Tapantí National Park, Morales 1807, 1818 (USJ, Morales 1991 as *Trichocolea elliottii*; Dauphin 2005 as *Trichocolea elliottii*). **GUANACASTE:** Bagaces cantón, Volcán Tenorio, Morales 1858, 1860 (Dauphin 2005 as *Trichocolea elliottii*); Tenorio Volcano, *Garcia & Morales* 1858, 1860 (USJ, Morales 1991 as *Trichocolea elliottii*). **HEREDIA:** Barva cantón, Braulio Carrillo National Park, Sector Volcán Barva, 1,050–1,150 m, Morales 1606, 1927 (USJ, Morales 1991 as *Trichocolea elliottii*; Dauphin 2005 as *Trichocolea elliottii*).

PANAMA. Near El Llano, *Kennedy et al.* 3125 (MO, Stotler et al. 1998 as *Trichocolea elliottii*). **CHIRIQUÍ:** Boquete distrito, Cerro Respingo, *Gentry* 5917 (MO, PMA, Stotler et al. 1998 as *Trichocolea elliottii*). **NASO TJIÉR DI COMARCA:** Fábrega Massif, *Gómez-Pignataro et al.* 22515 (MO, Stotler et al. 1998 as *Trichocolea elliottii*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Southern South America.

Leiomitra flaccida Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 349, 1885 (Spruce 1885). Type: Ecuador.

≡ *Trichocolea flaccida* (Spruce) Spruce, *Rev. Bryol.* 15(3): 34, 1888 (Spruce 1888).

= *Trichocolea patula* Steph., *Sp. Hepat. (Stephani)* 4: 57, 1909 (Stephani 1909a), syn. fide Hatcher (1957). Type: Venezuela.

= *Trichocolea inaequalis* Steph., *Sp. Hepat. (Stephani)* 4: 59, 1909 (Stephani 1909a), syn. fide Hatcher (1957). Lectotype (Söderström et al. 2023a: 156) if not holotype: Guatemala, s. coll., s.n. (G-00113470).

GUATEMALA. S. loc. (G, TYPE of *Trichocolea inaequalis*, Stephani 1909a as *Trichocolea inaequalis*; Fulford 1963a as *Trichocolea flaccida*, 1987 as *Trichocolea flaccida*; Fulford et al. 1970 as *Trichocolea flaccida*; Fulford and Sharp 1990 as *Trichocolea flaccida*; Oliveira-e-Silva and Yano 2000 as *Trichocolea flaccida*; Katagiri 2019). **ALTA VERAPAZ:** Cobán, 1,650 m, Jun 1908, *Türckheim* (G-00061198 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=121330&lang=en>, NY, Hatcher 1957 as *Trichocolea flaccida*); Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, 2,300–2,500 m, Pérez 375 (USCG, Pérez 2009 as *Trichocolea flaccida*); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Trichocolea flaccida*). **BAJA VERAPAZ:** Finca Bucaral, Sharp 2765 (TENN, Fulford 1963a as *Trichocolea flaccida*; Freire 2006 as *Trichocolea flaccida*; Pérez 2009 as *Trichocolea flaccida*); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 158, 302, 383, 445 (USCG, Freire et al. 2013 as *Trichocolea flaccida*); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as *Trichocolea flaccida*). **EL PROGRESO:** Finca Bucaral, Sharp 2734 (TENN, Fulford 1963a as *Trichocolea flaccida*; Freire 2006 as *Trichocolea flaccida*; Pérez 2009 as *Trichocolea flaccida*). **QUICHÉ:** Nebaj, Sharp 2511a (TENN, Fulford 1963a as *Trichocolea flaccida*; Freire 2006 as *Trichocolea flaccida*; Pérez 2009 as *Trichocolea flaccida*).

EL SALVADOR. SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler A/7/1/a* (Winkler 1967 as *Trichocolea flaccida*).

COSTA RICA. S. loc. (Fulford 1963a, 1987 both as *Trichocolea flaccida*; Cole 1982, 1983 both as *Trichocolea flaccida*; Fulford and Sharp 1990 as *Trichocolea flaccida*). **ALAJUELA:** Poás Volcano, Morales 1784 (Morales 1991 as *Trichocolea flaccida*; Dauphin 2005 as *Trichocolea flaccida*); San Ramón cantón, La Balsa, 10°11'N, 84°30'W, *Liesner et al.* 14842, det. Whittemore (CR, Dauphin 2005 as *Trichocolea flaccida*); San Ramón cantón, Nectandra Cloud Forest (UC, Norris et al. 2017 as *Trichocolea flaccida*). **CARTAGO:** Turrialba cantón, Volcán Turrialba, S slope near the Finca, *Standley* 35155 (B, Dauphin 2005 as *Trichocolea flaccida*). **PUNTARENAS:** Coto Brus cantón, Santa María de Pittier, *Dauphin* 1392 (CR, Dauphin 2005 as *Trichocolea flaccida*); Monteverde, <1,500 m (Morales 1991 as *Trichocolea flaccida*; Dauphin 2005 as *Trichocolea flaccida*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a as *Trichocolea flaccida*); Monteverde, 4,300 ft

(1,310 m), Feb 1969, *James*, W. 1969-01 (R, *Reed and Robinson* 1971 as *Trichocolea flaccida*); S. loc. (*Merwin et al.* 2001 as *Trichocolea flaccida*). **SAN JOSÉ:** Moravia cantón, La Hondura, 1,300–1,700 m, *Standley* 36320 (*Herzog* 1938 as *Trichocolea patula*; *Hatcher* 1957 as *Trichocolea flaccida*; *Morales* 1991 as *Trichocolea flaccida*; *Dauphin* 2005 as *Trichocolea flaccida*); Moravia cantón, La Palma, *Maxon* (*Hatcher* 1957 as *Trichocolea flaccida*; *Morales* 1991 as *Trichocolea flaccida*; *Dauphin* 2005 as *Trichocolea flaccida*); Vásquez de Coronado cantón, Las Nubes, ~1,600 m, *Standley* 33066, 33068, 33099, 36068, 38184 (*Herzog* 1938 as *Trichocolea patula*; *Hatcher* 1957 as *Trichocolea flaccida*; *Morales* 1991 as *Trichocolea flaccida*; *Dauphin* 2005 as *Trichocolea flaccida*).

PANAMA. CHIRIQUÍ: Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,950 m, 6 Apr 2006, *Schäfer-Verwimp & Verwimp* 31009 (JE, *Schäfer-Verwimp* 2014 as *Trichocolea flaccida*); Gualaca distrito, Fortuna Forest Reserve, NE of camping site, 900–1,200 m (*Salazar Allen et al.* 2021); Gualaca distrito, Fortuna Forest Reserve, SW of camping site, from Finca Pitti to foothills of Cerro Fortuna, 1,000–1,270 m (*Salazar Allen et al.* 2021); Gualaca distrito, Fortuna, 1,000–1,270 m, *Salazar Allen et al.* 693, 705 (PMA, *Stotler et al.* 1998 as *Trichocolea flaccida*); Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, *Schäfer-Verwimp & Verwimp* 34547 (JE, *Schäfer-Verwimp* 2014 as *Trichocolea flaccida*). **COCLÉ:** Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 700–1,000 m, 31 Mar 2006, *Schäfer-Verwimp & Verwimp* 30763, 30785/A, 34181, 34209 (JE, *Schäfer-Verwimp* 2014 as *Trichocolea flaccida*). **PANAMA:** Panamá distrito, Cerro Jefe (*Stotler et al.* 1998 as *Trichocolea flaccida*); Panamá distrito, Cerro Jefe, forest behind the INTEL tower, 900–1,000 m, *Salazar Allen* 5210, 5241 (PMA, *Stotler et al.* 1998 as *Trichocolea flaccida*); Panamá distrito, Cerro Jefe, forest behind the INTEL tower, 900–1,000 m, *Spörle* (PMA, *Spörle* 1990 as *Trichocolea flaccida*; *Stotler et al.* 1998 as *Trichocolea flaccida*); S. loc. (*Schäfer-Verwimp* 2014 as *Trichocolea flaccida*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Leiomitra paraphyllina Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 350, 1885 (Spruce 1885). Type: Ecuador.

≡*Trichocolea paraphyllina* (Spruce) Steph., *Sp. Hepat. (Stephani)* 4: 58, 1909 (Stephani 1909a).

GUATEMALA. S. loc. (*Fulford* 1987 as *Trichocolea paraphyllina*; *Fulford and Sharp* 1990 as *Trichocolea paraphyllina*). **QUETZALTENANGO:** San Martín Sacatepéquez municipio, Quebrada El Pocito, *Standley* 85063 (F, *Fulford* 1963a as *Trichocolea paraphyllina*; *Freire* 2006 as *Trichocolea paraphyllina*; *Pérez* 2009 as *Trichocolea paraphyllina*).

COSTA RICA. S. loc. (Cole 1982, 1983, both as *Trichocolea paraphyllina*; *Fulford* 1987 as *Trichocolea paraphyllina*; *Fulford and Sharp* 1990 as *Trichocolea paraphyllina*); S. loc., *Brenes*

20504 (F, *Fulford* 1963a as *Trichocolea paraphyllina*; *Dauphin* 2005 as *Trichocolea paraphyllina*). **CARTAGO:** Paraíso cantón, Oroquieta, Tapantí, *Griffin & Morales* 157 (USJ, FLAS, *Morales* 1991 as *Trichocolea paraphyllina*; *Dauphin* 2005 as *Trichocolea paraphyllina*). **HEREDIA:** Barva cantón, Braulio Carrillo National Park, Sector Volcán Barva, *Morales* 1564, 1755, 1767, 1934, 1947 (USJ, *Morales* 1991 as *Trichocolea paraphyllina*; *Dauphin* 2005 as *Trichocolea paraphyllina*). **SAN JOSÉ:** Braulio Carrillo National Park, *Morales* (USJ, *Morales* 1991 as *Trichocolea paraphyllina*; *Dauphin* 2005 as *Trichocolea paraphyllina*); Pérez Zeledón cantón, Chirripó National Park, Río Talari, *Kubbi* 564, det. Grolle (B, *Dauphin* 2005 as *Trichocolea paraphyllina*).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, NE of camping site, 900–1,200 m (*Salazar Allen et al.* 2021); Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, *Schäfer-Verwimp & Verwimp* 34591 (JE, *Schäfer-Verwimp* 2014 as *Trichocolea paraphyllina*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America.

Leiomitra sprucei (Steph.) T.Katag., *Hattoria* 10: 43, 2019 (Katagiri 2019).

≡*Trichocolea sprucei* Steph., *Sp. Hepat. (Stephani)* 4: 59, 1909 (Stephani 1909a). Type: Dominica.

=*Trichocolea floccosa* *Herzog et Hatcher*, *Lloydia* 20(3): 148, 1958 (*Hatcher* 1957). Holotype: Costa Rica, Cartago: Santa Clara, *Maxon & Harvey* 8194 (JE-04004894 <https://je.jacq.org/JE04004894>; iso-type B-300004804 <https://herbarium.bgbm.org/object/B300004804>).

?**GUATEMALA.** S. loc. (*Winkler* 1967 as *Trichocolea floccosa*; *Fulford and Sharp* 1990 as *Trichocolea floccosa*). Note: We are not aware of any firsthand report from Guatemala.

COSTA RICA. Cordillera de Talamanca (*Holz and Gradstein* 2005b as *Trichocolea floccosa*; *Holz* 2006 as *Trichocolea floccosa*); S. loc. (Cole 1982, 1983, both as *Trichocolea floccosa*; *Fulford and Sharp* 1990 as *Trichocolea floccosa*; *Schuster* 2000c as *Trichocolea floccosa*; *Schäfer-Verwimp et al.* 2013 as *Trichocolea floccosa*; *Schäfer-Verwimp* 2014 as *Trichocolea floccosa*; *Schäfer-Verwimp and Van Melick* 2016 as *Trichocolea floccosa*; *Lavocat Bernard* 2018 as *Trichocolea floccosa*). **ALAJUELA:** Poás Volcano, *Morales & Lacayo* 544 (*Morales* 1991 as *Trichocolea floccosa*; *Dauphin* 2005 as *Trichocolea floccosa*); San Ramón cantón, Nectandra Cloud Forest (UC, *Norris et al.* 2017 as *Trichocolea sprucei*); San Ramón cantón, Nectandra Cloud Forest, Quebrada Verde, *Norris* 110113 (UC-2053684, *Norris et al.* 2017 as *Trichocolea floccosa*). **CARTAGO:** El Guarco cantón, Santa Clara, 1,950 m, 20 Jul 1923, *Maxon* 8194 (JE-04004894, B-04804, *Hatcher* 1957 as *Trichocolea floccosa*; *Fulford* 1963a as *Trichocolea floccosa*; *Geissler and Bischler* 1990 as *Trichocolea floccosa*; *Morales* 1991 as *Trichocolea floccosa*; *Dauphin* 2005 as *Trichocolea floccosa*; *Katagiri* 2019); Paraíso cantón, Oroquieta, Tapantí National Park, *Griffin & Eakin* 290, det. D. A. Breil (FLAS, *Morales* 1991 as *Trichocolea sprucei*; *Dauphin* 2005 as *Trichocolea sprucei*); Paraíso cantón, Oroquieta, Tapantí

National Park, *Morales 1817* (USJ, *Morales 1991* as *Trichocolea floccosa*; *Dauphin 2005* as *Trichocolea floccosa*). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, *Holz et al. 2002* as *Trichocolea floccosa*); Dota cantón, Los Quetzales National Park (Amengual et al. 2007 as *Trichocolea floccosa*); Dota cantón, San Gerardo (*Dauphin 2005* as *Trichocolea floccosa*); Dota cantón, San Gerardo, *Holz* (*Holz 2003* as *Trichocolea floccosa*); Dota cantón, Santa María, *Schäfer-Verwimp 86* (CR, *Dauphin 2005* as *Trichocolea floccosa*); Los Santos Forest Reserve, ~2,900 m (*Holz and Gradstein 2005a* as *Trichocolea floccosa*); Moravia cantón, Camino a La Hondura, *Griffin & Morales A10*, *Griffin et al. 378* (FLAS, *Morales 1991* as *Trichocolea floccosa*; *Dauphin 2005* as *Trichocolea floccosa*).

PANAMA. S. loc. (*Schäfer-Verwimp and Van Melick 2016* as *Trichocolea floccosa*). **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (*Salazar Allen et al. 2021*); Gualaca distrito, Fortuna Forest Reserve, Cerro Hornito, 1,670–2,300 m (*Salazar Allen et al. 2021*); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, near southern edge of storage lake, 8°44.0'N, 82°14.5'W, 1,215 m, 30 Mar 2009, *Schäfer-Verwimp & Verwimp 34427, 34504* (JE, *Schäfer-Verwimp 2014* as *Trichocolea floccosa*). **COCLÉ:** Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8'N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp 34193* (JE, *Schäfer-Verwimp 2014* as *Trichocolea floccosa*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America.

Leiomitra tomentosa (Sw.) Lindb., *Acta Soc. Sci. Fenn.* 10: 515, 1875 (Lindberg 1875).

≡ *Jungermannia tomentosa* Sw., *Prodr.* (Swartz): 145, 1788 (Swartz 1788).

Type: Jamaica.

≡ *Trichocolea tomentosa* (Sw.) Gottsche, *Mexik. Leverm.*: 119, 1863 (Gottsche 1863).

= *Trichocolea cristacastrensis* Steph., *Sp. Hepat. (Stephani)* 4: 59, 1909 (Stephani 1909a), syn. fide Hatcher (1957). Type: Peru.

GUATEMALA. S. loc. (*Fulford 1987* as *Trichocolea tomentosa*; *Fulford and Sharp 1990* as *Trichocolea tomentosa*; *Freire et al. 2012* as *Trichocolea tomentosa*). **ALTA VERAPAZ:** S. loc. (*Hatcher 1957* as *Trichocolea tomentosa*); Cobán municipio, near Cubilguitz, *Steyermark 44482* (F, *Freire 2006* as *Trichocolea tomentosa*); Cobán, *Türkheim 5810* (G, *Fulford 1963a* as *Trichocolea tomentosa*; *Freire 2006* as *Trichocolea mexicana*; *Pérez 2009* as *Trichocolea tomentosa*); Panzós municipio, Cahabón and/or Senahú, 2012, *Pérez & López-Medina*, det. M. Pérez (*Pérez and López-Medina 2012* as *Trichocolea tomentosa*); Tucurú municipio, Reserva Privada Chelemhá (*Pérez 2006* as *Trichocolea tomentosa*). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al. 119, 405, 461, 496* (USCG, *Freire et al. 2013* as *Trichocolea tomentosa*); Purhulhá municipio, Biotopo Universitario para

la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al. 2005* as *Trichocolea tomentosa*). **EL PROGRESO:** San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez 2007* as *Trichocolea tomentosa*); Volcán Santa Luisa, *Steyermark 43528 p.p.* (F, *Fulford 1963a* as *Trichocolea tomentosa*; *Freire 2006* as *Trichocolea tomentosa*; *Pérez 2009* as *Trichocolea tomentosa*). **HUEHUETENANGO:** S. loc., *Pérez 1425* (USCG, *Pérez 2009* as *Trichocolea tomentosa*); Cerro Huetz, *Steyermark 47415* (F, *Fulford 1963a* as *Trichocolea tomentosa*; *Freire 2006* as *Trichocolea tomentosa*). **QUETZALTENANGO:** Zunil municipio, Fuentes Georginas, 2,300–2,500 m, *Standley 85862, 86002* (F, *Fulford 1963a* as *Trichocolea tomentosa*; *Freire 2006* as *Trichocolea tomentosa*; *Pérez 2009* as *Trichocolea tomentosa*). **QUICHÉ:** S. loc., *Pérez 2323* (USCG, *Pérez 2009* as *Trichocolea tomentosa*). **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez 2007* as *Trichocolea tomentosa*).

HONDURAS. S. loc. (*Fulford 1987* as *Trichocolea tomentosa*). Note: We are not aware of any firsthand report from Honduras.

COSTA RICA. Cordillera de Talamanca (*Holz and Gradstein 2005b* as *Trichocolea tomentosa*); Cordillera de Talamanca, *Kappelle 3368* (U, *Kappelle 1996* as *Trichocolea tomentosa*); S. loc. (*Fulford 1963a* as *Trichocolea tomentosa*; *Cole 1983* as *Trichocolea tomentosa*; *Fulford 1987* as *Trichocolea tomentosa*; *Fulford and Sharp 1990* as *Trichocolea tomentosa*; *Gradstein 1999a* as *Trichocolea tomentosa*; *Dauphin 2005* as *Trichocolea tomentosa*; *Gradstein and Holz 2005* as *Trichocolea tomentosa*); S. loc., *Brenes 19136* (hb. *Fulford*, *Fulford 1963a* as *Trichocolea tomentosa*; *Morales 1991* as *Trichocolea tomentosa*). **ALAJUELA:** Poás National Park, 10°12'N, 84°14'W, Aug 1973, *Griffin et al.* (*Griffin et al. 1974* as *Trichocolea tomentosa*); Poás Volcano, *Griffin et al. 22, 26, 37, 76, 545* (FLAS, USJ, *Dauphin 2005* as *Trichocolea tomentosa*); Poás Volcano, *Morales & Canessa 416, 434* (*Morales 1991* as *Trichocolea tomentosa*; *Dauphin 2005* as *Trichocolea tomentosa*); San Ramón cantón, Nectandra Cloud Forest (UC, *Norris et al. 2017* as *Trichocolea tomentosa*). **CARTAGO:** S. loc. (*Hatcher 1957* as *Trichocolea tomentosa*); El Guarco cantón, Santa Clara, *Torres 213 p.p.* (F, *Fulford 1963a* as *Trichocolea tomentosa*; *Morales 1991* as *Trichocolea tomentosa*; *Dauphin 2005* as *Trichocolea tomentosa*); Turrialba cantón, Volcán Turrialba, 1,500–1,900 m, *Standley 37565, 38728* (*Herzog 1938* as *Trichocolea tomentosa*; *Morales 1991* as *Trichocolea tomentosa*; *Dauphin 2005* as *Trichocolea tomentosa*); Turrialba cantón, Volcán Turrialba, S slope near the Finca, *Standley 35155* (B, *Herzog 1938* as *Trichocolea tomentosa*; *Morales 1991* as *Trichocolea tomentosa*; *Dauphin 2005* as *Trichocolea tomentosa*). ***GUANACASTE:** Liberia cantón, Guanacaste National Park, Estación Cacao, 10°55'45"N, 85°28'15"W, *Chavez 379a*, det. *Dauphin* May 2017 (MO-5280473!, this publication). **HEREDIA:** Barva cantón, Braulio Carrillo National Park, Sector Volcán Barva (*Dauphin 2005* as *Trichocolea tomentosa*); Barva

cantón, Volcán Barva, *Griffin et al.* D163, Morales 1484, 1539, 1599, 1942, *Pittier* 6045 (Morales 1991 as *Trichocolea tomentosa*); Sarapiquí cantón, Rara Avis, *Dauphin* 2193 (CR, *Dauphin* 2005 as *Trichocolea tomentosa*). **PUNTARENAS:** S. loc. (Merwin et al. 2001 as *Trichocolea tomentosa*); Buenos Aires cantón, Reserva Dúrika, *Quesada* 1207 (CR, *Dauphin* 2005 as *Trichocolea tomentosa*); Coto Brus cantón, Fila Cruces, Laguna Gamboa, 8°57'00"N, 83°04'20"W, *Dauphin* 1718 (CR, *Dauphin* 2005 as *Trichocolea tomentosa*); Monteverde, <1,500 m (*Dauphin* 2005 as *Trichocolea tomentosa*); Monteverde cantón, along South Line, 16 Mar 1969, *James*, W. 1969-109 (R, *Reed and Robinson* 1971 as *Trichocolea tomentosa*); Monteverde cantón, Checo Trail near Adono clearing, 3 Aug 1968, *James*, W. (US, R, *Reed and Robinson* 1971 as *Trichocolea tomentosa*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a as *Trichocolea tomentosa*); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, *Gradstein et al.* (U, *Sillett et al.* 1995 as *Trichocolea tomentosa*). **SAN JOSÉ:** Aserri cantón, El Tablazo (*Dauphin* 2005 as *Trichocolea tomentosa*); Aserri cantón, Tablazo Mountains, SW of Cartago, 5,500 ft (1,676 m), 9 Aug 1940, *Haupt* (*Haupt* 1942 as *Trichocolea cristacastrensis*); Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, *Holz et al.* 2002 as *Trichocolea tomentosa*); Dota cantón, 9 mi (14 km) SW of El Empalme, *Woodruff* (FLAS, *Morales* 1991 as *Trichocolea tomentosa*); Dota cantón, El Empalme, 9 mi SO, R. *Woodruff* s.n., San Gerardo (*Dauphin* 2005 as *Trichocolea tomentosa*); Dota cantón, San Gerardo, *Holz* (*Holz* 2003 as *Trichocolea tomentosa*); Dota cantón, San Gerardo, 9°35'40"N, 83°44'30"W, 3,000 m, Aug 1992, *Van Dunné* (*Van Dunné and Kappelle* 1998 as *Trichocolea tomentosa*); Moravia cantón, La Palma, *Griffin & Morales* A10b, A39, A41 (FLAS, USJ, *Morales* 1991 as *Trichocolea tomentosa*; *Dauphin* 2005 as *Trichocolea tomentosa*); Moravia cantón, La Palma, *Horich*, det. *Robinson* (MO-6168712!, this publication); Moravia cantón, La Palma, *Maxon* (NY, *Fulford* 1963a as *Trichocolea tomentosa*; *Morales* 1991 as *Trichocolea tomentosa*; *Dauphin* 2005 as *Trichocolea tomentosa*); Moravia cantón, La Palma, 1,500–1,900 m, *Standley* 37565 (*Herzog* 1938 as *Trichocolea tomentosa*); Pérez Zeledón cantón, Chirripó National Park, upper Río Talari Valley, *Kuhbier* 563, det. *Grolle* (B-225755, *Dauphin* 2005 as *Trichocolea tomentosa*); Pérez Zeledón cantón, Rivas, *Quesada* 1344 (CR, *Dauphin* 2005 as *Trichocolea tomentosa*).

PANAMA. S. loc. (*Fulford* 1987 as *Trichocolea tomentosa*; *Fulford and Sharp* 1990 as *Trichocolea tomentosa*; *Gradstein* 1999a as *Trichocolea tomentosa*). **CHIRIQUÍ:** Gualaca distrito, Fortuna (*Stotler et al.* 1998 as *Trichocolea tomentosa*); Gualaca distrito, Fortuna Forest Reserve, NE of camping site, 900–1,200 m (*Salazar Allen et al.* 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (*Salazar Allen et al.* 2021); Gualaca distrito, Fortuna, *Spörle* 1.41 (PMA, *Spörle*

1990 as *Trichocolea tomentosa*; *Stotler et al.* 1998 as *Trichocolea tomentosa*); Barú Volcano National Park (*Rodríguez-Quiel et al.* 2022). **COCLÉ:** Antón distrito, El Valle de Antón, La Mesa, *Salazar Allen & Béliz* 1381 (PMA, *Stotler et al.* 1998 as *Trichocolea tomentosa*); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Río Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López* 665, 717 p.p., 824 p.p. (PMA, *Sierra et al.* 2019a as *Trichocolea tomentosa*). **DARIÉN:** Cerro Pirre, 1,300 m, *Salazar Allen & Gradstein* 9308, 9309, 9310 (PMA, *Stotler et al.* 1998 as *Trichocolea tomentosa*); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992 as *Trichocolea tomentosa*). **NASO TJËR DI COMARCA:** Parque Internacional La Amistad, Cerro Fábrega, 3,150–3,353 m, *Dauphin* 1549 (GOET, CR, PMA, U, *Stotler et al.* 1998 as *Trichocolea tomentosa*; *Dauphin* 2007 as *Trichocolea tomentosa*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

***Lejeunea* Lib., *Ann. Gen. Sci. Phys.* 6: 373, 1820 (Libert 1820).**

Lejeunea acanthogona Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15(1): 177, 1884 (Spruce 1884) var. *acanthogona*. Type: Ecuador.

=*Crossotolejeunea cristatella* Gottsche ex Steph., *Sp. Hepat. (Stephani)* 5: 238, 1913 (Stephani 1913), syn. fide *Reiner-Drehwald and Goda* (2000). Type: Venezuela.

≡*Lejeunea cristatella* (Gottsche ex Steph.) Bern.-Lück., nom. inval. (ICN2018 Art. 41.5; basionym not cited). Note: The record of *Lejeunea cristatella* by Lücking (1995) is erroneous. The specimen belongs to *Lejeunea intricata* (*Reiner-Drehwald and Goda* 2000).

COSTA RICA. S. loc. (*Eggers et al.* 2004 as *Lejeunea cristatella*; *Schäfer-Verwimp et al.* 2013, rejecting earlier reports; *Gradstein* 2021). **SAN JOSÉ:** Dota cantón, San Gerardo, 2,950 m, 9 Nov 1999, *Holz* CR 99-548 (GOET, *Dauphin* 2005); Dota cantón, San Gerardo, 1,950 m, 24 Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0039/A (CR, hb. *Schäfer-Verwimp*, *Dauphin* 2005).

?**PANAMA.** S. loc. (*Gradstein* 2021). Note: We are not aware of any firsthand report from Panama.

Also reported from Mexico, Northern South America, Western South America, Brazil.

Lejeunea acanthogona var. *cristulata* (Steph.) *Gradst. et C.J.Bastos*, *Phytotaxa* 453(2): 61, 2020 (*Bastos and Gradstein* 2020a).

≡*Crossotolejeunea cristulata* Steph., *Hedwigia* 35(3): 75, 1896 (Stephani 1896). Type: Brazil.

=*Crossotolejeunea cristuliflora* Steph., *Sp. Hepat. (Stephani)* 5: 231, 1913 (Stephani 1913), syn. fide *Bastos and Gradstein* (2020a). Type: Brazil.

≡*Lejeunea cristuliflora* (Steph.) M.E.Reiner et *Goda*, *J. Hattori Bot. Lab.* 89: 19, 2000 (*Reiner-Drehwald and Goda* 2000).

GUATEMALA. ?**ALTA VERAPAZ:** Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Lejeunea* cf. '*cristulaeflora*'). Note: We are not aware of any positively identified specimen from Alta Verapaz. **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as *Lejeunea cristulata*).

PANAMA. **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021 as *Lejeunea cristuliflora*); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,360–1,500 m, Schäfer-Verwimp & Verwimp 34351/B, 34389/B (JE, Schäfer-Verwimp 2014 as *Lejeunea cristuliflora*).

Also reported from Northern South America, Western South America, Brazil.

Lejeunea adpressa Nees, *Repert. Pharm.* 76: 45, 1842 (von Flotow et al. 1842). Type: Brazil.

=*Lejeunea magnoliae* Lindenb. et Gottsche, *Syn. Hepat.* 5: 763, 1847 (Gottsche et al. 1847), syn. fide Reiner-Drehwald (2009). Type: Mexico.

=*Lejeunea drymophila* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15(1): 285, 1884 (Spruce 1884), syn. fide Reiner-Drehwald (2009). Type: Peru.

=*Lejeunea caespitosa* auct. amer., non typus (sensu Schuster 1980d; cf. Reiner-Drehwald 2009).

HONDURAS. **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, 20–600 m, Standley 53244 p.p., 54841, 55347, etc. (FH, JE, US, Herzog 1951 as *Lejeunea drymophila*).

COSTA RICA. **CARTAGO:** Jiménez cantón, Rio Naranjo, Tonduz (G-11832, JE, Reiner-Drehwald 2009).

PANAMA. **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°44.3'N, 82°14.7'W, 1,100 m, 30 Mar 2009, Schäfer-Verwimp & Verwimp 34516/A (JE, Schäfer-Verwimp 2014); Gualaca distrito, Reserva Forestal La Fortuna, Hornito, Sendero Quebrada Alemán, 1,100–1,200 m, 16 Mar 1996, Reiner-Drehwald 96006 (PMA, Reiner-Drehwald 2009). **COCLÉ:** Antón distrito, El Valle de Antón, Alto de La Mesa, 8°38.3'N, 82°07.6'W, 850–870 m, 3 Apr 2009, Schäfer-Verwimp & Verwimp 34734/B (JE, Schäfer-Verwimp 2014); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Rio Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, Sierra & López 665, 667, etc. (PMA, Sierra et al. 2019a). **DARIÉN:** S. loc. (Schäfer-Verwimp 2014). Note: We are not aware of any firsthand report from Darién. **PANAMA WEST:** Capiro distrito, Parque Nacional Altos de Campana, Sendero de Interpretación, 8°40'N, 79°55'W, 850 m, Salazar Allen 10815 (U, PMA, Reiner-Drehwald 2009); La Chorrera distrito, Barro Colorado Island (Reiner-Drehwald et al. 2013); La Chorrera distrito, Barro Colorado Island, 9°10'N, 79°50'W, Mar 1987, Salazar Allen & Chung 4678 (PMA, Reiner-Drehwald 2009); La Chorrera distrito, Barro Colorado Island, Shannon 4, 9°09'N, 79°51'W, 20–170 m, Dauphin & Moser 3127, det. M. E. Reiner-Drehwald (PMA, GOET

[https://gwdu64.gwdg.de/pls/herbar/moos\\$moos.QueryViewByKey?P_ID=27952&Z_CHK=2385](https://gwdu64.gwdg.de/pls/herbar/moos$moos.QueryViewByKey?P_ID=27952&Z_CHK=2385), Dauphin et al. 2006 as *Lejeunea magnoliae*); La Chorrera distrito, Barro Colorado Island, Shannon 4, 9°09'N, 79°51'W, 2003, Dauphin & Moser 3128 (CR, PMA, Dauphin et al. 2022). **PANAMA:** S. loc. (Schäfer-Verwimp 2014); Panamá distrito, Parque Nacional Chagres, Cerro Azul, Sendero El Cantar, 800 m, 20 Mar 1996, Reiner-Drehwald 960122 (GOET, Reiner-Drehwald 2009). **VERAGUAS:** Santa Fe distrito, between the village and Alto de Piedra, 8°31'N, 81°06'W, 635–600 m, 27 Mar 2009, Schäfer-Verwimp & Verwimp 34330/B (JE, Schäfer-Verwimp 2014); Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, Schäfer-Verwimp & Verwimp 30834 (JE, Schäfer-Verwimp 2014).

Also reported from Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Lejeunea angusta (Lehm. et Lindenb.) Mont., *Hist. Phys. Cuba, Bot., Pl. Cell.*: 469, 1842 (Montagne 1842b).

=*Jungermannia angusta* Lehm. et Lindenb., *Nov. Stirp. Pug.* 4: 52, 1832 (Lehmann 1832). Type: Brazil.

?**GUATEMALA.** ?**EL PETÉN:** San José municipio, El Zotz, Can et al. (USCG, Morales 2011 as *Lejeunea* cf. *angusta*). Note: We are not aware of any firsthand report from Guatemala.

PANAMA. **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, NW of camping site, 1,000–1,200 m (Salazar Allen et al. 2021).

Also reported from Australia, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Lejeunea anomala Lindenb. et Gottsche, *Linnaea* 24(6): 636, 1852 (Lindenberg and Gottsche 1851). Type: Surinam.

=*Ceratolejeunea anomala* (Lindenb. et Gottsche) Steph., *Sp. Hepat. (Stephani)* 5: 396, 1913 (Stephani 1913).

=*Euosmolejeunea anomala* (Lindenb. et Gottsche) Zwickel, *Ann. Bryol.* 6: 112, 1933 (Zwickel 1933).

=*Lejeunea matteola* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15(1): 240, 1884 (Spruce 1884), syn. fide Reiner-Drehwald (1999). Type: Brazil.

=*Hygrolejeunea matteola* (Spruce) Steph., *Sp. Hepat. (Stephani)* 5: 537, 1914 (Stephani 1914).

=*Taxilejeunea carinata* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 157, 1951 (Herzog 1951), syn. fide Dauphin (2005). Lectotype (Söderström and Hentschel 2023: 24): Costa Rica, Guanacaste, Tilarán, Quebrada Serena, Standley 46256a (JE-04002599 <https://je.jacq.org/JE04002599>, isoelectotype B-300026137 <https://herbarium.bgbm.org/object/B300026137>).

COSTA RICA. **GUANACASTE:** Tilarán cantón, Quebrada Serena, 700 m, Standley 46256a (B-26137, JE-04002599, TYPE of *Taxilejeunea carinata*, Herzog 1951 as *Taxilejeunea carinata*; Geissler and Bischler 1990 as *Taxilejeunea carinata*; Morales 1991 as *Taxilejeunea carinata*; Dauphin 2005); Tilarán cantón, Santa Elena Biological Preserve, 4 Aug 1993, Timme 11332, det. Dauphin Jun 2017 (MO-6690011!, this publication). **LIMÓN:**

Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 92-80, 92-81, 92-82 (hb. *Lücking*, *Lücking* 1995 as *Taxilejeunea carinata*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (*Lücking* 1997 as *Taxilejeunea carinata*). PUNTARENAS: Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (*Sonnleitner et al.* 2009).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Lejeunea aphanes Spruce, *J. Bot.* 19: 36, 1881 (Spruce 1881).

Type: Venezuela.

=*Lejeunea filipes* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15(1): 275, 1884 (Spruce 1884), syn. fide Schäfer-Verwimp and Reiner-Drehwald (2009). Type: Peru.

=*Lejeunea autoica* R.M.Schust., *J. Hattori Bot. Lab.* 25: 6, 1962 (Schuster 1962), syn. fide Reiner-Drehwald (2000a). Type: USA.

COSTA RICA. S. loc. (Schäfer-Verwimp 1999 as *Lejeunea filipes*). ALAJUELA: Alajuela cantón, between Vara Blanca and Poás Volcano, 31 Jan 1985, *Eggers* CR 1/200 (Pócs 2006a). CARTAGO: Rancho Naturalista, 900 m, *Eggers* (hb. *Eggers*, *Eggers* 2001 as *Lejeunea filipes*). GUANACASTE: Tenorio, 500 m, *Eggers* (hb. *Eggers*, *Eggers* 2001 as *Lejeunea filipes*). HEREDIA: Heredia cantón, Vara Blanca, 1,380 m, *Eggers* (hb. *Eggers*, *Eggers* 2001 as *Lejeunea filipes*); San Miguel de Sarapiquí, 850 m, 30 Jan 1985, *Eggers* (hb. *Eggers*, *Eggers* 2001 as *Lejeunea filipes*). LIMÓN: Braulio Carrillo National Park, 400–500 m (*Eggers* 2001 as *Lejeunea filipes*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, *Lücking* 92-480 (*Dauphin et al.* 1998 as *Lejeunea autoica*; *Dauphin* 2005 as *Lejeunea filipes*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, *Lücking* 92-149, 92-362, 92-363, 92-410, 92-442, 92-480, 92-536, 92-541 (hb. *Lücking*, *Lücking* 1995 as *Lejeunea autoica*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (*Lücking* 1997 as *Lejeunea autoica*). PUNTARENAS: S. loc. (Merwin et al. 2001 as *Lejeunea* aff. *filipes*); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (*Sonnleitner et al.* 2009 as *Lejeunea filipes*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a as *Lejeunea* aff. *filipes*).

PANAMA. CHIRIQUÍ: Boquete distrito, Bajo Mono, along Río Caldera, 8°50.5'N, 82°28.9'W, 1,670–1,745 m, 5 Apr 2006, *Schäfer-Verwimp & Verwimp* 30931 (JE, *Schäfer-Verwimp* 2014); Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (*Salazar Allen et al.* 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, surroundings of Finca La Suiza, 8°39'N, 82°12'W, 1,630 m, *Schäfer-Verwimp & Verwimp* 34490/B (JE, *Schäfer-Verwimp* 2014); Tierras Altas distrito, Parque Internacional La Amistad, Las Nubes, sendero Panamá Verde, 8°53'37.4"N, 82°38'52.5"W, 2,218 m, Sep 2015–Jul 2016, *Guerra-Batista*

et al. (*Guerra-Batista et al.* 2020 as *Lejeunea filipes*). COCLÉ: La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Río Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López* 663, 664, etc. (PMA, *Sierra et al.* 2019a).

Also reported from West Tropical Africa, West-Central Tropical Africa, East Tropical Africa, Middle Atlantic Ocean, Southeastern USA, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Lejeunea asperrima Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15(1): 160, 1884 (Spruce 1884). Type: Brazil.

=*Echinocolea asperrima* (Spruce) R.M.Schust., *Beih. Nova Hedwigia* 9: 125, 1963 (Schuster 1963b).

COSTA RICA. Cordillera de Talamanca (*Holz and Gradstein* 2005b as *Echinocolea asperrima*; *Holz* 2006 as *Echinocolea asperrima*). *ALAJUELA: Río Cuarto cantón, Laguna Hule, 12 Jan 1996, *Dauphin & González* 2114, det. *Dauphin* 2020 (CR-150917!, *this publication*). SAN JOSÉ: Dota cantón, San Gerardo, *Holz* (*Holz* 2003 as *Echinocolea asperrima*).

PANAMA. S. loc. (*Ilkiu-Borges* 2005); S. loc., *Schäfer-Verwimp & Verwimp* 30817 (GOET, *Heinrichs et al.* 2013; *Lee et al.* 2016, 2019; *Zhu and Shu* 2018; *Zhu et al.* 2018b). *BOCAS DEL TORO: Bocas del Toro distrito, Bastimentos, Salt Creek, Sendero a Long Beach, 9.29456°N, 82.10303°W, 70 m, 16 Aug 2017, *Gudiño & Salazar Allen* 3362, det. *Gudiño* Aug 2017 (PMA, *this publication*). CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, Cerro Hornito, 1,670–2,300 m (*Salazar Allen et al.* 2021); Gualaca distrito, Fortuna Forest Reserve, NE of camping site, 900–1,200 m (*Salazar Allen et al.* 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (*Salazar Allen et al.* 2021); Gualaca distrito, Fortuna, Hornito, Chiriquí River, 1,000 m, *Salazar Allen et al.* 577 (PMA, *Stotler et al.* 1998 as *Echinocolea asperrima*); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,650 m, *Schäfer-Verwimp & Verwimp* 34418/D, 34422 (JE, *Schäfer-Verwimp* 2014). COCLÉ: Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 700–1,000 m, 31 Mar 2006, *Schäfer-Verwimp & Verwimp* 30789 (JE, *Schäfer-Verwimp* 2014); Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8'N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34196, 34198/B (JE, *Schäfer-Verwimp* 2014); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Río Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López* 673, 693 (PMA, *Sierra et al.* 2019a). DARIÉN: S. loc. (*Schäfer-Verwimp* 2014); Cerro Pirre (*Stotler et al.* 1998 as *Echinocolea asperrima*); Cerro Pirre, around INRE-NARE field station, ~100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992 as *Echinocolea asperrima*); Cerro Pirre, station at foothills of Cerro Pirre, 100 m, *Salazar Allen & Gradstein* 9213 p.p. (PMA, *Stotler et al.* 1998 as *Echinocolea asperrima*). VERAGUAS: Santa Fe distrito,

trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, *Schäfer-Verwimp & Verwimp* 30817, 30826, 30899/A (JE, Schäfer-Verwimp 2014).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Lejeunea asthenica Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15(1): 222, 1884 (Spruce 1884). Syntypes: Venezuela, Peru. $\equiv$ *Taxilejeunea asthenica* (Spruce) Steph., *Sp. Hepat. (Stephani)* 5: 483, 1914 (Stephani 1914).

GUATEMALA. ALTA VERAPAZ: Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, Pérez 175 (USCG, Pérez 2009 as *Taxilejeunea asthenica*); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Taxilejeunea* cf. *asthenica*).

Also reported from Northern South America, Western South America, Brazil.

Lejeunea bermudiana (A.Evans) R.M.Schust., *Hepat. Anthocer. N. Amer.* 4: 1105, 1980 (Schuster 1980d).

$\equiv$ *Crossotolejeunea bermudiana* A.Evans, *Bull. Torrey Bot. Club* 33(3): 132, 1906 (Evans 1906a). Type: Bermuda.

?GUATEMALA. ?ALTA VERAPAZ: Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Lejeunea* cf. *bermudiana*). Note: We are not aware of any positively identified specimen from Guatemala.

PANAMA. S. loc. (Schäfer-Verwimp and Van Melick 2016). CHIRIQUÍ: Boquete distrito, Bajo Mono, along Rio Caldera, 8°50.5'N, 82°28.9'W, 1,700 m, 5 Apr 2006, *Schäfer-Verwimp & Verwimp* 30961/B (JE, Schäfer-Verwimp 2014); Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,550 m, *Schäfer-Verwimp & Verwimp* 34452 (JE, Schäfer-Verwimp 2014).

Also reported from Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Lejeunea bombonasensis Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15(1): 222, 1884 (Spruce 1884). Type: Ecuador.

$\equiv$ *Lejeunea lusoria* auct.

$\equiv$ *Omphalanthus lusorius* auct.

$\equiv$ *Taxilejeunea lusoria* auct. Note: Reports of *Lejeunea lusoria* (or any combination of it), except the type, belong to *Lejeunea bombonasensis* (cf. Bastos and Gradstein 2020a).

HONDURAS. S. loc. (Winkler 1967 as *Taxilejeunea lusoria*). ATLÁNTIDA: Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 54430 p.p., 55537 (Herzog 1951 as *Taxilejeunea lusoria*).

EL SALVADOR. SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, Winkler A/1/10, A/8/1 (Winkler 1967 as *Taxilejeunea lusoria*).

?PANAMA. ?CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, foothills of Cerro Pinola, 1,280–2,000 m (Salazar Allen et al. 2021 as *Lejeunea* cf. *lusoria*). Note: We are not aware of any positively identified specimen from Panama.

Also reported from Northern South America, Western South America, Brazil.

Lejeunea cancellata Nees et Mont., *Hist. Phys. Cuba, Bot., Pl. Cell.*: 472, 1842 (Montagne 1842b). Type: Cuba.

GUATEMALA. ALTA VERAPAZ: Cobán, Las Victorias National Park, 1,700 m, 2002 (Andersohn 2004).

*EL SALVADOR. *SANTA ANA: Metapán municipio, Montecristo, Los Planes, 2,030 m, 12 Nov 2014, *Búcaro* H318, det. Dauphin 2016 (MHES!, this publication).

COSTA RICA. S. loc. (Schäfer-Verwimp and Pócs 2009; Schäfer-Verwimp 2014; Schäfer-Verwimp and Van Melick 2016); S. loc., *Schäfer-Verwimp & Holz* SV/H-0507/C (GOET, Heinrichs et al. 2013). CARTAGO: Paraíso cantón, Orosi, *Schäfer-Verwimp & Holz* SV/H-0374/A (GOET, Lüth and Schäfer-Verwimp 2004; Dauphin 2005; Heinrichs et al. 2013). SAN JOSÉ: Dota cantón, San Gerardo, Río Savegre Valley between holiday camp Chacón and waterfall, 1,950 m, 25 Dec 1999, *Holz & Schäfer-Verwimp* SV/ H-75/B (CR, hb. Schäfer-Verwimp, Holz et al. 2001); Dota cantón, San Gerardo, Río Savegre, *Schäfer-Verwimp & Holz* SV/H-0075b (Dauphin 2005); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), *Schäfer-Verwimp & Holz* (Dauphin 2005); Pérez Zeledón cantón, Cordillera de Talamanca, valley of the Río Chirripó Pacífico above San Gerardo de Rivas, 1,600 m, 27 Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0235/B (CR, Lüth and Schäfer-Verwimp 2004); Pérez Zeledón cantón, Rivas, *Schäfer-Verwimp & Holz* SV/H-0235b (Dauphin 2005).

PANAMA. S. loc. (Schäfer-Verwimp and Van Melick 2016); S. loc., *Schäfer-Verwimp & Verwimp* 30850 (GOET, Heinrichs et al. 2013; Lee et al. 2016, 2019). CHIRIQUÍ: Tierras Altas distrito, El Volcán, road to Rio Sereno, near Santa Clara, 8°49.8'N, 82°44.0'W, 1,200 m, 2 Apr 2009, *Schäfer-Verwimp & Verwimp* 34706 (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Volcán, along road to Rio Sereno at western edge of the village, 8°47.6'N, 82°39.4'W, 1,370 m, 1 Apr 2009, *Schäfer-Verwimp & Verwimp* 34634/A, 34636 (JE, Schäfer-Verwimp 2014). PANAMA WEST: La Chorrera distrito, Barro Colorado Island, *Gradstein & Salazar Allen* 15090 (Dauphin et al. 2022). VERA-GUAS: Santa Fe distrito, base of Cerro Tute, 8°30'N, 81°06'W, 710–890 m, 26 Mar 2009, *Schäfer-Verwimp & Verwimp* 34285 (JE, Schäfer-Verwimp 2014); Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, *Schäfer-Verwimp & Verwimp* 30850 (JE, Schäfer-Verwimp 2014).

Also reported from Southeastern USA, the Caribbean, Northern South America(?), Western South America, Brazil, Southern South America.

Lejeunea capensis Gottsche, *Syn. Hepat.* 3: 374, 1845 (Gottsche et al. 1845a). Type: South Africa.

$\equiv$ *Lejeunea caespitosa* Lindenb., *Syn. Hepat.*: 382, 1845 (Gottsche et al. 1845a), syn. fide Reiner-Drehwald and Schäfer-Verwimp (2008). Type: South Africa. Note: *Lejeunea caespitosa* sensu Schuster (1980d) is *Lejeunea adpressa*.

=*Lejeunea halei* H. Rob., *Bryologist* 67(4): 454, 1964 (Robinson 1964), syn. fide Reiner-Drehwald and Schäfer-Verwimp (2008). Type: Mexico.

GUATEMALA. ?**ALTA VERAPAZ:** Tucurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Lejeunea* cf. *capensis*). Note: We are not aware of any positively identified specimen from Alta Verapaz. **EL PETÉN:** San José municipio, Cerro Cahuí, *Can et al.* (USCG, **Morales 2011** as *Lejeunea caespitosa*); San José municipio, El Zotz, *Can et al.* (USCG, **Morales 2011** as *Lejeunea caespitosa*).

COSTA RICA. S. loc. (Ilkiu-Borges 2000 as *Lejeunea caespitosa*; Bastos 2004 as *Lejeunea caespitosa*); Cordillera de Talamanca (Holz 2003 as *Lejeunea halei*; **Holz and Gradstein 2005b** as *Lejeunea halei*). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, Botarrama trail, *Lücking* 92-501 (**Dauphin 2005** as *Lejeunea caespitosa*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 91-131, 92-91, 92-92, 92-94, 92-350, 92-401, 92-501 (hb. *Lücking*, **Lücking 1995** as *Lejeunea caespitosa*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (**Lücking 1997** as *Lejeunea caespitosa*). **PUNTARENAS:** S. loc. (Merwin et al. 2001 as *Lejeunea* cf. *caespitosa*); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (**Sonnleitner et al. 2009** as *Lejeunea caespitosa*); Monteverde (**Dauphin 2005** as *Lejeunea caespitosa*); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995 as *Lejeunea* cf. *caespitosa*). **SAN JOSÉ:** Los Santos Forest Reserve, ~2,900 m (**Holz and Gradstein 2005a** as *Lejeunea halei*).

PANAMA. **CHIRIQUÍ:** Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,300 m, 4 Apr 2006, *Schäfer-Verwimp & Verwimp* 30882/B (JE, *Schäfer-Verwimp* 2014); Boquete distrito, Bajo Mono, along Rio Caldera, 8°50.5'N, 82°28.9'W, 1,670–1,745 m, 5 Apr 2006, *Schäfer-Verwimp & Verwimp* 30962 (JE, *Schäfer-Verwimp* 2014).

Also reported from Macaronesia, West Tropical Africa, West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, Arabian Peninsula, Indian Subcontinent, Malesia, Papuasia, Australia, Southwestern Pacific, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Lejeunea caracensis Lindenb., *Syn. Hepat.* 3: 355, 1845 (Gottsche et al. 1845a). Type: Venezuela.

≡*Taxilejeunea caracensis* (Lindenb.) Schiffn., *Bot. Jahrb. Syst.* 23: 582, 1897 (Schiffner 1897).

EL SALVADOR. S. loc. (Fulford and Sharp 1990 as *Taxilejeunea caracensis*). **SANTA ANA:** Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler C/1* (**Winkler 1967** as *Taxilejeunea caracensis*).

COSTA RICA. S. loc. (Winkler 1967 as *Taxilejeunea caracensis*; Fulford and Sharp 1990 as *Taxilejeunea caracensis*).

CARTAGO: Paraíso cantón, Orosi, *Standley* 39627 (**Herzog 1951** as *Taxilejeunea caracensis*; **Morales 1991** as *Taxilejeunea caracensis*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America(?), Brazil.

Lejeunea catinulifera Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15(1): 233, 1884 (Spruce 1884). Type: Ecuador.

=*Lejeunea patellifera* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15(1): 234, 1884 (Spruce 1884), syn. fide Reiner-Drehwald (2005c). Type: Ecuador. ≡*Amphilejeunea patellifera* (Spruce) R.M.Schust., *Nova Hedwigia* 44: 8, 1987 (Schuster 1987).

COSTA RICA. S. loc. (Gradstein 1999a as *Amphilejeunea patellifera*; Gradstein and Holz 2005 as *Amphilejeunea patellifera*; Schäfer-Verwimp and Pócs 2009); Cordillera de Talamanca (**Holz and Gradstein 2005b** as *Amphilejeunea patellifera*; Holz 2006 as *Amphilejeunea patellifera*). **CARTAGO:** Cerro de La Muerte, Holz CR 99-660 (GOET, **Reiner-Drehwald 2005c**); El Guarco cantón, 3 de Junio, 2600, *Gradstein & Morales* 9391 (GOET, U, USJ, **Gradstein et al. 1994** as *Amphilejeunea patellifera*; **Kappelle 1996** as *Amphilejeunea patellifera*; **Dauphin 2005** as *Amphilejeunea patellifera*; **Reiner-Drehwald 2005c**). **SAN JOSÉ:** Dota cantón, San Gerardo, Holz (**Holz 2003** as *Amphilejeunea patellifera*); Dota cantón, San Gerardo, 9°35'40"N, 83°44'30"W, 3,000 m, Aug 1992, *Van Dunné* (**Van Dunné and Kappelle 1998** as *Amphilejeunea patellifera*); Los Santos Forest Reserve, ~2,900 m (**Holz and Gradstein 2005a** as *Amphilejeunea patellifera*); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,200 m, *Gradstein* 9738, 9743 (U, USJ, **Gradstein et al. 1994** as *Amphilejeunea patellifera*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Lejeunea cerina (Lehm. et Lindenb.) Lehm. et Lindenb., *Syn. Hepat.* 3: 391, 1845 (Gottsche et al. 1845a).

≡*Jungermannia cerina* Lehm. et Lindenb., *Nov. Stirp. Pug.* 5: 16, 1833 (Lehmann 1833). Type: Brazil.

≡*Hygrolejeunea cerina* (Lehm. et Lindenb.) Schiffn., *Hepat. (Engl.-Prantl)*: 125, 1893 (Schiffner 1893a).

≡*Macrolejeunea cerina* (Lehm. et Lindenb.) Gradst., *Bryologist* 92(3): 345, 1989 (Gradstein 1989).

=*Lejeunea subsimplex* Nees et Mont., *Ann. Sci. Nat., Bot.*, ser. 2, 19: 264, 1843 (Montagne 1843), syn. fide Grolle (1987). Type: Dominica.

≡*Macrolejeunea subsimplex* (Nees et Mont.) Schiffn., *Hepat. (Engl.-Prantl)*: 125, 1893 (Schiffner 1893a).

=*Hygrolejeunea similis* Steph., *Sp. Hepat. (Stephani)* 5: 541, 1914 (Stephani 1914), syn. fide Reiner-Drehwald et al. (2013). Lectotype (Bonner 1966: 665; see also Reiner-Drehwald et al. 2013: 425 as “holotype”) or possibly holotype: Costa Rica, Buenos Aires, 1892, *Tonduz* 15553 (G-00282440 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=215414&lang=en>).

=*Macrolejeunea subsimplex* f. *minor* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 161, 1951 (Herzog 1951), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Costa Rica, Guanacaste, Quebrada

Serena, SE, of Tilarán, 700 m, on tree, *Standley* 46256 (JE-04010825 <https://je.jacq.org/JE04010825>, US-04658647 <http://n2t.net/ark:/65665/33920f591-1c38-4054-9cf7-8ffce0d7e93a>).

=*Macrolejeunea subsimplex* f. *parvistipula* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 161, 1951 (Herzog 1951), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Honduras, Atlántida, Lancetilla Valley, near Tela, on *Cyclopetlis*, 20–600 m, *Standley* 56865 (JE-04010826 <https://je.jacq.org/JE04010826>).

GUATEMALA. ALTA VERAPAZ: Cobán, Las Victorias National Park, 2002 (Andersohn 2004); Panzós municipio, Cahabón and/or Senahú, 2012, Pérez & López-Medina, det. M. Pérez (Pérez and López-Medina 2012); Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, 2,000 m, Pérez 328 (USCG, Pérez 2009); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 21, 72, 95, 113, 157, 166, 233, 286, 384, 408, 427, 489, 513, 532 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 also as *Macrolejeunea cerina*). **HUEHUETENANGO:** S. loc., Pérez 1452 (USCG, Pérez 2009).

HONDURAS. ATLÁNTIDA: Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 56865 (Herzog 1951 as *Macrolejeunea subsimplex* f. *parvistipula*; Geissler and Bischler 1985 as *Macrolejeunea subsimplex* f. *parvistipula*).

COSTA RICA. S. loc. (Stephani 1914 as *Hygrolejeunea similis*; Cole 1982, 1983, both as *Hygrolejeunea cerina*); S. loc., *Schäfer-Verwimp* & Holz SV/H-0471 (GOET, Heinrichs et al. 2013; Lee et al. 2016, 2019). **CARTAGO:** La Unión cantón, Cerro de La Carpintera, 1,500–1,850 m, *Standley* 35674 (JE, US, Herzog 1951 as *Macrolejeunea subsimplex*; Morales 1991 as *Macrolejeunea cerina*; Dauphin 2005); Turrialba cantón, Angostura, Polakowsky (Polakowsky 1879). **GUANACASTE:** Tilarán cantón, Quebrada Serena, SE de Tilarán, 700 m, *Standley* 46256 (Herzog 1951 as *Macrolejeunea subsimplex* f. *minor*; Geissler and Bischler 1985 as *Macrolejeunea subsimplex* f. *minor*; Morales 1991 as *Macrolejeunea cerina*; Dauphin 2005). **HEREDIA:** San Isidro cantón, Cerro Zurquí, *Standley* 50536 (Morales 1991 as *Macrolejeunea cerina*); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley* 50636 (Herzog 1951 as *Macrolejeunea subsimplex*; Dauphin 2005); San Isidro cantón, Yerba Buena, NE of San Isidro, 2,000 m, *Standley* 49667 (Herzog 1951 as *Macrolejeunea subsimplex*; Morales 1991 as *Macrolejeunea cerina*; Dauphin 2005). **PUNTARENAS:** S. loc. (Merwin et al. 2001); Buenos Aires, 1892, *Tonduz* 15553 (G-11817 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=215414&lang=en>, TYPE of *Hygrolejeunea similis*, Bonner 1966 as *Hygrolejeunea similis*; Reiner-Drehwald et al. 2013); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 80–140 m (GOET, Wanek and Pörtl 2008); Monteverde, 9 Jan 1965, James, W. 10 (R, Reed and Robinson 1971 as *Hygrolejeunea cerina*).

PANAMA. CHIRIQUÍ: Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W,

1,880 m, 6 Apr 2006, *Schäfer-Verwimp* & *Verwimp* 30990 (JE, *Schäfer-Verwimp* 2014); Boquete distrito, Bajo Mono, along Rio Caldera, 8°50.5'N, 82°28.9'W, 1,670–1,745 m, 5 Apr 2006, *Schäfer-Verwimp* & *Verwimp* 30926 (JE, *Schäfer-Verwimp* 2014); Gualaca distrito, Fortuna Forest Reserve, Quijada del Diablo, 1,200–1,600 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°41.4'N, 82°13.7'W, 1,280 m, 30 Mar 2009, *Schäfer-Verwimp* & *Verwimp* 34456/A (JE, *Schäfer-Verwimp* 2014); COCLÉ: Antón distrito, El Valle de Antón, Cerro Gaital, 8°37.4–8'N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp* & *Verwimp* 34201 (JE, *Schäfer-Verwimp* 2014). **DARIÉN:** S. loc. (*Schäfer-Verwimp* 2014); Cerro Pirre (Stotler et al. 1998 as *Macrolejeunea cerina*); Cerro Pirre, 1,200–1,300 m, Salazar Allen & Gradstein 9283 p.p. (PMA, Stotler et al. 1998 as *Macrolejeunea cerina*); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, Gradstein & Salazar Allen (PMA, U, Gradstein and Salazar Allen 1992 as *Macrolejeunea cerina*). **VERAGUAS:** Santa Fe distrito, Piedra Alto, 8°30–31'N, 81°07–08'W, 800–850 m, 27 Mar 2009, *Schäfer-Verwimp* & *Verwimp* 34310/A, 34319/B (JE, *Schäfer-Verwimp* 2014).

COCOS I. S. loc. (Clark 1953a as *Macrolejeunea subsimplex*; Fosberg and Klawe 1966 as *Macrolejeunea subsimplex*; Morales 1991 as *Macrolejeunea subsimplex*; Dauphin 1995 as *Macrolejeunea subsimplex*, 1999 as *Macrolejeunea cerina*, 2005); S. loc., Snodgrass & Heller (Robinson 1902 as *Macrolejeunea subsimplex*; Fosberg and Klawe 1966 as *Macrolejeunea subsimplex*); S. loc., 1966, Fosberg & Klawe (Morales 1991 as *Macrolejeunea subsimplex*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Lejeunea cladogyna A.Evans, *Amer. J. Bot.* 5(3): 134, 1918 (Evans 1918). Type: Florida.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 233, 382 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007 as *Lejeunea* aff. *cladogyna*). Note: We are not aware of any positively identified specimen from Zacapa.

PANAMA. DARIÉN: Around INRENARE's station, foothills of Cerro Pirre, 100 m, Salazar Allen & Gradstein 9222b (PMA, Stotler et al. 1998); Cerro Pirre, around INRENARE field station, ~100 m, 4–8 Jun 1991, Gradstein & Salazar Allen (PMA, U, Gradstein and Salazar Allen 1992).

COCOS I. S. loc. (Fosberg and Klawe 1966; Dauphin 1995, 2005); S. loc., 1966, Fosberg & Klawe (Morales 1991); Chatham Bay, 28 Jun 1932, Howell 233 (CAS, Clark 1953a); Wafer Bay, 28 Jun 1932, Howell 231 p.p. (CAS, Clark 1953a).

Also reported from Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Lejeunea controversa Gottsche, *Hepat. Eur., Leberm.* 56–57: no. 556, 1873 (Gottsche and Rabenhorst 1873). Type: Guadeloupe.

=*Crossotolejeunea lindeniana* Steph., *Sp. Hepat. (Stephani)* 5: 232, 1913 (Stephani 1913), syn. fide Reiner-Drehwald and Goda (2000). Lectotype (Bonner 1963b: 901; see also Reiner-Drehwald and Goda 2000: 15 as “holotype”) or possibly holotype: America Centralis, s.d., *Goebel s.n.* (G-00282358 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=213738&lang=en>).

=*Crossotolejeunea lindeniana* var. *connivens* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 141, 1951 (Herzog 1951), syn. fide Reiner-Drehwald and Goda (2000). Lectotype (Reiner-Drehwald and Goda 2000: 15 as “holotype”): Costa Rica, Heredia, C. de Las Caricias, N of San Isidro, *Standley & Valerio* 52294 (JE-04002113 <https://je.jacq.org/JE04002113>, isolecotypes JE-04002112 <https://je.jacq.org/JE04002112>, US-00070849 <http://n2t.net/ark:/65665/329a7ae97-31a4-4cf1-916e-800406f8cf12>).

=*Crossotolejeunea obtusiuscula* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 142, 1951 (Herzog 1951), syn. fide Reiner-Drehwald and Goda (2000). Lectotype (Reiner-Drehwald and Goda 2000: 15 as “holotype”) or possibly holotype: Costa Rica, Cartago: Vicinity of Pejivalle, *Standley* 47128/b (JE-04002106 <https://je.jacq.org/JE04002106>).

COSTA RICA. S. loc. (Bastos 2004; Schäfer-Verwimp and Reiner-Drehwald 2009; Mello et al. 2011; Schäfer-Verwimp 2014). **CARTAGO:** Jiménez cantón, Pejivalle, ~900 m, *Standley* 47128b (Herzog 1951 as *Crossotolejeunea obtusiuscula*; Bonner 1963b as *Crossotolejeunea obtusiuscula*; Morales 1991 as *Crossotolejeunea obtusiuscula*; Reiner-Drehwald and Goda 2000; Dauphin 2005). **HEREDIA:** San Isidro cantón, Cerro Caricias, *Standley & Valerio* 52294 (JE, Reiner-Drehwald and Goda 2000); San Isidro cantón, Cerro de Caricias, N of San Isidro, 2,000–2,400 m, *Standley* 52294 (Herzog 1951 as *Crossotolejeunea lindeniana* var. *connivens*; Bonner 1963b as *Crossotolejeunea lindeniana* var. *connivens*; Morales 1991 as *Crossotolejeunea lindeniana*; Dauphin 2005); Sarapiquí cantón, llanura de Santa Clara, finca Rara Avis, *Dauphin* 2188 (GOET, Reiner-Drehwald and Goda 2000; Dauphin 2005). **PUNTARENAS:** S. loc. (Merwin et al. 2001); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, 18 Mar 1992, *Lyon* 313, det. Dauphin Jun 2017 (MO-4411686!, this publication); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde, *Gradstein* 9439, 9541 (GOET, Reiner-Drehwald and Goda 2000; Dauphin 2005); Monteverde, *Ingram & Ferrell-Ingram* 1762 (GOET, Dauphin 2005).

PANAMA. *BOCAS DEL TORO: Bocas del Toro distrito, Bastimentos, Salt Creek, Sendero a Long Beach, 9.29456°N, 82.10303°W, 70 m, 16 Aug 2017, *Dauphin* 4631, 4637, det. Dauphin Aug 2017 (PMA, this publication). **COCLÉ:** Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8°N, 80°06.9–7.0°W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34198/A

(JE, Schäfer-Verwimp 2014). **PANAMA WEST:** La Chorrera distrito, Barro Colorado Island, *Gradstein & Salazar Allen* 15077 (Dauphin et al. 2022); La Chorrera distrito, Barro Colorado, Shannon, 2003, *Dauphin* 3081 (CR, PMA, Dauphin et al. 2022 as *Lejeunea* cf. *controversa*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Lejeunea corynantha Spruce, *J. Linn. Soc., Bot.* 30(210): 344, 1895 (Gepp 1895). Type: Dominica.

PANAMA. S. loc. (Lavocat Bernard et al. 2009; Schäfer-Verwimp and Pócs 2009; Schäfer-Verwimp and Reiner-Drehwald 2009; Gradstein and Benitez 2017; Gradstein et al. 2018b; Lavocat Bernard 2018; Gradstein 2021). **COCLÉ:** Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8°N, 80°06.9–7.0°W, 1,000 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34247/A, 34259/C (JE, Schäfer-Verwimp 2014). **PANAMA:** S. loc. (Schäfer-Verwimp 2014); Panamá distrito, Cerro Jefe, 9°10'N, 79°20'W, 1,000 m, Jun 1991, *Salazar Allen & Gradstein* 9396 (U, Reiner-Drehwald and Schäfer-Verwimp 2008).

Also reported from the Caribbean, Western South America.

Lejeunea cyathophora Mitt., *Hooker's J. Bot. Kew Gard. Misc.* 3: 359, 1851 (Mitten 1851). Type: Ecuador.

EL SALVADOR. SAN VICENTE: La Cumbre, *Winkler C/1* (Winkler 1967). **SANTA ANA:** Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler A/16/2, A/26/5* (Winkler 1967).

COSTA RICA. S. loc. (Robinson 1964; Winkler 1967; Schäfer-Verwimp et al. 2013; Schäfer-Verwimp 2014; Churchill et al. 2015; Gradstein 2021). **CARTAGO:** Paraíso cantón, Orosi, Tapantí National Park, 600 m, Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0373/B (CR, JE, Reiner-Drehwald and Schäfer-Verwimp 2008). **SAN JOSÉ:** Dota cantón, Santa María, *Standley* 42541a (US, Herzog 1951; Morales 1991; Kappelle 1996; Dauphin 2005); Pérez Zeledón cantón, Cordillera de Talamanca, San Gerardo de Rivas, 1,450 m, Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0229B (CR, JE, Reiner-Drehwald and Schäfer-Verwimp 2008); Pérez Zeledón cantón, Rivas, San Gerardo, 1,450 m, Dec 1999, *Holz & Schäfer-Verwimp* CR 99-1265 (GOET, Reiner-Drehwald and Schäfer-Verwimp 2008).

PANAMA. S. loc. (Gradstein 2021). **CHIRIQUÍ:** Tieras Altas distrito, Volcán, along road to Rio Serena at western edge of the village, 8°47.6'N, 82°39.4'W, 1,370 m, 1 Apr 2009, *Schäfer-Verwimp & Verwimp* 34617/B (JE, Schäfer-Verwimp 2014).

Also reported from Northern South America, Western South America.

Lejeunea debilis (Lehm. et Lindenb.) Nees et Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 5: 60, 1836 (Nees and Montagne 1836).

=*Jungermannia debilis* Lehm. et Lindenb., *Nov. Stirp. Pug.* 4: 51, 1832 (Lehmann 1832). Type: St. Vincent.

≡*Taxilejeunea debilis* (Lehm. et Lindenb.) Steph., *Hedwigia* 29(3): 141, 1890 (Stephani 1890a).

=*Taxilejeunea bidentula* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 155, 1951 (Herzog 1951), syn. fide Herzog (1951), nom. inval. (ICN2018 Art. 36.1(b)); publ. in syn. [sub *Taxilejeunea debilis*].

GUATEMALA. S. loc. (Fulford 1987 as *Taxilejeunea debilis*; Fulford and Sharp 1990 as *Taxilejeunea debilis*; Lücking 1995 as *Taxilejeunea debilis*). **ALTA VERAPAZ:** Cobán municipio, Cubelquitz, 1906, *Türckheim* 5104 (G, Evans 1921b as *Taxilejeunea debilis*); Senahú municipio, Finca Sepacuité, 1902, Cook & Griggs 75, 443 (Evans 1921b as *Taxilejeunea debilis*); trail between Sepacuité and Pangós, 1905, Maxon & Hay 3112 (Evans 1921b as *Taxilejeunea debilis*).

HONDURAS. S. loc. (Fulford and Sharp 1990 as *Taxilejeunea debilis*; Geissler and Bischler 1990 as *Taxilejeunea bidentula*; Lücking 1995 as *Taxilejeunea debilis*). **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, 20–600 m, Standley 56851 (Herzog 1951 as *Taxilejeunea debilis*).

NICARAGUA. S. loc. (Fulford 1987 as *Taxilejeunea debilis*; Lücking 1995 as *Taxilejeunea debilis*). **GRANADA:** Granada municipio, Volcán Mombacho, 1903, Baker 2505 p.p. (Evans 1921b as *Taxilejeunea debilis*).

COSTA RICA. S. loc. (Fulford 1987 as *Taxilejeunea debilis*; Fulford and Sharp 1990 as *Taxilejeunea debilis*; Geissler and Bischler 1990 as *Taxilejeunea bidentula*); S. loc., Biasi et al. 21 (GOET, Heinrichs et al. 2013; Lee et al. 2016, 2019). **CARTAGO:** Paraíso cantón, Orosi, Standley 39618 (B-26102, Herzog 1951 as *Taxilejeunea debilis*; Morales 1991 as *Taxilejeunea debilis*; Dauphin 2005 as *Taxilejeunea debilis*). **GUANACASTE:** Tilarán cantón, El Silencio, ~750 m, Standley 44646a (Herzog 1951 as *Taxilejeunea debilis*; Morales 1991 as *Taxilejeunea debilis*; Dauphin 2005 as *Taxilejeunea debilis*); Tilarán cantón, Los Ayotes, 600–700 m, Standley 45459 p.p. (Herzog 1951 as *Taxilejeunea debilis*; Morales 1991 as *Taxilejeunea debilis*; Dauphin 2005 as *Taxilejeunea debilis*). **HEREDIA:** La Esmeralda (Dauphin 2005 as *Taxilejeunea debilis*); La Esmeralda, Macizo del Barva, 600–750 m, Biolley 15628 (NY, Evans 1921b as *Taxilejeunea debilis*; Morales 1991 as *Taxilejeunea debilis*; Dauphin 2005 as *Taxilejeunea debilis*). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, Lücking 91-62, Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, Lücking 91-63, 92-76, 92-251, 92-337, 92-601, 94-20 (hb. Lücking, Lücking 1995 as *Taxilejeunea debilis*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, Lücking (Lücking 1997 as *Taxilejeunea debilis*). **PUNTARENAS:** S. loc., Schluder 7 (GOET, Heinrichs et al. 2013); Coto Brus cantón, Cerro Paraguas, 10 Jun 1995, Dauphin 1793 (GOET, CR under *Taxilejeunea pterogonia*, Heinrichs et al. 2013); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009 as *Taxilejeunea debilis*); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 80–140 m (GOET, Wanek and Pörtl 2008 as

Taxilejeunea cf. *debilis*); Golfo Dulce (Umana and Wanek 2010 as *Taxilejeunea* cf. *debilis*).

PANAMA. CHIRIQUÍ: S. loc. (Schäfer-Verwimp 2014); Boquete, 9 Aug 1950, Chickering (MICH, Crum and Arzeni 1953 as *Taxilejeunea debilis*; Stotler et al. 1998 as *Taxilejeunea debilis*). **COCLÉ:** Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, Schäfer-Verwimp & Verwimp 34142 (JE, Schäfer-Verwimp 2014). **VERAGUAS:** Santa Fe distrito, along road to Guabal on the Caribbean coast, 8°31.9–33.9'N, 81°08.8–11.3'W, 330 m, 27 Mar 2009, Schäfer-Verwimp & Verwimp 34302 (JE, Schäfer-Verwimp 2014); Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, Schäfer-Verwimp & Verwimp 30857 (JE, Schäfer-Verwimp 2014).

***COCOS I.** Río Genio, 5°32'57"N, 87°03'56"W, 130 m, 23 Jan 1990, Dauphin 1025, det. G. Dauphin Jan 2021 (USJ-47213!, CR-4468403!, W-0207445! <https://w.jacq.org/W0207445>, this publication).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil(?).

Lejeunea deplanata Nees, *Syn. Hepat.* 3: 368, 1845 (Gottsche et al. 1845a) var. *deplanata*. Type: Peru.

=*Rectolejeunea maxonii* A.Evans, *Bull. Torrey Bot. Club* 39(12): 609, 1912 (Evans 1912c), syn. fide Reiner-Drehwald (2010b). Type: Jamaica.

≡*Lejeunea maxonii* (A.Evans) Xiao L.He, *Ann. Bot. Fennici* 34(1): 71, 1997 (He 1997).

COSTA RICA. S. loc. (Cole, 1983 as *Rectolejeunea maxonii*; Qiu et al. 2014). **PUNTARENAS:** Coto Brus cantón, Las Cruces, ~4 km SSE of San Vito, 1,300 m, Dec 1978, Sipman 11915 (U, Reiner-Drehwald 2010b); Monteverde (Morales 1991 as *Rectolejeunea maxonii*); Monteverde, 15 Jan 1965, James, W. 41a, 41b, 41e (R, Reed and Robinson 1971 as *Rectolejeunea maxonii*; Dauphin 2005 as *Lejeunea maxonii*). **SAN JOSÉ:** Dota cantón, San Gerardo, 1,900 m, Dec 1999, Schäfer-Verwimp & Holz SV/H-0125/C (CR, hb. Schäfer-Verwimp, Reiner-Drehwald 2010b).

PANAMA. S. loc. (Qiu et al. 2014); Canal Zone (Schäfer-Verwimp 2014). †**BOCAS DEL TORO:** S. loc. (Schäfer-Verwimp 2014). Note: This must refer to the recently separated *Naso Tjër Di* comarca. **CHIRIQUÍ:** Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,110 m, 4 Apr 2006, Schäfer-Verwimp & Verwimp 30871 (JE, Schäfer-Verwimp 2014); Boquete distrito, Bajo Mono, along Río Caldera, 8°50.5'N, 82°28.9'W, 1,670–1,745 m, 5 Apr 2006, Schäfer-Verwimp & Verwimp 30965 (JE, Schäfer-Verwimp 2014); Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°44.3'N, 82°14.7'W, 1,100 m, 30 Mar 2009, Schäfer-Verwimp & Verwimp 34509/B (JE, Schäfer-Verwimp 2014); Volcán, road to Río Sereno, 8°49.5'N, 82°41.5'W, 1,580 m, 2 Apr 2009, Schäfer-Verwimp & Verwimp 34687/A (JE, Schäfer-Verwimp 2014). **DARIÉN:** S. loc. (Schäfer-Verwimp 2014); Cerro Pirre

(Stotler et al. 1998 as *Lejeunea maxonii*); Cerro Pirre, 1,200–1,300 m, *Salazar Allen & Gradstein* 9295 (PMA, *Stotler et al. 1998* as *Lejeunea maxonii*); Cerro Pirre, 800 m, *Salazar Allen & Gradstein* 9299 p.p. (PMA, *Stotler et al. 1998* as *Lejeunea maxonii*). NASO TJÉR DI COMARCA: Cerro Fábrega, 3,000 m, Mar 2004, *De Gracia et al.* 322 (PMA, *Reiner-Drehwald* 2010b). PANAMA WEST: La Chorrera distrito, Barro Colorado Island (Reiner-Drehwald et al. 2013 as *Lejeunea maxonii*); La Chorrera distrito, Barro Colorado Island, *Gradstein & Salazar Allen* 15120 (*Dauphin et al. 2022*); La Chorrera distrito, Barro Colorado Island, Camino F. Drayton 15, *Salazar Allen & Chung* 4656 (PMA, *Stotler et al. 1998* as *Lejeunea maxonii*; *Dauphin et al. 2022*).

Also reported from North-Central USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Lejeunea flaccida Lindenb. et Gottsche, *Syn. Hepat.* 5: 758, 1847 (Gottsche et al. 1847). Type: Mexico.

=*Omphalanthus lusorius* Lindenb. et Gottsche, *Syn. Hepat.* 5: 747, 1847 (Gottsche et al. 1847), syn. fide Bastos and Gradstein (2020a). Type: Colombia. Note: *Omphalanthus lusoria* is nomenclaturally a synonym of *Lejeunea flaccida* (only the type belongs there), but what used to be called *Omphalanthus lusoria* (or any combination of it) belongs to *Lejeunea bombonasensis* (cf. Bastos and Gradstein 2020a).

=*Lejeunea lusoria* (Lindenb. et Gottsche) Prantl., *Hedwigia* 29: xvi, 1890 (Prantl 1890).

=*Taxilejeunea lusoria* (Lindenb. et Gottsche) Steph., *Hedwigia* 29(3): 141, 1890 (Stephani 1890a).

=*Lejeunea obtusangula* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15(1): 221, 1884 (Spruce 1884), syn. fide Bastos and Gradstein (2020a). Type: Brazil.

=*Taxilejeunea obtusangula* (Spruce) A. Evans, *Bull. Torrey Bot. Club* 38(5): 215, 1911 (Evans 1911a).

=*Taxilejeunea standleyi* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 156, 1951 (Herzog 1951), syn. with *Taxilejeunea obtusangula* fide Dauphin (2005). Lectotype (Söderström and Hentschel 2023: 24): Costa Rica, San José, La Hondura, *Standley* 51875c (JE-04002531 <https://je.jacq.org/JE04002531>, US-00072925 <http://n2t.net/ark:/65665/3d9d27f53-2c66-4886-91d4-9debd576afe0>, B-300026211 <https://herbarium.bgbm.org/object/B300026211>).

GUATEMALA. ALTA VERAPAZ: Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, *Pérez* 246 (USCG, *Pérez* 2009 as *Taxilejeunea obtusangula*); Tukurú municipio, Reserva Privada Chelemhá (*Pérez* 2006 as *Taxilejeunea obtusangula*).

HONDURAS. S. loc. (Winkler 1967 as *Taxilejeunea lusoria*). ATLÁNTIDA: Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 54430 p.p., 55537 (*Herzog* 1951 as *Taxilejeunea lusoria*).

EL SALVADOR. SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler* A/1/10, A/8/1 (*Winkler* 1967 as *Taxilejeunea lusoria*).

COSTA RICA. S. loc. (Robinson 1964 as *Taxilejeunea standleyi*; Cole 1982, 1983, both as *Taxilejeunea obtusangula*; *Fulford and Sharp* 1990 as *Taxilejeunea standleyi*; Schäfer-Verwimp and Pócs 2009 as *Taxilejeunea obtusangula*; Schäfer-Verwimp 2014

as *Lejeunea obtusangula*; Lavocat Bernard 2018 as *Lejeunea obtusangula*). PUNTARENAS: Monteverde, 15 Jan 1965, *James, W.* 40g, 41a (R, *Reed and Robinson* 1971 as *Taxilejeunea obtusangula*). SAN JOSÉ: Moravia cantón, La Hondura, 1,200–1,500 m, *Standley* 51875c (B-26211, *Herzog* 1951 as *Taxilejeunea standleyi*; *Geissler and Bischler* 1990 as *Taxilejeunea standleyi*; *Morales* 1991 as *Taxilejeunea standleyi*; *Dauphin* 2005 as *Taxilejeunea obtusangula*).

PANAMA. S. loc. (Schäfer-Verwimp and Pócs 2009 as *Taxilejeunea obtusangula*; Lavocat Bernard 2018 as *Lejeunea obtusangula*; Canal Zone (Schäfer-Verwimp 2014 as *Lejeunea obtusangula*). CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, foothills of Cerro Pinola, 1,280–2,000 m (*Salazar Allen et al. 2021* as *Lejeunea cf. lusoria*); Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (*Salazar Allen et al. 2021* as *Lejeunea obtusangula*); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,500–1,620 m, *Schäfer-Verwimp & Verwimp* 34397, 34399/A, 34407/A, 34453/A (JE, *Schäfer-Verwimp* 2014 as *Lejeunea obtusangula*); Tierras Altas distrito, Volcán, road to Rio Sereno, 8°49.67'N, 82°42.85'W, 1,220 m, 2 Apr 2009, *Schäfer-Verwimp & Verwimp* 34696/A (JE, *Schäfer-Verwimp* 2014 as *Lejeunea obtusangula*). DARIÉN: S. loc. (Schäfer-Verwimp 2014 as *Lejeunea obtusangula*); Cerro Pirre (Stotler et al. 1998 as *Taxilejeunea obtusangula*); Cerro Pirre, 100 m, *Salazar Allen & Gradstein* 9357 (PMA, *Stotler et al. 1998* as *Taxilejeunea obtusangula*); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992 as *Taxilejeunea obtusangula*). PANAMA WEST: La Chorrera distrito, Barro Colorado Island, *Gradstein & Salazar Allen* 15077, 15114, 15115 (*Dauphin et al. 2022*); La Chorrera distrito, Barro Colorado Island, Camino Snider-Molino, *Salazar Allen & Chung* 4732 (PMA, *Stotler et al. 1998* as *Taxilejeunea obtusangula*; *Dauphin et al. 2022*); La Chorrera distrito, Barro Colorado, Pearson, 2003, *Dauphin* 3069, 3106 (*Dauphin et al. 2022*).

Also reported from Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Lejeunea flava (Sw.) Nees, *Naturgesch. Eur. Leberm.* 3: 277, 1838 (Nees 1838b) subsp. *flava*.

=*Jungermannia flava* Sw., *Prodr.* (Swartz): 144, 1788 (Swartz 1788). Type: Jamaica.

=*Lejeunea melastomatis* Lindenb. et Gottsche, *Syn. Hepat.* 5: 763, 1847 (Gottsche et al. 1847), syn. fide Reiner-Drehwald and Grolle (2012). Type: Mexico.

=*Cheilolejeunea melastomatis* (Lindenb. et Gottsche) Steph., *Hedwigia* 29(2): 82, 1890 (Stephani 1890c), nom. inval. (ICN2018 Art. 35.1; genus not valid).

=*Rectolejeunea melastomatis* (Lindenb. et Gottsche) Steph., *Sp. Hepat. (Stephani)* 5: 691, 1914 (Stephani 1914).

GUATEMALA. S. loc. (Schuster 1980d; Miller et al. 1983; Fulford 1987; Fulford and Sharp 1990; Lücking 1995; Oliveira-Silva and Yano 2000; Srivastava and Sharma 2000; Easa 2003;

Bastos 2004; Alam and Srivastava 2009; Mello et al. 2011; Váña and Engel 2013). ALTA VERAPAZ: S. loc., Pérez 336 (USCG, Pérez 2009); Tucurú municipio, Reserva Privada Chelémhá (Pérez 2006). BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). *QUETZALTENANGO: Zunil municipio, road from Aldea Chuimucubal, NW slopes of Pico Zunil, 14°45'56.35"N, 91°28'14.69"W, 2,300–2,600 m, 14 Jan 2006, *Quedensley* 3991, det. Dauphin Sep 2017 (MO, W-0089068!, this publication).

BELIZE. S. loc. (Váña and Engel 2013). STANN CREEK: Cockscombe Reserve, 1996, *Eggers & Timm BEZ 5/27*, det. Eggers (Eggers et al. 2004).

HONDURAS. S. loc. (Schuster 1957, 1980d; Miller et al. 1983; Fulford 1987; Fulford and Sharp 1990; Lücking 1995, Oliveira-e-Silva and Yano 2000; Srivastava and Sharma 2000; Easa 2003; Bastos 2004; Alam and Srivastava 2009; Mello et al. 2011; Váña and Engel 2013). ATLÁNTIDA: El Porvenir municipio, Parque Nacional Pico Bonito, desde la quebrada Zacate al límite zona núcleo punto 54, 15°40'N, 86°55'W, 200–400 m, 29 Dec 2001, *Dauphin & Ferrufino 3050.7*, det. Dauphin Dec 2020 (CR-5152106!, this publication); Tela municipio, Lancetilla Valley, 20–600 m, *Standley 53244c, 55346, 55570 p.p., 55804, 55805* (Herzog 1951).

EL SALVADOR. S. loc. (Lücking 1995). SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hacienda Montecristo, *Winkler A/1/3, A/32/β/2, A/32/γ/6* (Winkler 1967).

COSTA RICA. S. loc. (Stephani 1914 as *Rectolejeunea melastomatis*; Váña and Engel 2013); Cordillera de Talamanca (Holz and Gradstein 2005b; Holz 2006); Cordillera de Talamanca, *Kappelle 718a* (CR, *Kappelle 1996*). ALAJUELA: Alajuela cantón, between Vara Blanca and Poás Volcano, 31 Jan 1985, *Eggers CR 1/200* (Pócs 2006a); Poás, 1,950 m, *Eggers* (hb. Eggers, *Eggers 2001*). CARTAGO: Jiménez cantón, Peijivalle, 900 m, *Standley 64967 p.p.* (Herzog 1951; Morales 1991; Dauphin 2005); Jimenéz cantón, Pejibaye (Eggers 2001). HEREDIA: Heredia cantón, Vara Blanca, 1,380 m, *Eggers* (hb. Eggers, *Eggers 2001*). LIMÓN: Braulio Carrillo National Park, 400–500 m (Eggers 2001); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking 91-95, 91-96, 92-90, 92-220, 92-346, 92-470, 92-533* (hb. Lücking, *Lücking 1995*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (*Lücking 1997*). PUNTARENAS: S. loc. (Merwin et al. 2001); Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al. 2001a*); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995); Monteverde, 1,600 m, *Eggers* (hb. Eggers, *Eggers 2001*). SAN JOSÉ: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin 2005);

Dota cantón, San Gerardo, *Holz* (Holz 2003); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a).

PANAMA. S. loc. (Schuster 1957, 1980d; Miller et al. 1983; Fulford 1987; Lücking 1995; Fulford and Sharp 1990; Stotler et al. 1998; Easa 2003; Bastos 2004; Oliveira-e-Silva and Yano 2000; Srivastava and Sharma 2000; Alam and Srivastava 2009; Mello et al. 2011; Váña and Engel 2013); S. loc., *Schäfer-Verwimp & Verwimp 30873* (GOET, Heinrichs et al. 2013). CHIRIQUÍ: S. loc. (Schäfer-Verwimp 2014); Gualaca distrito, Fortuna Forest Reserve, foothills of Cerro Pinola, 1,280–2,000 m (Salazar Allen et al. 2021); Tierras Altas distrito, Volcán, 9 Aug 1950, *Chickering* (MICH, Crum and Arzeni 1953; Stotler et al. 1998). COCLÉ: Antón distrito, El Valle de Antón, Golden Frog Inn and near surroundings, 8°36.6'N, 80°06.6'W, 640–650 m, 7 Apr 2006, *Schäfer-Verwimp & Verwimp 31060/A* (JE, Schäfer-Verwimp 2014); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Río Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López 674, 691 p.p., 693, 731, 737, etc.* (PMA, Sierra et al. 2019a). DARIÉN: S. loc. (Schäfer-Verwimp 2014); Cerro Pirre (Stotler et al. 1998); Cerro Pirre, 400–500 m, *Salazar Allen & Gradstein 9241* (PMA, Stotler et al. 1998); Cerro Pirre, along trail to Rancho Mojado, 400–500 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992). PANAMA WEST: Between Arraiján and La Chorrera, *Richards 2049* (F, PMA, Stotler et al. 1998). PANAMA: S. loc. (Schäfer-Verwimp 2014). Note: We are not aware of any firsthand report from Panama and think this refers to Panama West.

COCOS I. S. loc. (Fosberg and Klawe 1966; Dauphin 1995, 1999); S. loc., 1966, *Fosberg & Klawe* (Morales 1991); Península Presidio, 210 m, 15 Feb 1994, *Dauphin 1046*, det. M. I. Morales (USJ, Dauphin 2005); Río Genio, 5°32'57"N, 87°03'56"W, 0–50 m, Apr 1992, *Lücking 500* (USJ, Bernecker-Lücking 2000); Wafer Bay, 28 Jun 1932, *Howell 229 p.p.* (CAS, Clark 1953a); Yglesias D, 350–500 m, Apr 1992, *Lücking 589* (hb. Bernecker, Bernecker-Lücking 2000).

Also reported from Northern Europe, Macaronesia, West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, China, Mongolia, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasias, Australia, New Zealand, Southwestern Pacific, Southeastern Pacific, Northwestern Pacific, Northeastern Pacific, Eastern Canada, North-Central USA, Northeastern USA(?), South-Central USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands. This is the total distribution of the species. The distribution of the subspecies is not fully known.

Lejeunea glaucescens Gottsche, *Syn. Hepat.* 3: 378, 1845 (Gottsche et al. 1845a). Type: Brazil.

=*Crossotolejeunea caulicalyx* Steph., *Sp. Hepat. (Stephani)* 5: 237, 1913 (Stephani 1913), syn. fide Bastos and Gradstein (2020a). Type: Cuba.

≡*Lejeunea caulicalyx* (Steph.) M.E.Reiner et Goda, *J. Hattori Bot. Lab.* 89: 13, 2000 (Reiner-Drehwald and Goda 2000).

GUATEMALA. S. loc. (Schäfer-Verwimp and Reiner-Drehwald 2009 as *Lejeunea caulicalyx*; Schäfer-Verwimp and Van Melick 2016 as *Lejeunea caulicalyx*; Lavocat Bernard 2018 as *Lejeunea caulicalyx*). **ALTA VERAPAZ:** Tucurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Lejeunea* cf. *glaucescens*). Note: We are not aware of any positively identified specimen from Alta Verapaz. **BAJA VERAPAZ:** Puhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). **EL PETÉN:** San José municipio, El Zotz, *Can et al.* (USCG, Morales 2011 as *Lejeunea* cf. *glaucescens*). Note: We are not aware of any positively identified specimen from El. Petén. **IZABAL:** Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007). **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007).

***BELIZE.** ***CAYO:** Las Cuevas Field Station, 16°44'N, 88°59'W, 550 m, 8 Dec 1996, *Allen 18120*, det. Dauphin Jun 2017 (MO-5228028! <http://tropicos.org/specimen/90102225>, this publication).

***EL SALVADOR.** ***LA LIBERTAD:** Antigua municipio, vicinity of Las Cuevas Field Station, 16°44'N, 88°59'W, 22 Dec 2014, *Búcaro H289*, det. Dauphin (MHES!, this publication).

***SANTA ANA:** Metapán municipio, Montecristo, Sendero Pionero, 4 Nov 2014, *Búcaro H300*, det. Dauphin (MHES!, this publication).

COSTA RICA. S. loc. (Schäfer-Verwimp and Pócs 2009 as *Lejeunea caulicalyx*; Schäfer-Verwimp et al. 2013 as *Lejeunea caulicalyx*; Schäfer-Verwimp 2014 as *Lejeunea caulicalyx*; Lavocat Bernard 2018 as *Lejeunea caulicalyx*; Costa 2017 as *Lejeunea caulicalyx*; Costa et al. 2020 as *Lejeunea caulicalyx*). **PUNTARENAS:** Osa cantón, Los Mogos, Cerro Helado, *Gradstein & Dauphin 9357* (GOET, Reiner-Drehwald and Goda 2000 as *Lejeunea caulicalyx*; Dauphin 2005 as *Lejeunea caulicalyx*); Osa cantón, Rincón, *Gradstein 9304* (GOET, Reiner-Drehwald and Goda 2000 as *Lejeunea caulicalyx*; Dauphin 2005 as *Lejeunea caulicalyx*).

PANAMA. S. loc. (Schäfer-Verwimp and Van Melick 2016 as *Lejeunea caulicalyx*; Lavocat Bernard 2018 as *Lejeunea caulicalyx*). **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (Salazar Allen et al. 2021 as *Lejeunea* cf. *glaucescens*); Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021 as *Lejeunea caulicalyx*); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,640 m, *Schäfer-Verwimp & Verwimp 34417/C* (JE, Schäfer-Verwimp 2014 as *Lejeunea caulicalyx*). **COCLÉ:** Antón distrito, El Valle de Antón, Alto de La Mesa, 8°38'N, 80°07'W, 800–850 m, 30 Mar 2006, *Schäfer-Verwimp & Verwimp 30747* (JE, Schäfer-Verwimp 2014 as *Lejeunea caulicalyx*); Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8'N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp*

34217 (JE, Schäfer-Verwimp 2014 as *Lejeunea caulicalyx*). **PANAMA WEST:** La Chorrera distrito, Barro Colorado Island, *Gradstein & Salazar Allen 15085* (Dauphin et al. 2022). **VERAGUAS:** Isla Canales de Tierra, Sendero de los tanques de reserva de agua, 7°45'N, 81°35'W, Jan 2002, *Salazar Allen et al. 19743* (PMA, Salazar Allen and Chung 2003, 2006); Santa Fe distrito, along road to Guabal on the Caribbean coast, 8°31.9–33.9'N, 81°08.8–11.3'W, 330 m, 27 Mar 2009, *Schäfer-Verwimp & Verwimp 34299/A* (JE, Schäfer-Verwimp 2014 as *Lejeunea caulicalyx*).

***COCOS I.** S. loc. (Salazar Allen and Chung 2003 as *Lejeunea* cf. *glaucescens*); Península Presidio, 210 m, 15 Feb 1994, *Dauphin 1046*, det. M. I. Morales (USJ, Dauphin 1995 as *Lejeunea* cf. *glaucescens*, 1999 as *Lejeunea* cf. *glaucescens*); Valle Wafer, Río Genio, 5°32'57"N, 87°03'56"W, 0–10 m, 19 Jan 1990, *Dauphin 918*, det. G. Dauphin Oct 2020 (USJ-47190!, CR-4468167!, this publication); Valle Wafer, Río Genio, 5°32'57"N, 87°03'56"W, 0–10 m, 19 Jan 1990, *Dauphin 942*, det. G. Dauphin Oct 2020 (CR!, this publication); Valle Wafer, Río Genio, 5°32'57"N, 87°03'56"W, 0–10 m, 20 Jan 1994, *Dauphin 942*, det. G. Dauphin Oct 2020 (CR!, this publication).

Also reported from Southeastern USA, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Lejeunea grolleana (Bernecker) R.L.Zhu et W.Ye, *J. Syst. Evol.* 51(4): 472, 2013 (Ye et al. 2013).

≡ *Oryzolejeunea grolleana* Bernecker, *Haussknechtia, Beih.* 9: 37, 1999 (Bernecker-Lücking 1999). Holotype: Costa Rica, Limón, Botarrama trail in the Braulio Carrillo N.P., section Quebrada Gonzalez, 40 km NNE of San José, 10°12'00"N, 83°55'00"W, ~460–480 m, on leaves of *Rhodospatha wendlandii* Schott. ex Engl., Jan–Jul 1992, *Bernecker 92-147* (JE-04001647 <https://je.jacq.org/JE04001647>).

≡ *Oryzolejeunea grolleana* A.Lücking, *Diversit. Mikrohab. Epiphyll.* Moose: 123, 1995 (Lücking 1995), nom. inval. (ICN2018 Art. 30.9; published in a thesis).

COSTA RICA. S. loc. (Gradstein et al. 2001b as *Oryzolejeunea grolleana*; Holz et al. 2001 as *Oryzolejeunea grolleana*). **HEREDIA:** Sarapiquí cantón, La Selva, Jun 1991, *Vargas 34948* (USJ, Bernecker-Lücking 1999 as *Oryzolejeunea grolleana*; Dauphin 2005 as *Oryzolejeunea grolleana*). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, Botarrama trail, *Lücking 92-148* (G, hb. Bernecker, Bernecker-Lücking 1999 as *Oryzolejeunea grolleana*; Dauphin 2005 as *Oryzolejeunea grolleana*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking 92-147* (G, JE, hb. Lücking, Lücking 1995 as *Oryzolejeunea grolleana*; Bernecker-Lücking 1999 as *Oryzolejeunea grolleana*; Dauphin 2005 as *Oryzolejeunea grolleana*); Crosby and Engel 2006 as *Oryzolejeunea grolleana*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking 92-443* (G, hb. Lücking, Lücking 1995 as *Oryzolejeunea grolleana*; Bernecker-Lücking 1999 as *Oryzolejeunea grolleana*; Dauphin 2005 as *Oryzolejeunea grolleana*); Pococí cantón, Braulio Carrillo National Park,

Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 92-623 (hb. *Lücking*, *Lücking* 1995 as *Oryzolejeunea grolleana*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (*Lücking* 1997 as *Oryzolejeunea grolleana*).

Not found outside Central America.

Lejeunea grossitexta (Steph.) M.E.Reiner et Goda, *J. Hattori Bot. Lab.* 89: 29, 2000 (Reiner-Drehwald and Goda 2000). =*Crossotolejeunea grossitexta* Steph., *Sp. Hepat. (Stephani)* 5: 240, 1913 (Stephani 1913). Type: Brazil.

COSTA RICA. S. loc. (Lavocat Bernard et al. 2009; Schäfer-Verwimp and Reiner-Drehwald 2009; Schäfer-Verwimp 2014). **CARTAGO:** Paraíso cantón, Orosi, Tapantí National Park, Sendero La Oropéndola, 600 m, 30 Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0358/b (hb. Schäfer-Verwimp, Holz et al. 2001; Dauphin 2005).

PANAMA. S. loc., *Schäfer-Verwimp & Verwimp* 31000 (GOET, Heinrichs et al. 2013; Lee et al. 2016). **CHIRIQUÍ:** Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,900 m, 6 Apr 2006, *Schäfer-Verwimp & Verwimp* 31000, 31001/A (JE, Schäfer-Verwimp 2014).

Also reported from the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Lejeunea herminieri (Steph.) R.L.Zhu, *Phytotaxa* 208(1): 99, 2015 (Pócs et al. 2015b).

=*Archilejeunea herminieri* Steph., *Sp. Hepat. (Stephani)* 4: 714, 1911 (Stephani 1911b). Type: Guadeloupe.

=*Archilejeunea saccatiloba* Steph., *Hedwigia* 34(2): 61, 1895 (Stephani 1895a), syn. fide Gradstein (2013c). Type: Brazil.

=*Lejeunea saccatiloba* (Steph.) R.L.Zhu et W.Ye, *J. Syst. Evol.* 51(4): 472, 2013 (Ye et al. 2013), nom. illeg. (ICN2018 Art. 53.1; hom. illeg. [non Steph. ex Anon. 1891]). Blocking name: *Lejeunea saccatiloba* (Steph.) Prantl (= *Lejeunea anisophylla* Mont.; see Prantl 1891 and Pócs 2010).

=*Cyrtolejeunea saccatiloba* (Steph.) Gradst., *Beih. Nova Hedwigia* 80: 110, 1985 (Gradstein and Buskes 1985).

=*Oryzolejeunea saccatiloba* (Steph.) Gradst. *Lindbergia* 23(2): 77, 1998 (Dauphin et al. 1998).

=*Cyrtolejeunea antillana* R.M.Schust., *Bull. Torrey Bot. Club* 97(6): 336, 1970 (Schuster 1970), syn. fide Grolle in Dauphin et al. (1998); Type: Dominica.

=*Oryzolejeunea antillana* (R.M.Schust.) R.M.Schust., *J. Hattori Bot. Lab.* 72: 249, 1992 (Schuster 1992b).

GUATEMALA. **ALTA VERAPAZ:** S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008 as *Oryzolejeunea saccatiloba*). **QUICHÉ:** S. loc., Pérez 2190 (USCG, Pérez 2009 as *Oryzolejeunea saccatiloba*).

***NICARAGUA.** ***ESTELÍ:** Estelí municipio, Cuesta de Kukamonga, at km 168 Pan-American Highway N of Estelí, 13°15'00"N, 86°21'38"W, 860 m, 5 May 2010, *Magill* 13898, det. Dauphin May 2017 (MO-6234822! <http://tropicos.org/specimen/100344428>, this publication).

COSTA RICA. S. loc. (Schäfer-Verwimp and Pócs 2009 as *Oryzolejeunea saccatiloba*; Schäfer-Verwimp 2014 as *Lejeunea saccatiloba*). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 92-623 (hb. *Lücking*, *Lücking* 1995 as *Oryzolejeunea antillana*; Dauphin et al. 1998 as *Oryzolejeunea saccatiloba*; Dauphin 2005 as *Oryzolejeunea saccatiloba*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (*Lücking* 1997 as *Oryzolejeunea antillana*). **PUNTARENAS:** Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009 as *Oryzolejeunea saccatiloba*). **SAN JOSÉ:** Pérez Zeledón cantón, Pérez Zeledón cantón, Chirripó National Park, Fila Cementerio de La Máquina, 9°30'N, 83°30'W, 2,920 m, *Kappelle* 3947a (U, GOET, *Kappelle* 1996 as *Cyrtolejeunea saccatiloba*; Dauphin et al. 1998 as *Oryzolejeunea saccatiloba*; Dauphin 2005 as *Oryzolejeunea saccatiloba*).

PANAMA. **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,520 m, *Schäfer-Verwimp & Verwimp* 34392, 34452 p.p. (JE, Schäfer-Verwimp 2014 as *Lejeunea saccatiloba*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Lejeunea intricata Prantl, *Hedwigia* 31: xvi, 1892 (Prantl 1892). Type: Colombia.

=*Crossotolejeunea intricata* (Prantl) Steph., *Hedwigia* 35(3): 75, 1896 (Stephani 1896).

=*Crossotolejeunea rotundata* S.Winkl., *Rev. Bryol. Lichénol.* 35(1/4): 318, 1967 (Winkler 1967), syn. fide Reiner-Drehwald and Goda (2000). Lectotype (Reiner-Drehwald and Goda 2000 as “holotype”) or possibly holotype: El Salvador. Santa Ana: Metapan, Cerro Miramundo, hacienda Montecristo, 2,220 m, *Winkler* A/32/8/2 (ULM).

=*Lejeunea cristatella* auct. Note: The record of *Lejeunea cristatella* by Lücking (1995) is erroneous. The specimen belongs to *Lejeunea intricata* (Reiner-Drehwald and Goda 2000).

EL SALVADOR. S. loc. (Schäfer-Verwimp and Pócs 2009; Schäfer-Verwimp et al. 2013; Schäfer-Verwimp 2014). **SANTA ANA:** Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, 2,200 m, *Winkler* A/32/8/2 (TYPE of *Crossotolejeunea rotundata*, *Winkler* 1967 as *Crossotolejeunea rotundata*); Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, 23 May 1962, *Winkler* A/26/3, A/32/y/9, B/6/b/1 (*Winkler* 1967 as *Crossotolejeunea rotundata*); Metapán municipio, Cerro Miramundo, hacienda Montecristo, 2,220 m, 23 May 1962, *Winkler* A/32/5/Z (TUB, Bonner 1977 as *Crossotolejeunea rotundata*); Metapán municipio, Cerro Miramundo, hacienda Montecristo, 2,220 m, 23 May 1962, *Winkler* A/32/8/2 (ULM, Reiner-Drehwald and Goda 2000).

COSTA RICA. S. loc. (Holz et al. 2001; Schäfer-Verwimp and Pócs 2009; Schäfer-Verwimp et al. 2013; Schäfer-Verwimp 2014); Cordillera de Talamanca (Holz and Gradstein 2005b;

Holz 2006). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, Botarrama trail, *Lücking* 92-477 (Dauphin 2005 as *Lejeunea acanthoda*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 92-156, 92-234, 92-367, etc. (hb. Lücking, *Lücking* 1995 as *Lejeunea cristatella*; Dauphin et al. 1998 as *Crossotolejeunea cristatella*; Reiner-Drehwald and Goda 2000); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (Lücking 1997 as *Lejeunea cristatella*). **PUNTARENAS:** Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, Holz (Holz 2003); Dota cantón, San Gerardo, 2,950 m, 9 Nov 1999, Holz CR 99-548 (GOET, Holz et al. 2001); Dota cantón, San Gerardo, 1,950 m, 24 Dec 1999, *Schäfer-Verwimp* & Holz SV/H-0039/A (CR, hb. Schäfer-Verwimp, Holz et al. 2001); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a).

PANAMA. CHIRIQUÍ: Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, *Schäfer-Verwimp* & *Verwimp* 34558/A (JE, Schäfer-Verwimp 2014).

Also reported from Mexico, the Caribbean, Northern South America, Western South America.

Lejeunea laeta (Lehm. et Lindenb.) Lehm. et Lindenb., *Syn. Hepat.* 3: 380, 1845 (Gottsche et al. 1845a).

≡ *Jungermannia laeta* Lehm. et Lindenb., *Nov. Stirp. Pug.* 6: 45, 1834 (Lehmann 1834). Type: Brazil.

GUATEMALA. S. loc. (Schuster 1980d). **IZABAL:** Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007). **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007).

COSTA RICA. ALAJUELA: Río Cuatro cantón, Río María Aguilar, between Cariblanco and Laguna Hule, 900 m, 12 Jan 1996, *Dauphin* & *González* 2151 (GOET, Reiner-Drehwald et al. 2018). **GUANACASTE:** Liberia cantón, Rincón de La Vieja National Park, 900 m, 1 Jan 2000, *Schäfer-Verwimp* & Holz SV/H-0399 (CR, JE, Reiner-Drehwald et al. 2018).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, Cerro Hornito, 1,670–2,300 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, foothills of Cerro Pinola, 1,280–2,000 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,670 m, *Schäfer-Verwimp* & *Verwimp* 34438 (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Volcán, road to Río Sereno, 8°49.67'N, 82°42.85'W, 1,220 m, 2 Apr 2009, *Schäfer-Verwimp* & *Verwimp* 34691

(JE, Schäfer-Verwimp 2014). **COCLÉ:** Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, *Schäfer-Verwimp* & *Verwimp* 34118, 34128, 34131/A (JE, Schäfer-Verwimp 2014).

***COCOS I.** Bahía Chatham, 5°32'57"N, 87°03'36"W, 0 m, *Dauphin*, det. G. Dauphin Apr 2021 (USJ-47197!, CR-4468401!, W-0207444! <https://w.jacq.org/W0207444>, this publication); Península Presidio del costado a Bahía Wafer, 5°32'57"N, 87°03'56"W, 5 m, *Dauphin* 1039, det. G. Dauphin Feb 2021 (USJ-47196!, CR-4468150!, W!, this publication); Río Genio, 5°32'57"N, 87°03'56"W, 10 m, 19 Jan 1990, *Dauphin* 931, det. G. Dauphin Jan 2021 (USJ-47188!, CR-4468171!, W!, this publication); Río Genio, 5°32'57"N, 87°03'56"W, 10 m, 19 Jan 1990, *Dauphin* 939, det. G. Dauphin Jan 2021 (CR!, this publication).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Lejeunea laetevirens Nees et Mont., *Hist. Phys. Cuba, Bot., Pl. Cell.*: 469, 1842 (Montagne 1842b). Type: Cuba.

≡ *Microlejeunea laetevirens* (Nees et Mont.) A. Evans, *Bryologist* 11(4): 68, 1908 (Evans 1908b).

= *Lejeunea lepida* Lindenb. et Gottsche, *Syn. Hepat.* 5: 766, 1847 (Gottsche et al. 1847), syn. fide Reiner-Drehwald (2010a). Type: Mexico.

GUATEMALA. S. loc. (Bischler et al. 1961; Fulford 1987; Fulford and Sharp 1990; Lücking 1995; Oliveira-e-Silva and Yano 2000; Bastos 2004). **ALTA VERAPAZ:** Cobán, Las Victorias National Park, 2002 (Andersohn 2004); Panzós municipio, Cahabón and/or Senahú, 2012, *Pérez* & *López-Medina*, det. M. Pérez (Pérez and López-Medina 2012); Panzós municipio, Cerca del Río Polochic, abajo de Panzós, *Maxon* & *Hay* 8090 (Schuster 1962); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 124, 448 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). **HUEHUETENANGO:** S. loc., Pérez 1453 (USCG, Pérez 2009). ***IZABAL:** Livingston, private property along Río Dulce, 15°39.213'N, 89°00.119'W, 22 Jan 2006, *Quedensley* 4106, det. Dauphin 2017 (MO, W-0089069!, this publication). **RETALHULEU:** S. loc., *Maxon* & *Hay* 3517 (MO, Pérez 2009); San Felipe, *Maxon* & *Hay* 8515 (Schuster 1962).

BELIZE. S. loc. (Fulford 1938 as *Microlejeunea laetevirens*; Frye and Clark 1947 as *Microlejeunea laetevirens*; Schuster 1980d; Fulford 1987; Fulford and Sharp 1990; Lücking 1995; Whittemore and Allen 1996; Oliveira-e-Silva and Yano 2000; Bastos 2004); S. loc., *Hunt* 34 p.p. (Schuster 1962). ***BELIZE:** Sibun River near Gracie Rock, 17°23'N, 88°28'W, 10 m, 26 Feb 1997, *Allen* 19080, det. Whittemore 1997 (MO-4417003! <http://tropicos.org/specimen/90046827>, this publication); Sibun River near Gracie Rock, 17°23'N, 88°28'W, 10 m, 26 Feb 1997, *Allen* 19087, det. Whittemore 1997 (MO-4417004! <http://tropicos.org/specimen/90046827>).

.org/specimen/90046826, **this publication**). *STANN CREEK: Cockscombe Reserve, 17 Mar 1996, Eggers BEZ 5/24 (Eggers et al. 2001).

*HONDURAS. *ATLÁNTIDA: El Porvenir municipio, Pico Bonito National Park, campamento CURLA and confluence of Rio Bonito and Quebrada Grande, 15°42'N, 86°51'W, 11 Apr 1996, Allen 17219, det. Dauphin Jun 2017 (MO-6230324! <https://www.tropicos.org/specimen/100367467>, **this publication**); Tela municipio, Lancetilla Valley, 20–600 m, Standley 54485, 54882, 55669 (JE, Herzog 1951 as *Lejeunea lepida*). *COMAYAGUA: Rio Selguapa, ~4 km SE of Siguatepeque, 14°34'N, 87°48'W, 8 May 1992, Allen 11764, det. Dauphin Jun 2017 (MO-5227666! <https://www.tropicos.org/specimen/90096944>, **this publication**). *COPÁN: Copán municipio, Copán Ruinas, Quebrada Sesesmil, ~4.3 km N of ruins, road to Agua Caliente, 14°52'N, 89°10'W, 29 Apr 1996, Allen 17704, det. Dauphin Jun 2017 (MO-6230328!, **this publication**). *CORTÉS: Potrerillos municipio, 2 km above Potrerillos, 15°11'N, 87°58'W, 7 Dec 1984, Olson 84-62a, det. Dauphin May 2017 (MO-5238383! <https://www.tropicos.org/specimen/90108662>, **this publication**). *FRANCISCO MORAZÁN: Distrito Central municipio, La Tigre National Park near Tegucigalpa, 14°15'N, 87°15'W, 22 Sep 1983, Olson 83-9a, det. Dauphin Jun 2017 (MO-5227806!, **this publication**).

*EL SALVADOR. *CABAÑAS: Ilobasco municipio, 2.6 km E of Ilobasco, 13°52'04"N, 88°51'04"W, 21 Jan 1998, Davidse 37154, det. Dauphin Jun 2017 (MO-5280772! <http://tropicos.org/specimen/90136897>, **this publication**). *LA UNIÓN: Conchagua municipio, Volcán Conchagua, 13°16'N, 87°50'W, 31 Jan 1998, Monro 2067, det. Dauphin Jun 2017 (MO-5280770! <http://tropicos.org/specimen/90136899>, **this publication**). *SAN SALVADOR: Lake Ilopango, 3 Feb 1998, Sidwell 630, det. Dauphin Jun 2017 (MO-5280792! <http://tropicos.org/specimen/90136893>, **this publication**); Nejapa municipio, Volcán San Salvador, El Boqueron, 13°45'50"N, 89°16'15"W, 4 Feb 1998, Monro 2244, det. Dauphin Jun 2017 (MO-5280793! <http://tropicos.org/specimen/90136892>, **this publication**). *SANTA ANA: Metapán municipio, Calle Los Planes, 12 Nov 2014, Búcaro H323 p.p., det. Dauphin (MHES!, **this publication**); Metapán municipio, Montecristo, Sendero Pionero, 4 Nov 2014, Búcaro H297, det. Dauphin (MHES!, **this publication**); Quebrada Las Huertas, 12 Nov 2014, Búcaro H302, det. Dauphin (MHES!, **this publication**); Santa Ana municipio, Cerro Verde National Park, 13°29'N, 88°32'W, 23 Jan 1998, Sidwell et al. 456, det. Dauphin Jun 2017 (MO-5280771! <http://tropicos.org/specimen/90136898>, **this publication**); Santa Rosa Guachipilín municipio, Calle Los Planes, 12 Nov 2014, Búcaro H312, det. Dauphin (MHES!, **this publication**).

*NICARAGUA. Laguna Miraflores, 10–11 Jun 1981, Henrich & Stevens 284, det. Dauphin May 2017 (MO-5238376! <http://tropicos.org/specimen/90108654>, **this publication**).

COSTA RICA. S. loc. (Stephani 1915 as *Lejeunea lepida*; Fulford and Sharp 1990 also as *Lejeunea lepida*); S. loc., Schäfer-Verwimp & Holz SV/H-0315/A (GOET, Heinrichs et al. 2013); S. loc., Schäfer-Verwimp & Holz SV/H-0406 (GOET, Heinrichs

et al. 2013); Cordillera de Talamanca (Holz 2003 as *Lejeunea lepida*; Holz 2006; Holz and Gradstein 2005b as *Lejeunea lepida*). ALAJUELA: Poás, 1,950 m, Eggers (hb. Eggers, Eggers 2001). CARTAGO: Turrialba cantón, Guayabo, 1,100 m, Eggers (hb. Eggers, Eggers 2001). GUANACASTE: Liberia cantón, Rincón de La Vieja National Park, Sector Las Pailas, sendero al cráter, Dauphin et al. 1855 (CR, Dauphin 2005); Piedra Blanca, 2,400 m, Valerio 59 (Herzog 1951 as *Lejeunea lepida*; Morales 1991 as *Lejeunea lepida*; Dauphin 2005 as *Lejeunea lepida*); Tilarán, 500–600 m, Standley 46647 p.p. (B-26013, B-46647, Herzog 1951 as *Lejeunea lepida*; Morales 1991 as *Lejeunea lepida*; Dauphin 2005 as *Lejeunea lepida*). HEREDIA: Heredia cantón, Vara Blanca, 1,380 m, Eggers (hb. Eggers, Eggers 2001). LIMÓN: Braulio Carrillo National Park, 400–500 m (Eggers 2001); Pococí cantón, Braulio Carrillo National Park, Botarrama trail (Dauphin 2005); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, Lücking 91-86, 91-94, 91-95, etc. (Lücking 1997); Pococí cantón, Braulio Carrillo National Park, near park entrance, 10°06.9'N, 83°58.4'W, 500 m, 29 Dec 1999, Schäfer-Verwimp & Holz SV/H-0283/A (CR, JE, Ellis et al. 2014a); Pococí cantón, Cariari, El Carmen, Estación Biológica El Zota, 10°34'N, 83°45'W, Egremy 322, det. Dauphin (CR, Dauphin 2005); Pococí cantón, Tortuguero, 1–5 m, Eggers (hb. Eggers, Eggers 2001). PUNTARENAS: S. loc. (Merwin et al. 2001); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009); Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, Gradstein et al. (U, Sillett et al. 1995); Monteverde, 1,600 m, Eggers (hb. Eggers, Eggers 2001); Osa cantón, Osa Peninsula, Rincón, Centro Boscosa, 150 m, Oct 1993, Gradstein (Gradstein 1999b). SAN JOSÉ: Desamparados cantón, Frailes, between San Antonio and San Cristóbal Sur, 0.5 km NE of bridge over Quebrada Piedades, 1,800 m, 12 Dec 1986, Kappelle & Gutiérrez 1780, 1834 (GOET, Holz et al. 2001 as *Lejeunea lepida*; Dauphin 2005 as *Lejeunea lepida*); Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002 as *Lejeunea lepida*); Dota cantón, San Gerardo, Holz (Holz 2003); Dota cantón, San Gerardo, 2,950 m, 9 Nov 1999, Holz CR 99-548 (GOET, Holz et al. 2001 as *Lejeunea lepida*; Dauphin 2005 as *Lejeunea lepida*).

PANAMA. S. loc. (Lücking 1995); Canal Zone (Schäfer-Verwimp 2014). CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, Quijada del Diablo, 1,200–1,600 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°41.4'N, 82°13.7'W, 1,280 m, 30 Mar 2009, Schäfer-Verwimp & Verwimp 34465/A

(JE, Schäfer-Verwimp 2014); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,500 m, Schäfer-Verwimp & Verwimp 34389/C (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, El Volcán, road to Rio Sereno, near Santa Clara, 8°49.8'N,

82°44.0'W, 1,200 m, 2 Apr 2009, *Schäfer-Verwimp & Verwimp* 34717/B (JE, Schäfer-Verwimp 2014); Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, *Schäfer-Verwimp & Verwimp* 34559/A (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Volcán at western edge of the village, 8°47.6'N, 82°39.4'W, 1,370 m, 1 Apr 2009, *Schäfer-Verwimp & Verwimp* 34617/C (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Volcán, road to Rio Sereno, 8°49.5'N, 82°41.5'W, 1,580 m, 2 Apr 2009, *Schäfer-Verwimp & Verwimp* 34664/B, 34676/A, det. A. Schäfer-Verwimp (JE, Schäfer-Verwimp 2014); Barú Volcano National Park (Rodríguez-Quiel et al. 2022). **COCLÉ:** Antón distrito, El Valle de Antón, along road to Mato Ahogado, 8°37.05'N, 82°06.60'W, 670 m, 4 Apr 2009, *Schäfer-Verwimp & Verwimp* 34768, det. A. Schäfer-Verwimp (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, *Schäfer-Verwimp & Verwimp* 34154 (JE, Schäfer-Verwimp 2014); Antón distrito, Restaurant India Dormida, Salazar Allen et al. 953 (PMA, Stotler et al. 1998); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Rio Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, Sierra & López 669, 776 (PMA, Sierra et al. 2019a). **DARIÉN:** S. loc. (Schäfer-Verwimp 2014); around INRENARE's station, foothills of Cerro Pirre, 100 m, Salazar Allen & Gradstein 9215 (PMA, Stotler et al. 1998); Cerro Pirre (Stotler et al. 1998); Cerro Pirre, Trail El Real–Pirre, along Río Pirre, ~50 m, 4–8 Jun 1991, Gradstein & Salazar Allen (PMA, U, Gradstein and Salazar Allen 1992). **PANAMA WEST:** La Chorrera distrito, Barro Colorado Island (Reiner-Drehwald et al. 2013); La Chorrera distrito, Barro Colorado Island, 1 Aug 1950, Chickering (MICH, Crum and Arzeni 1953 as *Microlejeunea laetevirens*; Stotler et al. 1998); La Chorrera distrito, Barro Colorado Island, Shattuck 569 p.p. (Haynes 1933 as *Microlejeunea laetevirens*; Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Camino F. Miller 24, Salazar Allen & Chung 4519 (PMA, Stotler et al. 1998; Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Camino F. Miller 25–26, Salazar Allen & Chung 4503 (PMA, Stotler et al. 1998; Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Laboratory area, 2003, Dauphin 3196 (CR, PMA, Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Laboratory area, 2003, Dauphin 3206 (CR, GOET [https://gwdu64.gwdg.de/pls/herbar/moos\\$moos.QueryViewByKey?P_ID=27996&Z_CHK=3417](https://gwdu64.gwdg.de/pls/herbar/moos$moos.QueryViewByKey?P_ID=27996&Z_CHK=3417), PMA, Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Lutz trail, Shattuck 569 p.p. (F, Stotler et al. 1998); La Chorrera distrito, Barro Colorado, Fairchild, 2003, Dauphin 3132 (CR, PMA, Dauphin et al. 2022). **VERAGUAS:** Santa Fe distrito, base of Cerro Tute, 8°30'N, 81°06'W, 710–890 m, 26 Mar 2009, *Schäfer-Verwimp & Verwimp* 34287/B, det. A. Schäfer-Verwimp (JE, Schäfer-Verwimp 2014).

COCOS I. S. loc. (Dauphin 1995, 1999). Río Genio, 5°32'57"N, 87°03'56"W, 0–50 m, Apr 1992, Lücking 260 (USJ, Bernecker-Lücking 2000); Río Genio, 5°32'57"N, 87°03'56"W,

0–50 m, Apr 1992, Lücking 548 (hb. Bernecker, Bernecker-Lücking 2000); Río Genio, 5°32'57"N, 87°03'56"W, 50 m, Apr 1992, Lücking 92–260 (hb. Lücking, Lücking 1995).

Also reported from Macaronesia, Middle Atlantic Ocean, North-Central USA, Northeastern USA, South-Central USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Lejeunea minutiloba A.Evans, *Bull. Torrey Bot. Club* 44(11): 525, 1917 (Evans 1917b). Type: Virgin Islands.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 95, 156, 492 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

PANAMA. PANAMA WEST: La Chorrera distrito, Barro Colorado Island (Reiner-Drehwald et al. 2013); La Chorrera distrito, Barro Colorado Island, Camino Wetmore 21, Salazar Allen et al. 5943 (PMA, Stotler et al. 1998); La Chorrera distrito, Barro Colorado Island, Quebrada R. Shannon, Marino 4, 5, 34 (PMA, Stotler et al. 1998).

Also reported from Indian Subcontinent, Southeastern Pacific, Southeastern USA, the Caribbean, Western South America(?), Brazil.

Lejeunea osculatiana De Not., *Mem. Reale Accad. Sci. Torino*, ser. 2, 16: 233, 1857 (De Notaris 1857). Type: Ad flumen Napo.

=*Taxilejeunea lancifolia* Steph., *Biblioth. Bot.* 87(2): 262, 1916 (Stephani 1916b), syn. fide Reiner-Drehwald and Schäfer-Verwimp (2008). Type: Bolivia.

=*Macrolejeunea lancifolia* (Steph.) Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 162, 1951 (Herzog 1951).

=*Lejeunea lancifolia* (Steph.) G.Dauphin, *Trop. Bryol.* 26: 177, 2005 (Dauphin 2005).

COSTA RICA. Cordillera de Talamanca (Holz 2003 as *Macrolejeunea lancifolia*; Holz and Gradstein 2005b as *Macrolejeunea lancifolia*). **ALAJUELA:** Alajuela cantón, Viento Fresco, 1,600–1,900 m, Standley 47982 (B-26125, Herzog 1951 as *Lejeunea lancifolia*; Morales 1991 as *Lejeunea lancifolia*; Dauphin 2005 as *Lejeunea lancifolia*). **CARTAGO:** El Guarco, Mata 49 p.p. (USJ, Dauphin 2005 as *Lejeunea lancifolia*). **GUANACASTE:** S. loc. (Reiner-Drehwald and Schäfer-Verwimp 2008); Tilarán cantón, Los Ayotes, 600–700 m, Standley 45459 p.p. (Herzog 1951 as *Macrolejeunea lancifolia*; Morales 1991 as *Macrolejeunea lancifolia*; Dauphin 2005 as *Lejeunea lancifolia*). **PUNTARENAS:** Monteverde (Morales 1991 as *Macrolejeunea lancifolia*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a as *Macrolejeunea lancifolia*); Monteverde cantón, Reserva Biológica Monteverde, 1,550 m, Nov 1993, Gradstein 9400, 9426 (GOET, Reiner-Drehwald and Schäfer-Verwimp 2008); Monteverde, James, M.

14 (Dauphin 2005 as *Lejeunea lancifolia*); Monteverde, 10 Jun 1966, James, M. 14 (R, Reed and Robinson 1971 as *Macrolejeunea lancifolia*). SAN JOSÉ: S. loc. (Reiner-Drehwald and Schäfer-Verwimp 2008); Dota cantón, San Gerardo, path La Quebrada, “Los Robles,” 2,220 m, Jan 2000, Schäfer-Verwimp & Holz SV/H-0496/B (GOET, CR, JE, Reiner-Drehwald and Schäfer-Verwimp 2008; Heinrichs et al. 2013; Lee et al. 2016, 2019); Dota cantón, San Gerardo, path La Quebrada, 2,300 m, Sep 1999, Anton et al. AHH 82 (GOET, Reiner-Drehwald and Schäfer-Verwimp 2008); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a as *Macrolejeunea lancifolia*); Vásquez de Coronado cantón, Las Nubes, 1,500–1,900 m, Standley 38368 (Herzog 1951 as *Macrolejeunea lancifolia*; Morales 1991 as *Macrolejeunea lancifolia*; Dauphin 2005 as *Lejeunea lancifolia*).

PANAMA. S. loc., Schäfer-Verwimp & Verwimp 30958 (GOET, Heinrichs et al. 2013). CHIRIQUÍ: Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,950 m, 6 Apr 2006, Schäfer-Verwimp & Verwimp 30992/A, 31007 (JE, Schäfer-Verwimp 2014); Boquete distrito, Bajo Mono, along Rio Caldera, 8°50.5'N, 82°28.9'W, 1,670–1,745 m, 5 Apr 2006, Schäfer-Verwimp & Verwimp 30958 (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, Schäfer-Verwimp & Verwimp 34535, 34546, 34576 (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Parque Nacional La Amistad, path “El Retoño,” 8°53'N, 82°36'W, 2,462 m, Reiner-Drehwald 960038 (PMA, Reiner-Drehwald and Schäfer-Verwimp 2008). VERAGUAS: Santa Fe distrito, Piedra Alto, 8°30–31'N, 81°07–08'W, 800–850 m, 27 Mar 2009, Schäfer-Verwimp & Verwimp 34312, det. A. Schäfer-Verwimp (JE, Schäfer-Verwimp 2014).

Also reported from Mexico, Northern South America, Western South America.

Lejeunea pallescens Mitt., Hooker's J. Bot. Kew Gard. Misc. 3: 360, 1851 (Mitten 1851). Type: Ecuador.

=*Macrolejeunea pallescens* (Mitt.) Schiffn., Hepat. (Engl.-Prantl): 125, 1893 (Schiffner 1893a).

=*Taxilejeunea peruviana* Steph., Sp. Hepat. (Stephani) 5: 475, 1914 (Stephani 1914), syn. fide Gradstein (2021). Lectotype: Ecuador.

COSTA RICA. S. loc. (Stephani 1914 as *Taxilejeunea peruviana*; Geissler and Bischler 1990 as *Taxilejeunea peruviana*; Gradstein 1999a as *Macrolejeunea pallescens*; Dauphin 2005; Gradstein and Holz 2005 as *Macrolejeunea pallescens*; Schäfer-Verwimp et al. 2013; Gradstein 2021); Cordillera de Talamanca (Holz 2003 as *Macrolejeunea pallescens*; Holz and Gradstein 2005b as *Macrolejeunea pallescens*); Cordillera de Talamanca, Kappelle 5642 (U, Kappelle 1996 as *Macrolejeunea pallescens*). CARTAGO: Turrialba cantón, Volcán Turrialba, S slope, 2,000–2,400 m, Standley 35305 (Herzog 1951 as *Macrolejeunea pallescens*; Morales 1991 as *Macrolejeunea pallescens*; Dauphin 2005). SAN JOSÉ: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May

2000 (CR, Holz et al. 2002 as *Macrolejeunea pallescens*); Dota cantón, San Gerardo (Dauphin 2005); Pérez Zeledón cantón, Siberia de Villa Mills, 1.5 km NE of the Carretera Interamericana, 2,630 m, Jan 1986, Kappelle & Abarca 623 (U, Reiner-Drehwald and Schäfer-Verwimp 2008); Vásquez de Coronado cantón, Las Nubes (Dauphin 2005); Vásquez de Coronado cantón, Las Nubes, 1,500–1,900 m, Standley 3861 (Herzog 1951 as *Macrolejeunea pallescens*; Morales 1991 as *Macrolejeunea pallescens*).

PANAMA. CHIRIQUÍ: Barú Volcano National Park (Rodríguez-Quiel et al. 2022).

Also reported from Mexico, the Caribbean, Northern South America, Western South America.

Lejeunea parviloba Ångstr., Öfvers. Kongl. Vetensk.-Akad. Förh. 33(7): 87, 1876 (Ångström 1876). Type: Brazil.

=*Lejeunea tapajosensis* Spruce, Trans. & Proc. Bot. Soc. Edinburgh 15(1): 223, 1884 (Spruce 1884), syn. fide Bastos and Gradstein (2020a). Type: Brazil.

=*Rectolejeunea tapajosensis* (Spruce) R.M.Schust., Hepat. Anthoc. N. Amer. 4: 1146, 1980 (Schuster 1980d).

=*Rectolejeunea defolians* Herzog, Rev. Bryol. Lichénol. 20(1/2): 168, 1951 (Herzog 1951), syn. with *Lejeunea tapajosensis* fide Reiner-Drehwald and Grolle (2012). Lectotype (Reiner-Drehwald and Grolle 2012: 475): Honduras, Atlántida, Lancetilla Valley, near Tela, 20–600 m, Standley 55626 (JE-04009370 <https://je.jacq.org/JE04009370>, isoelectotype B-300026013 <https://herbarium.bgbm.org/object/B300026013>).

*GUATEMALA. *EL PETÉN: Flores municipio, SW side of Laguna Yaxhá, Reserva Privada Yaxhá, 17°03.295'N, 89°23.236'W, 259 m, 25 Jan 2006, Quedensley 4220, det. Dauphin Sep 2017 (MO, W-0089072!, this publication).

HONDURAS. S. loc. (Schuster 1980d as *Rectolejeunea defolians*; Schuster 2000a as *Rectolejeunea defolians*). ATLÁNTIDA: Tela municipio, La Fragua, 20 m, Standley 55775 (Herzog 1951 as *Rectolejeunea defolians*; Geissler and Bischler 1990 as *Rectolejeunea defolians*; Reiner-Drehwald and Grolle 2012 as *Rectolejeunea tapajosensis*); Tela municipio, Lancetilla Valley, 20–600 m, Standley 55626 (JE, C, Herzog 1951 as *Rectolejeunea defolians*; Reiner-Drehwald and Grolle 2012 as *Rectolejeunea tapajosensis*).

COSTA RICA. S. loc. (Schuster 2000a as *Rectolejeunea defolians*). GUANACASTE: Tilarán, 500–650 m, Standley & Valerio 46647 p.p. (JE, Geissler and Bischler 1990 as *Rectolejeunea defolians*; Reiner-Drehwald and Grolle 2012 as *Rectolejeunea tapajosensis*); Tilarán, 500–600 m, Standley 46647 p.p. (B-26013, B-46647, Herzog 1951 as *Rectolejeunea defolians*; Morales 1991 as *Rectolejeunea defolians*; Dauphin 2005 as *Rectolejeunea defolians*).

PANAMA. Canal Zone (Schäfer-Verwimp 2014 as *Lejeunea tapajosensis*); S. loc. (Schäfer-Verwimp and Van Melick 2016 as *Lejeunea tapajosensis*; Gradstein 2021 as *Lejeunea tapajosensis*). COCLÉ: Antón distrito, El Valle de Antón, along road to Mato Ahogado, 8°37.05'N, 82°06.60'W, 670 m, 4 Apr 2009, Schäfer-Verwimp & Verwimp 34755, 34766 (JE, Schäfer-Verwimp 2014 as *Lejeunea tapajosensis*). PANAMA WEST: La Chorrera distrito,

Barro Colorado Island (Reiner-Drehwald et al. 2013 as *Lejeunea tapajosensis*); La Chorrera distrito, Barro Colorado Island, Barbour Point, 9°09'N, 79°51'W, 20 m, 27 Feb 1999, *Dauphin* 3158 (CR, PMA, *Dauphin* et al. 2006 as *Lejeunea tapajosensis*, 2022); La Chorrera distrito, Barro Colorado Island, Fairchild 4, 9°09'N, 79°51'W, 20–170 m, *Dauphin* 3137, det. M. E. Reiner-Drehwald (PMA, GOET, *Dauphin* et al. 2006 as *Lejeunea tapajosensis*); La Chorrera distrito, Barro Colorado Island, Laboratory Cove, 9°09'N, 79°51'W, 20–170 m, *Dauphin* 3144, det. M. E. Reiner-Drehwald (PMA, GOET, *Dauphin* et al. 2006 as *Lejeunea tapajosensis*); La Chorrera distrito, Barro Colorado Island, Miller Cove, 2003, *Dauphin* 3217 (CR, PMA, *Dauphin* et al. 2022); La Chorrera distrito, Barro Colorado Island, Miller Cove, 9°09'N, 79°51'W, 20–170 m, *Dauphin* 3127 (PMA, *Dauphin* et al. 2006 as *Lejeunea tapajosensis*); La Chorrera distrito, Barro Colorado, Fairchild, 2003, *Dauphin* 3137 (CR, PMA, *Dauphin* et al. 2022); La Chorrera distrito, Barro Colorado, Laboratory Cove, 2003, *Dauphin* 3144 (CR, PMA, *Dauphin* et al. 2022); La Chorrera distrito, Barro Colorado, Lutz tower, 2003, *Dauphin* 3085 (CR, PMA, *Dauphin* et al. 2022). **VERAGUAS:** Santa Fe distrito, base of Cerro Tute, 8°30'N, 81°06'W, 710–890 m, 26 Mar 2009, *Schäfer-Verwimp* & *Verwimp* 34281, 34290 (JE, *Schäfer-Verwimp* 2014 as *Lejeunea tapajosensis*).

Also reported from the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Lejeunea paucidentata (Steph.) Grolle, *J. Hattori Bot. Lab.* 69: 191, 1991 (Grolle 1991).

≡ *Crossotolejeunea paucidentata* Steph., *Hedwigia* 35(3): 76, 1896 (Stephani 1896). Type: Cuba.

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, foothills of Cerro Pinola, 1,000 m, sobre piedra en quebrada, 16 May 1987, *N. Salazar A.* 5343, det. J. E. De Gracia, 2004 (PMA, *Salazar Allen* et al. 2021).

Also reported from the Caribbean, Northern South America.

Lejeunea perigonalis Gottsche, *Mexik. Leverm.*: 223, 1863 (Gottsche 1863). Type: Mexico.

≡ *Microlejeunea perigonalis* (Gottsche) Steph., *Sp. Hepat. (Stephani)* 5: 823, 1915 (Stephani 1915).

HONDURAS. ATLÁNTIDA: Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 54225 *p.p.*, 54882, 55511, 56848 *p.p.* (*Herzog* 1951 as *Microlejeunea perigonalis*).

Also reported from Mexico.

Lejeunea phyllobola Nees et Mont., *Hist. Phys. Cuba, Bot., Pl. Cell.*: 471, 1842 (Montagne 1842b). Type: Cuba.

≡ *Hygrolejeunea phyllobola* (Nees et Mont.) Steph., *Hedwigia* 29: 81, 138, 1890 (Stephani 1890c), nom. inval. (ICN2018 Art. 35.1; genus not valid).

≡ *Hygrolejeunea phyllobola* (Nees et Mont.) C. Massal., *Hepat. Shen-si*: 33, 1897 (Massalonga 1897).

≡ *Cheilolejeunea phyllobola* (Nees et Mont.) Schiffn., *Bot. Jahrb. Syst.* 23(5): 591, 1897 (Schiffner 1897).

≡ *Rectolejeunea phyllobola* (Nees et Mont.) A. Evans, *Bull. Torrey Bot. Club* 33(1): 15, 1906 (Evans 1906b).

≡ *Lejeunea cephalandra* Spruce, *Bull. Soc. Bot. France (Congr. Bot.)* 36: cx-ciii, 1889 (Spruce 1889), syn. fide Reiner-Drehwald (2000a). Type: Paraguay.

≡ *Rectolejeunea brittoniae* A. Evans, *Bull. Torrey Bot. Club* 38(6): 209, 1911 (Evans 1911b), syn. fide Reiner-Drehwald (2000a). Type: Bahamas.

GUATEMALA. QUICHÉ: S. loc., *Pérez* 2197 (USCG, *Pérez* 2009).

BELIZE. S. loc. (*Fulford* 1938 as *Rectolejeunea phyllobola*; *Frye and Clark* 1947 as *Rectolejeunea phyllobola*; *Whittemore and Allen* 1996 as *Rectolejeunea phyllobola*).

HONDURAS. ATLÁNTIDA: Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 54378 (*Herzog* 1951 as *Rectolejeunea phyllobola*).

COSTA RICA. S. loc. (Evans 1902b as *Cheilolejeunea phyllobola*, 1906b as *Rectolejeunea phyllobola*; *Stephani* 1914 as *Cheilolejeunea phyllobola*; *Pagán* 1939b as *Rectolejeunea phyllobola*; *Bonner* 1963b as *Cheilolejeunea phyllobola*, 1966 as *Hygrolejeunea phyllobola*; *Fulford* et al. 1970 as *Rectolejeunea phyllobola*; *Schuster* 1980d as *Rectolejeunea phyllobola*; *Cole* 1982, 1983, both as *Rectolejeunea brittoniae*; *Fulford* 1987 as *Rectolejeunea phyllobola*; *Fulford and Sharp* 1990 as *Rectolejeunea phyllobola*; *Morales* 1991 as *Rectolejeunea phyllobola*; *Dauphin* 2005; *Stotler and Crandall-Stotler* 2017); Cordillera de Talamanca (*Holz* 2003; *Holz and Gradstein* 2005b). **ALAJUELA:** San Ramón cantón, Universidad de Costa Rica, 1,000 m, 31 Dec 1999, *Schäfer-Verwimp* & *Holz* SV/H-0384a (CR, hb. *Schäfer-Verwimp*, *Holz* et al. 2001; *Dauphin* 2005). **CARTAGO:** Jiménez cantón, Juan Viñas (Tonduz 1895b as *Hygrolejeunea phyllobola*); Jiménez cantón, Juan Viñas, 1,135 m, *Pittier* 6040 (*Stephani* 1893c as *Hygrolejeunea phyllobola*); Paraíso cantón, Jardín Lankester, *Griffin* & *Morales* C137, det. Breil (USJ, FLAS, *Morales* 1991 as *Rectolejeunea brittoniae*; *Dauphin* 2005); Paraíso cantón, Tapantí National Park, Orosi Valley 0.6 km before entrance of national park, 600 m, 30 Dec 1999, *Schäfer-Verwimp* & *Holz* SV/H-0373/A (hb. *Schäfer-Verwimp*, *Holz* et al. 2001; *Dauphin* 2005). ***GUANACASTE:** Tilarán cantón, Hacienda Quebrada Azul on lower slopes of Volcán Tenorio, 18 Feb 1930, *Dodge* & *Thomas*, det. *Dauphin* May 2017 (MO-5217029!, this publication). **PUNTARENAS:** S. loc. (*Merwin* et al. 2001); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein* et al. (FLAS, U, USJ, *Gradstein* et al. 2001a also as *Lejeunea cephalandra*). **SAN JOSÉ:** Dota cantón, Cordillera de Talamanca, 4 km NE of San Gerardo, 2,950 m, 10 Mar 1999, *Kunz* 35 (GOET, *Holz* et al. 2001; *Dauphin* 2005); Dota cantón, Los Quetzales National Park (Amen-gual et al. 2007); Los Santos Forest Reserve, ~2,900 m (*Holz and Gradstein* 2005a); Pérez Zeledón cantón, San Isidro, Parque, 750 m, 27 Dec 1999, *Schäfer-Verwimp* & *Holz* SV/H-0206/C (CR, hb. *Schäfer-Verwimp*, *Holz* et al. 2001; *Dauphin* 2005).

PANAMA. CHIRIQUÍ: Boquete, 9 Aug 1950, *Chickering* (*Crum and Arzeni* 1953 as *Rectolejeunea phyllobola*; *Stotler* et al. 1998). **DARIÉN:** Cerro Pirre (*Stotler* et al. 1998); Cerro

Pirre, around INRENARE field station, ~100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen 1992* as *Rectolejeunea phyllobola*); Cerro Pirre, between Pirre 1 and Pirre 2, *Salazar Allen & Gradstein 9198* (PMA, *Stotler et al. 1998*); Cerro Pirre, Trail El Real–Pirre, along Río Pirre, ~50 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen 1992* as *Rectolejeunea phyllobola*); INRENARE station, foothills of Cerro Pirre, *Salazar Allen & Gradstein 9223* (PMA, *Stotler et al. 1998*). PANAMA WEST: La Chorrera distrito, Barro Colorado Island, *Gradstein & Salazar Allen s.n.* (*Dauphin et al. 2022*).

COCOS I. Río Genio, 5°32'57"N, 87°03'56"W, 10 m, 14 Feb 1994, *Dauphin 1056* (USJ, CR, *Dauphin 1995* as *Rectolejeunea phyllobola*, 1999).

Also reported from West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, Southern Africa, Western Indian Ocean, Indian Subcontinent, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Lejeunea praetervisa Steph., *Sp. Hepat. (Stephani)* 5: 752, 1915 (Stephani 1915). Type: Peru.

HONDURAS. ATLÁNTIDA: Tela municipio, Lancetilla Valley, 20–600 m, *Standley 55577 p.p.*, 55741 (JE, *Herzog 1951*).

Also reported from Western South America.

Lejeunea pterigonia (Lehm. et Lindenb.) Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 14: 337, 1840 (Montagne 1840).

≡ *Jungermannia pterigonia* Lehm. et Lindenb., *Nov. Stirp. Pug.* 6: 44, 1834 (Lehmann 1834). Type: Peru.

≡ *Taxilejeunea pterigonia* (Lehm. et Lindenb.) Steph., *Hedwigia* 29(3): 142, 1890 (Stephani 1890a).

= *Taxilejeunea pterigonia* f. *perianthio-minus-ornato* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 155, 1951 (Herzog 1951), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Costa Rica: Prov. Cartago, El Muñeco, 1,400–1,500 m, wet bank, *Standley 33480* (US-04659274 <http://n2t.net/ark:/65665/391630486-f59c-429b-b739-0a9b01d370b6>).

GUATEMALA. S. loc. (Fulford and Sharp 1990 as *Taxilejeunea 'pterogonia'*; Oliveira-e-Silva and Yano 2000). ALTA VERAPAZ: Cobán, 1886, *Türckheim 11*, det. Steph. (*Evans 1921b* as *Taxilejeunea 'pterogonia'*); Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, Pérez 247 (USCG, Pérez 2009 as *Taxilejeunea pterigonia*); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Taxilejeunea pterigonia*). BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al. 534* (USCG, *Freire et al. 2013* as *Taxilejeunea pterigonia*); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al. 2005* as '*Taxilejeunea pterigonia*').

BELIZE. CAYO: S. loc., Dec 1993, *Allen 15099*, 15104, 15484 (BRH, MO, *Whittemore and Allen 1996* as *Taxilejeunea pterigonia*). TOLEDO: S. loc., Dec 1993, *Allen 15311* (BRH, MO, *Whittemore and Allen 1996* as *Taxilejeunea pterigonia*).

COSTA RICA. S. loc. (Cole 1982, 1983, both as *Taxilejeunea 'pterogonia'*; Fulford and Sharp 1990 as *Taxilejeunea 'pterogonia'*). CARTAGO: Cartago cantón, El Muñeco, 1,400–1,500 m, *Standley 33480* (*Herzog 1951* as *Taxilejeunea pterigonia* f. *perianthio-minus-ornato*; *Morales 1991* as *Taxilejeunea pterigonia*); Cartago cantón, El Muñeco, 1,400–1,500 m, *Standley 51111* (*Herzog 1951* as *Taxilejeunea pterigonia*; *Morales 1991* as *Taxilejeunea pterigonia*; *Dauphin 2005* as *Taxilejeunea pterigonia*); Cartago cantón, El Muñeco, N of Navarro, 1,400 m, *Standley 33928* (US, *Dauphin 2005* as *Taxilejeunea pterigonia*). HEREDIA: San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, *Standley 52074* (*Herzog 1951* as *Taxilejeunea pterigonia*); Sarapiquí cantón, Salto La Paz, Woodruff (FLAS, *Morales 1991* as *Taxilejeunea pterigonia*; *Dauphin 2005* as *Taxilejeunea pterigonia*). LIMÓN: Siquirres cantón, Finca La Colombiana, 70 m, *Standley 36572* (*Herzog 1951* as *Taxilejeunea pterigonia*). PUNTARENAS: S. loc. (*Merwin et al. 2001* as *Taxilejeunea pterigonia*); Monteverde (*Morales 1991* as *Taxilejeunea pterigonia*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al. 2001a* as *Taxilejeunea pterigonia*); Monteverde, *James, W. 29* (*Dauphin 2005* as *Taxilejeunea pterigonia*); Monteverde, 15 Jan 1965, *James, M. 29* (R, *Reed and Robinson 1971* as *Taxilejeunea pterigonia*); Monteverde, 16 Mar 1969, *James, W. 1969-70* (*Reed and Robinson 1971* as *Taxilejeunea pterigonia*; *Dauphin 2005* as *Taxilejeunea pterigonia*). SAN JOSÉ: Dota cantón, Quebradillas, N de Santa María de Dota, 1,800 m, *Standley 42897*, 43242 (US, *Herzog 1951* as *Taxilejeunea 'pterogonia'*; *Morales 1991* as *Taxilejeunea pterigonia*; *Kappelle 1996* as *Taxilejeunea pterigonia*; *Dauphin 2005* as *Taxilejeunea pterigonia*); Moravia cantón, Camino de Carrillo, *Pittier 6064* (*Stephani 1893c* as *Taxilejeunea pterigonia*; *Morales 1991* as *Taxilejeunea pterigonia*; *Dauphin 2005* as *Taxilejeunea pterigonia*); Moravia cantón, Cerro Zurquí, 2,000–2,500 m, *Standley 48118* (*Herzog 1951* as *Taxilejeunea pterigonia*; *Morales 1991* as *Taxilejeunea pterigonia*; *Dauphin 2005* as *Taxilejeunea pterigonia*); Moravia cantón, La Hondura, 1,200–1,500 m, *Standley 51875b* (*Herzog 1951* as *Taxilejeunea pterigonia*; *Morales 1991* as *Taxilejeunea pterigonia*; *Dauphin 2005* as *Taxilejeunea pterigonia*); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), *Jerez*, det. Griffin (FLAS, *Morales 1991* as *Taxilejeunea pterigonia*; *Dauphin 2005* as *Taxilejeunea pterigonia*); Vásquez de Coronado cantón, Las Nubes, *Morales 267* (FLAS, USJ, *Morales 1991* as *Taxilejeunea pterigonia*; *Dauphin 2005* as *Taxilejeunea pterigonia*).

PANAMA. CHIRIQUÍ: Tierras Altas distrito, Laguna de El Volcán, 8°46.1'N, 82°40.4'W, 1,370 m, 1 Apr 2009, *Schäfer-Verwimp & Verwimp 34642* (JE, *Schäfer-Verwimp 2014*); Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, *Schäfer-Verwimp & Verwimp 34534/B* (JE, *Schäfer-Verwimp 2014*); Tierras Altas distrito, Parque Nacional Volcán Barú, Paso Ancho, 8°48'55.13"N, 82°34'33.50"W, 2,047 m, *Guerra Batista et al.* (UCH, *Guerra*

et al. 2020); Barú Volcano National Park (Rodríguez-Quiel et al. 2022).

COCOS I. S. loc. (Fosberg and Klawe 1966 as *Taxilejeunea pterigonia*; Dauphin 1995, 1999, 2005, all as *Taxilejeunea pterigonia*); S. loc., 1966, Fosberg & Klawe (Morales 1991 as *Taxilejeunea pterigonia*); Chatham Bay, 28 Jun 1932, Howell 228 (CAS, Clark 1953a as *Taxilejeunea pterigonia*); Wafer Bay, 28 Jun 1932, Howell 224 (CAS, Clark 1953a as *Taxilejeunea pterigonia*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Lejeunea puiggariana Steph., *Sp. Hepat. (Stephani)* 5: 754, 1915 (Stephani 1915). Type: Brazil.

***NICARAGUA.** ***MATAGALPA:** Matagalpa municipio, between Hacienda La Hamonia and Cerro La Carlota, 12°59'N, 85°53'W, 1,200–1,300 m, 10 Dec 1983, Stevens & Montiel 22563, det. Dauphin May 2017 (MO-5238575! <https://tropicos.org/specimen/90108673>, this publication).

COSTA RICA. S. loc. (Schäfer-Verwimp et al. 2013; Schäfer-Verwimp 2014). **LIMÓN:** Pococí cantón, Cariari, El Carmen, Estación Biológica El Zota, 10°34'N, 83°45'W, 38 m, Egremy 318.1, det. Reiner-Drehwald (CR, GOET, Dauphin 2005).

PANAMA. **CHIRIQUÍ:** Tierras Altas distrito, Volcán, along road to Rio Serena at western edge of the village, 8°47.6'N, 82°39.4'W, 1,370 m, 1 Apr 2009, Schäfer-Verwimp & Verwimp 34632/B (JE, Schäfer-Verwimp 2014).

***COCOS I.** Fila entre Bahía Wafer y Chatham, sobre ladera que va hacia Bahía Weston, 5°32'54.8"N, 87°03'11.4"W, 216 m, Estrada et al. 6136, det. G. Dauphin Jun 2021 (CR-4468339!, this publication).

Also reported from Mexico, the Caribbean, Western South America, Brazil, Southern South America.

Lejeunea pulverulenta (Steph.) M.E.Reiner, *Cryptog. Bryol.* 26(1): 60, 2005 (Reiner-Drehwald 2005a).

≡*Taxilejeunea pulverulenta* Steph., *Sp. Hepat. (Stephani)* 5: 477, 1914 (Stephani 1914). Type: Guadeloupe.

PANAMA. **PANAMA WEST:** La Chorrera distrito, Barro Colorado, Fairchild, 2003, Dauphin 3138 (CR, PMA, Dauphin et al. 2022).

COCOS I. Fila entre Bahía Wafer y Chatham, sobre ladera hacia Bahía Weston, 5°32'54.8"N, 87°03'11.4"W, 216 m, 27 Nov 2017, Estrada, Rodríguez & Umaña 6135, det. Dauphin May 2021 (CR-4468338!, Dauphin et al. 2022).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Lejeunea quinqueumbonata Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15(1): 230 (Spruce 1884) var. *rotundata* (Herzog) Sushil K.Singh, *Phytotaxa* 96(1): 64, 2013 (Singh 2013).

≡*Otigoniolejeunea quinqueumbonata* (Spruce) Steph., *Sp. Hepat. (Stephani)* 5: 515 (Stephani 1914) var. *rotundata* Herzog, *Rev. Bryol.*

Lichénol. 20(1/2): 154, 1951 (Herzog 1951). Lectotype (Söderström and Hentschel 2023: 15): Honduras, Atlántida, Lancetilla Valley near Tela, Standley 55379 (JE-04006773 <https://je.jacq.org/JE04006773>, isoelectotype JE-04001622 <https://je.jacq.org/JE04001622>).

HONDURAS. **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, 20–600 m, Standley 55379 (JE-04006773 <https://je.jacq.org/JE04006773>, JE-04001622 <https://je.jacq.org/JE04001622>), TYPE of *Otigoniolejeunea quinqueumbonata* var. *rotundata*, Herzog 1951 as *Otigoniolejeunea quinqueumbonata* var. *rotundata*; Geissler and Bischler 1989 as *Otigoniolejeunea quinqueumbonata* var. *rotundata*; Singh 2013).

Not found outside Central America.

Lejeunea raddiana Lindenb., *Syn. Hepat.* 3: 342, 1845 (Gottsche et al. 1845a). Type: Brazil.

PANAMA. S. loc. (Gradstein 2021; Silva et al. 2021). **CHIRIQUÍ:** Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,900 m, 6 Apr 2006, Schäfer-Verwimp & Verwimp 30997 (JE, Schäfer-Verwimp 2014).

Also reported from Mexico, Northern South America, Western South America, Brazil.

Lejeunea ramulosa Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 274, 1884 (Spruce 1884). Type: Ecuador.

***EL SALVADOR.** ***SANTA ANA:** Metapán municipio, Montecristo, 11 Nov 2014, Búcaro H113, det. Dauphin (MHES!, this publication); Metapán municipio, Montecristo, Calle Los Planes, 11 Nov 2014, Búcaro H315, det. Dauphin (MHES!, this publication); Metapán municipio, Montecristo, Calle Los Planes, 11 Nov 2014, Búcaro H316, det. Dauphin (MHES!, this publication); Metapán municipio, Montecristo, Calle Los Planes, 11 Nov 2014, Búcaro H317, det. Dauphin (MHES!, this publication); Metapán municipio, Montecristo, Los Planes, 11 Nov 2014, Búcaro H319, det. Dauphin (MHES!, this publication). ***SONSONATE:** Juayúa, calle a La Unión, 1 Dec 2008, Búcaro H156, det. Dauphin (MHES!, this publication).

COSTA RICA. S. loc. (Wang and Zhu 2008; Schäfer-Verwimp and Pócs 2009; Schäfer-Verwimp 2014); S. loc., Schäfer-Verwimp & Holz SV/H-0229A (GOET, Heinrichs et al. 2013); Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b). **CARTAGO:** El Guarco cantón, 3 de Junio, 2,460 m, 3 Jan 2000, Schäfer-Verwimp & Holz SV/H-0466/A (CR, hb. Schäfer-Verwimp, Holz et al. 2001; Dauphin 2005; Reiner-Drehwald 2010a). **PUNTARENAS:** Coto Brus cantón, Valle del Silencio, 1,680 m, 6 Jul 1995, Quesada 1185 (CR, GOET, Holz et al. 2001; Dauphin 2005; Reiner-Drehwald 2010a).

PANAMA. **CHIRIQUÍ:** Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,880 m, 6 Apr 2006, Schäfer-Verwimp & Verwimp 30989 (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, Schäfer-Verwimp & Verwimp 34544, 34559/D, 34565/A (JE, Schäfer-Verwimp 2014).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Lejeunea reflexistipula var. *costaricensis* (Steph.) M.E.Reiner, *Nova Hedwigia* 81(3/4): 408, 2005 (Reiner-Drehwald 2005c). $\equiv$ *Hygrolejeunea costaricensis* Steph., *Hedwigia* 35(3): 100, 1896 (Stephani 1896). Lectotype (Bonner 1966: 646): Costa Rica, Carrisal, 2,800 m, Jan 1889, H. Pittier (G-00282422 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=214857&lang=en>, isoelectotype JE-04007655 <https://je.jacq.org/JE04007655>).

$\equiv$ *Cryptogynolejeunea costaricensis* (Steph.) R.M.Schust., *J. Hattori Bot. Lab.* 75: 218, 1994 (Schuster 1994).

COSTA RICA. S. loc. (Stephani 1914 as *Hygrolejeunea costaricensis*; Dauphin 2005 as *Cryptogynolejeunea costaricensis*; Schäfer-Verwimp 2014); S. loc., Pittier 6013a (G, Bischler 1966 as *Hygrolejeunea costaricensis*); S. loc., Schäfer-Verwimp & Holz SV/H-0434 (GOET, Heinrichs et al. 2013; Lee et al. 2016, 2019). **ALAJUELA:** Alajuela cantón, Carrizal, 2,800 m, Jan 1889, Pittier & Durand 6013a (G-9954, JE, TYPE of *Hygrolejeunea costaricensis*, Stephani 1896 as *Hygrolejeunea costaricensis*; Bonner 1966 as *Hygrolejeunea costaricensis*; Schuster 1994 as *Cryptogynolejeunea costaricensis*; Dauphin 2005 as *Cryptogynolejeunea costaricensis*; Reiner-Drehwald 2005c). **CARTAGO:** Cordillera de Talamanca, Schäfer-Verwimp & Holz SV/H-0434 (MO-5915864!, hb. Schäfer-Verwimp, Reiner-Drehwald 2005c); El Guarco cantón, 3 de Junio, Gradstein & Morales 9387 (GOET, Reiner-Drehwald 2005c). **SAN JOSÉ:** Moravia cantón, La Hondura, 1,200–1,500 m, Standley 51842 p.p. (JE, Herzog 1951 as *Hygrolejeunea costaricensis*; Morales 1991 as *Hygrolejeunea costaricensis*; Dauphin 2005 as *Cryptogynolejeunea costaricensis*).

PANAMA. S. loc., Schäfer-Verwimp & Verwimp 30930 (GOET, Heinrichs et al. 2013). **†BOCAS DEL TORO:** S. loc. (Schäfer-Verwimp 2014). Note: This report must refer to the “new” comarca Naso Tjër Di. **CHIRIQUÍ:** Boquete distrito, Bajo Mono, along Rio Caldera, 8°50.5'N, 82°28.9'W, 1,670–1,745 m, 5 Apr 2006, Schäfer-Verwimp & Verwimp 30930 (JE, Schäfer-Verwimp 2014). **NASO TJËR DI COMARCA:** Cerro Fábrega, De Gracia et al. 359 (GOET, PMA, Reiner-Drehwald 2005c).

Not found outside Central America.

Lejeunea reflexistipula (Lehm. et Lindenb.) Lehm. et Lindenb., *Syn. Hepat.* 3: 335, 1845 (Gottsche et al. 1845a) var. *reflexistipula*.

$\equiv$ *Jungermannia reflexistipula* Lehm. et Lindenb., *Nov. Stirp. Pug.* 5: 10, 1833 (Lehmann 1833). Type: Brazil.

$\equiv$ *Amphilejeunea reflexistipula* (Lehm. et Lindenb.) Gradst., *Mem. New York Bot. Gard.* 86: 143, 2001 (Gradstein et al. 2001b).

COSTA RICA. Cordillera de Talamanca, Kappelle & Abarca 633 (ULM, Reiner-Drehwald 2005c); Cordillera de Talamanca, Kappelle 3947 (U, Kappelle 1996); S. loc. (Schäfer-Verwimp 2014; Gradstein 2021). **CARTAGO:** El Guarco cantón, 3 de Junio, 2,600 m, Gradstein & Morales 8387 (U, USJ, Gradstein et al. 1994; Dauphin 2005 as *Amphilejeunea reflexistipula*); El Guarco cantón, 3 de Junio, 2,600 m, Morales & Gradstein

2405 (USJ, Gradstein et al. 1994; Dauphin 2005 as *Amphilejeunea reflexistipula*). **GUANACASTE:** Liberia cantón, Guanacaste National Park, Sector Pitilla, Cerro Orosilito, Dauphin 2573 (CR, Dauphin 2005 as *Amphilejeunea reflexistipula*). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, Lücking 92-202 (EGR, Reiner-Drehwald 2005c); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, Lücking 92-388, 92-389, 92-552 (ULM, Lücking 1995; Reiner-Drehwald 2005c); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, Lücking (Lücking 1997). **PUNTARENAS:** S. loc. (Merwin et al. 2001 as *Amphilejeunea reflexistipula*). **SAN JOSÉ:** Moravia cantón, La Hondura, 1,200–1,500 m, Standley 51842 p.p. (JE, Reiner-Drehwald 2005c).

PANAMA. S. loc. (Gradstein 2021). **CHIRIQUÍ:** S. loc. (Schäfer-Verwimp 2014); Tierras Altas distrito, Parque Internacional La Amistad, Sendero “El Retoño,” Reiner-Drehwald 960039 (GOET, PMA, Reiner-Drehwald 2005c). **VERAGUAS:** Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, Schäfer-Verwimp & Verwimp 30816 (JE, Schäfer-Verwimp 2014).

Also reported from the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Lejeunea rotundifolia Mitt., *Hooker's J. Bot. Kew Gard. Misc.* 3: 359, 1851 (Mitten 1851). Type: Ecuador.

$\equiv$ *Hygrolejeunea rotundifolia* (Mitt.) Steph., *Sp. Hepat. (Stephani)* 5: 540, 1914 (Stephani 1914).

$\equiv$ *Taxilejeunea auriculata* Steph., *Sp. Hepat. (Stephani)* 5: 459, 1914 (Stephani 1914), syn. fide Gradstein and Pérez (2021). Lectotype: Ecuador.

COSTA RICA. S. loc. (Stephani 1914 as *Taxilejeunea auriculata*; Bonner 1966 as *Hygrolejeunea rotundifolia*; Geissler and Bischler 1990 as *Taxilejeunea auriculata*; Schäfer-Verwimp 2014; Gradstein and Uribe 2016; Gradstein 2021). **CARTAGO:** S. loc., Schäfer-Verwimp & Holz SV/H-0378 (GOET, Heinrichs et al. 2013; Lee et al. 2016, 2019); La Estrella, Standley 39479 (Herzog 1951 as *Hygrolejeunea rotundifolia*; Morales 1991 as *Hygrolejeunea rotundifolia*; Reiner-Drehwald 2005b). **HEREDIA:** San Isidro cantón, Cerro de Las Lajas, 2,000–2,400 m, 7 Mar 1926, Standley & Valerio 51411, 51510 (JE, Herzog 1951 as *Hygrolejeunea rotundifolia*; Morales 1991 as *Hygrolejeunea rotundifolia*; Reiner-Drehwald 2005b); San Isidro cantón, Cerro Zurquí, N of San Isidro, 2,000–2,400 m, 3 Mar 1926, Standley & Valerio 50620, 50640 (JE, Herzog 1951 as *Hygrolejeunea rotundifolia*; Morales 1991 as *Hygrolejeunea rotundifolia*; Reiner-Drehwald 2005b); San Isidro cantón, Yerba Buena, N of San Isidro, 2,000 m, 22–28 Feb 1926, Standley & Valerio 49166 (JE, Herzog 1951 as *Hygrolejeunea rotundifolia*; Morales 1991 as *Hygrolejeunea rotundifolia*; Reiner-Drehwald 2005b). **LIMÓN:** Siquirres cantón, Cairo, Finca Hamburgo, on the Rio Reventazón below Cairo, 55 m, 19 Feb 1926, Standley & Valerio 48818 (JE, Herzog 1951 as *Hygrolejeunea rotundifolia*; Morales 1991 as *Hygrolejeunea rotundifolia*; Reiner-Drehwald 2005b). **SAN JOSÉ:** Aserri cantón, Tablazo, 1,900 m, 4 Mar 1908, Brade (G-00283254, Gradstein and Pérez 2021 as *Taxilejeunea*

auriculata); Moravia cantón, La Palma on road to Hondura, 1,500–1,700 m, 17–18 Jul 1923, *Maxon & Harvey 8050* (JE, *Reiner-Drehwald 2005b*).

PANAMA. S. loc. (Gradstein 2021). **CHIRIQUÍ:** S. loc., *Schäfer-Verwimp & Verwimp 31029* (GOET, *Heinrichs et al. 2013*); Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,930 m, 6 Apr 2006, *Schäfer-Verwimp & Verwimp 34029* (JE, *Schäfer-Verwimp 2014*); Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (*Salazar Allen et al. 2021*); Gualaca distrito, Fortuna Forest Reserve, Quijada del Diablo, 1,200–1,600 m (*Salazar Allen et al. 2021*); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°41.4'N, 82°13.7'W, 1,280 m, 30 Mar 2009, *Schäfer-Verwimp & Verwimp 34460* (JE, *Schäfer-Verwimp 2014*); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, near southern edge of storage lake, 8°44.0'N, 82°14.5'W, 1,215 m, 30 Mar 2009, *Schäfer-Verwimp & Verwimp 34490/A* (JE, *Schäfer-Verwimp 2014*); Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, *Schäfer-Verwimp & Verwimp 34534/A*, det. A. Schäfer-Verwimp (JE, *Schäfer-Verwimp 2014*); Barú Volcano National Park (Rodríguez-Quiel et al. 2022).

Also reported from Western South America.

Lejeunea serpillifolioides (Raddi) Gradst., *Caldasia* 40(1): 87, 2018 (Gradstein et al. 2018b).

≡ *Jungermannia serpillifolioides* Raddi, *Critt. Brasil.*: 17, 1822 (Raddi 1822).
Type: Brazil.

≡ *Taxilejeunea serpillifolioides* (Raddi) D.P.Costa, *J. Bryol.* 31(4): 230, 2009 (Costa 2009).

≡ *Jungermannia isocalycina* Nees, *Fl. Bras. (Martius)* 1(1): 356, 1833 (Nees 1833b), syn. fide Costa (2009). Type: Brazil.

≡ *Taxilejeunea isocalycina* (Nees) Steph., *Hedwigia* 29(3): 141, 1890 (Stephani 1890a).

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotope Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as *Taxilejeunea isocalycina*). **IZABAL:** Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez 2007* as *Taxilejeunea isocalycina*). **QUICHÉ:** S. loc., *Pérez 2199* (USCG, *Pérez 2009* as *Taxilejeunea isocalycina*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Lejeunea setiloba Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15(1): 281, 1884 (Spruce 1884). Type: Brazil.

***GUATEMALA. *CHIMALTENANGO:** Acatenango municipio, Volcán Acatenango road from Páramos to Yepocapa, above Chichoy Bajo, ~8.65 km W of San Miguel Dueñas, 14°32'20.8"N, 90°52'35.9"W, 9 Dec 2013, *Quedensley 13064*, det. Dauphin Sep 2017 (MO, W-0089070! <https://w.jacq.org/W0089070>, this

publication). ***QUETZALTENANGO:** Zunil municipio, Aguas Amargas, NW slopes of Pico Zunil, 14°45'21.6"N, 91°29'21.6"W, 5 Jan 2006, *Quedensley 3872*, det. Dauphin Sep 2017 (MO, W-0089071! <https://w.jacq.org/W0089071>, this publication).

NICARAGUA. CHINANDEGA: El Viejo municipio, Gulf of Fonseca, east of Volcano Coseguina, 7 Jul 1932, *Howell 242* (CAS, *Clark 1953a*); El Viejo municipio, Gulf of Fonseca, east of Volcano Coseguina, 7 Jul 1932, *Howell 246, 270* (CAS, *Clark 1953a*).

COSTA RICA. S. loc. (Cañiza et al. 2017). **GUANACASTE:** La Cruz, Santa Rosa National Park, sendero Los Borrachos y Camino a Santa Elena, 10°50'05"N, 85°36'50"W, 292 m, 28 Aug 2003, *Dauphin 3254* (CR, *Dauphin 2005*).

COCOS I. S. loc. (Fosberg and Klawe 1966; Dauphin 1995, 1999, 2005); S. loc., 1966, *Fosberg & Klawe* (Morales 1991); Wafer Bay, 28 Jun 1932, *Walton Clark 221 p.p.* (CAS-372425, *Clark 1953a*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Lejeunea smaragdina Besch. et Spruce, *Bull. Soc. Bot. France (Congr. Bot.)* 36: clxxxii, 1890 (Bescherelle and Spruce 1889). Type: Guadeloupe.

PANAMA. PANAMA WEST: La Chorrera distrito, Barro Colorado Island (Reiner-Drehwald et al. 2013); La Chorrera distrito, Barro Colorado Island, Laboratory area, 2003, *Meyer s.n.* (Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Lathrop 3, 9°09'N, 79°51'W, 20–170 m, *Dauphin 3099* (PMA, *Dauphin et al. 2006*); La Chorrera distrito, Barro Colorado Island, Lathrop-Barbour 10, 2003, *Dauphin 3176* (CR, GOET [https://gwdu64.gwdg.de/pls/herbar/moos\\$moos.QueryViewByKey?P_ID=27959&Z_CHK=4177](https://gwdu64.gwdg.de/pls/herbar/moos$moos.QueryViewByKey?P_ID=27959&Z_CHK=4177), PMA, *Dauphin et al. 2006, 2022*); La Chorrera distrito, Barro Colorado Island, Snyder-Molino, 9°09'N, 79°51'W, 20–170 m, *Dauphin 3053, 3056* (PMA, *Dauphin et al. 2006*); La Chorrera distrito, Barro Colorado Island, Standley 10, 9°09'N, 79°51'W, 20–170 m, *Dauphin 3119*, det. M. E. Reiner-Drehwald (PMA, GOET, *Dauphin et al. 2006*); La Chorrera distrito, Barro Colorado Island, Zetek 15, 2003, *Dauphin 3221* (PMA, GOET, *Dauphin et al. 2006, 2022*); La Chorrera distrito, Barro Colorado Island, Zetek 15, 9°09'N, 79°51'W, 20–170 m, *Meyer* (PMA, *Dauphin et al. 2006*); La Chorrera distrito, Barro Colorado, Lathrop, 2003, *Dauphin 3099* (CR, PMA, *Dauphin et al. 2022*); La Chorrera distrito, Barro Colorado, Snyder-Molino, 2003, *Dauphin 3053* (CR, PMA, *Dauphin et al. 2022*); La Chorrera distrito, Barro Colorado, Standley, 2003, *Dauphin 3119* (CR, PMA, GOET [https://gwdu64.gwdg.de/pls/herbar/moos\\$moos.QueryViewByKey?P_ID=27960&Z_CHK=1875](https://gwdu64.gwdg.de/pls/herbar/moos$moos.QueryViewByKey?P_ID=27960&Z_CHK=1875), *Dauphin et al. 2022*).

Also reported from the Caribbean, Western South America.

Lejeunea sporadica Besch. et Spruce, *Bull. Soc. Bot. France (Congr. Bot.)* 36: clxxx, 1890 (Bescherelle and Spruce 1889). Type: Guadeloupe.

≡*Harpalejeunea sporadica* (Besch. et Spruce) Steph., *Sp. Hepat. (Stephani)* 5: 259, 1913 (Stephani 1913).

=*Lejeunea elliottii* Spruce, *J. Linn. Soc., Bot.* 30(210): 346, 1895 (Gepp 1895), syn. fide Schäfer-Verwimp and Reiner-Drehwald (2009). Type: St. Vincent.

=*Trachylejeunea prionocalyx* Gottsche ex Schiffn., *Bot. Jahrb. Syst.* 23(5): 592, 1897 (Schiffner 1897), syn. with *Lejeunea elliottii* fide Reiner-Drehwald and Goda (2000). Type: Cuba.

≡*Crossotolejeunea prionocalyx* (Gottsche ex Schiffn.) Steph., *Sp. Hepat. (Stephani)* 5: 241, 1913 (Stephani 1913).

HONDURAS. S. loc. (Graham et al. 2016). **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, 20–600 m, *Standley 55669 p.p.* (Herzog 1951 as *Crossotolejeunea prionocalyx*).

COSTA RICA. S. loc. (Schäfer-Verwimp 2014; Schäfer-Verwimp and Van Melick 2016). **HEREDIA:** San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, *Standley 51988 p.p.* (JE-04002124, Herzog 1951 as *Harpalejeunea 'sporadia'*; Morales 1991 as *Harpalejeunea sporadica*; Dauphin 2005).

PANAMA. S. loc. (Schäfer-Verwimp and Van Melick 2016); S. loc., *Schäfer-Verwimp & Verwimp 31033* (GOET, Heinrichs et al. 2013; Lee et al. 2016, 2019). **CHIRIQUÍ:** Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,930 m, 6 Apr 2006, *Schäfer-Verwimp & Verwimp 31033* (JE, Schäfer-Verwimp 2014); Boquete distrito, Bajo Mono, along Río Caldera, 8°50.5'N, 82°28.9'W, 1,670–1,745 m, 5 Apr 2006, *Schäfer-Verwimp & Verwimp 30935* (JE, Schäfer-Verwimp 2014); Barú Volcano National Park (Rodríguez-Quiel et al. 2022). **COCLÉ:** Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, *Schäfer-Verwimp & Verwimp 34134* (JE, Schäfer-Verwimp 2014).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Lejeunea subsessilis Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 282, 1884 (Spruce 1884). Type: Ecuador.

HONDURAS. **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, 20–600 m, *Standley 55669 p.p.* (Herzog 1951).

EL SALVADOR. **SANTA ANA:** Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler A/1/17, A/1/9, A/32/8/8* (Winkler 1967).

Also reported from the Caribbean, Western South America, Brazil, Southern South America.

Lejeunea subspathulata Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15(1): 173, 1884 (Spruce 1884). Type: Ecuador.

≡*Harpalejeunea subspathulata* (Spruce) Steph., *Sp. Hepat. (Stephani)* 5: 261, 1913 (Stephani 1913).

=*Trachylejeunea dilatata* A.Evans, *Bull. Torrey Bot. Club* 35(8): 372, 1908 (Evans 1908a), syn. fide Ilkiu-Borges (2005). Type: Jamaica.

≡*Echinocolea dilatata* (A.Evans) R.M.Schust., *Phytologia* 45(5): 426, 1980 (Schuster 1980b).

GUATEMALA. **ALTA VERAPAZ:** Tucurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Echinocolea dilatata*).

COSTA RICA. S. loc. (Gradstein et al. 2001b as *Echinocolea dilatata*; Ilkiu-Borges 2005). **CARTAGO:** Jiménez cantón, Peijivalle, ~900 m, *Standley 47157* (Herzog 1951 as *Harpalejeunea subspathulata*; Morales 1991 as *Harpalejeunea subspathulata*); Jimenez cantón, Pejibaye (Dauphin 2005). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, *Lücking 92-238* (USJ, Gradstein et al. 1994 as *Echinocolea dilatata*; Dauphin 2005); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking 92-172, 92-238, 92-371* (hb. Lücking, Lücking 1995 as *Echinocolea dilatata*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (Lücking 1997 as *Echinocolea dilatata*). **PUNTARENAS:** S. loc. (Merwin et al. 2001 as *Echinocolea dilatata*); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009); Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, Campbell's Wood, 1,550 m, *Sillett 3-8* (U, Gradstein et al. 1994 as *Echinocolea dilatata*); Monteverde cantón, Campbell's Wood, *Sillett 42436* (Dauphin 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a as *Echinocolea dilatata*); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995 as *Echinocolea dilatata*).

PANAMA. S. loc. (Lücking 1995 as *Echinocolea dilatata*; Gradstein et al. 2001b as *Echinocolea dilatata*; Ilkiu-Borges 2005). **DARIÉN:** Cerro Pirre (Stotler et al. 1998 as *Echinocolea dilatata*); Cerro Pirre, above Rancho Mojado, 1,000 m, *Salazar Allen & Gradstein 9259 p.p.* (PMA, Stotler et al. 1998 as *Echinocolea dilatata*); above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992 as *Echinocolea dilatata*).

COCOS I. Río Genio, 5°32'57"N, 87°03'56"W, 130 m, 23 Jan 1990, *Dauphin 1003*, det. G. Dauphin Jan 2021 (USJ-47356!, CR-4468146!, this publication); Río Genio, 5°32'57"N, 87°03'56"W, 130 m, 15 Feb 1997, *Dauphin 1003* (USJ, Gradstein et al. 1994 as *Echinocolea dilatata*; Dauphin 1995, 1999, both as *Echinocolea dilatata*, 2005).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Lejeunea succulenta Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 171, 1951 (Herzog 1951). Lectotype (Söderström and Hentschel 2023: 10): Costa Rica: Prov. Guanacaste, vicinity of Tilarán, 500–600 m., *Standley 46647 p.p.* (JE-04010830 <https://je.jacq.org/JE04010830>, isoelectotypes JE-04009372 <https://je.jacq.org/JE04009372>, JE-04009373 <https://je.jacq.org/JE04009373>, B-300025227 <https://herbarium.bgbm.org/object/B300025227>, US-00070960 <http://n2t.net/ark:/65665/34d0b12c7-8241-43b2-b288-10f63b277115>).

†**HONDURAS.** S. loc. (Reiner-Drehwald 1999). †**ATLÁNTIDA:** Tela municipio, Lancetilla Valley, 20–600 m, *Standley*

56369 p.p. (JE, Herzog 1951; Geissler and Bischler 1987). Note: Not *Lejeunea succulenta* fide an annotation by E. Reiner-Drehwald on the syntype specimen in JE.

COSTA RICA. S. loc. (Reiner-Drehwald 1999). **GUANACASTE:** Tilarán, 500–600 m, *Standley* 46647 p.p. (B-26013, B-46647, JE, Herzog 1951; Geissler and Bischler 1987; Morales 1991; Dauphin 2005).

Not found outside Central America.

Lejeunea sulphurea (Lehm. et Lindenb.) Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15(1): 217, 1884 (Spruce 1884).

≡ *Jungermannia sulphurea* Lehm. et Lindenb., *Nov. Stirp. Pug.* 5: 14, 1833 (Lehmann 1833). Type: West Indies.

≡ *Taxilejeunea sulphurea* (Lehm. et Lindenb.) Steph., *Hedwigia* 29(3): 142, 1890 (Stephani 1890a).

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 525 (USCG, Freire et al. 2013 as *Taxilejeunea sulphurea*); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as *Taxilejeunea sulphurea*).

COSTA RICA. S. loc. (Schäfer-Verwimp and Pócs 2009 as *Taxilejeunea sulphurea*). **ALAJUELA:** San Ramón cantón, Nectandra Cloud Forest (UC, Norris et al. 2017 as *Taxilejeunea sulphurea*). **CARTAGO:** Jiménez cantón, Peijivalle, *Standley* 46908 (Herzog 1951 as *Taxilejeunea sulphurea*; Morales 1991 as *Taxilejeunea sulphurea*; Dauphin 2005 as *Taxilejeunea sulphurea*). **LIMÓN:** Pococí cantón, Guápiles, 300–500 m, *Standley* 37100a (Herzog 1951 as *Taxilejeunea sulphurea*; Morales 1991 as *Taxilejeunea sulphurea*; Dauphin 2005 as *Taxilejeunea sulphurea*). **PUNTARENAS:** Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a as *Taxilejeunea sulphurea*). **SAN JOSÉ:** Moravia cantón, La Hondura, 1,200–1,500 m, *Standley* 51875a (Herzog 1951 as *Taxilejeunea sulphurea*; Morales 1991 as *Taxilejeunea sulphurea*; Dauphin 2005 as *Taxilejeunea sulphurea*).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quijada del Diablo, 1,200–1,600 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, SW of camping site, from Finca Pittí to foothills of Cerro Fortuna, 1,000–1,270 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna, 1,000–1,270 m, *Salazar Allen et al.* 666 (PMA, Stotler et al. 1998 as *Taxilejeunea sulphurea*); Gualaca distrito, Hornito, Fortuna, *Gradstein* 9774 (GOET, Stotler et al. 1998 as *Taxilejeunea sulphurea*); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°41.4'N, 82°13.7'W, 1,280 m, 30 Mar 2009, *Schäfer-Verwimp & Verwimp* 34458 (JE, Schäfer-Verwimp 2014); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, near southern edge of storage lake, 8°44.0'N,

82°14.5'W, 1,215 m, 30 Mar 2009, *Schäfer-Verwimp & Verwimp* 34487/A, 34500 (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, *Schäfer-Verwimp & Verwimp* 34548/B, det. A. Schäfer-Verwimp (JE, Schäfer-Verwimp 2014). **COCLÉ:** Antón distrito, El Valle de Antón, Alto de La Mesa, 8°38.3'N, 82°07.6'W, 850–870 m, 3 Apr 2009, *Schäfer-Verwimp & Verwimp* 34731, 34736/B, det. A. Schäfer-Verwimp (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, trail from Alto de La Mesa to summit region, 8°37.4–8'N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34203/A, 34213 (JE, Schäfer-Verwimp 2014). **PANAMA WEST:** Capira distrito, Parque Nacional Altos de Campana, Sendero de Interpretación, 1 km E del campamento de los guardabosques del INRENARE, 8°40'N, 79°55'W, 800–900 m, 7 Apr 1989, *Lara et al.* 1459 (PMA, Dauphin et al. 2006 as *Taxilejeunea 'sulphurea'*). **VERAGUAS:** Santa Fe distrito, Piedra Alto, 8°30–31'N, 81°07–08'W, 800–850 m, 27 Mar 2009, *Schäfer-Verwimp & Verwimp* 34310/B (JE, Schäfer-Verwimp 2014).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Lejeunea talamancensis M.E.Reiner et Schäf.-Verw., *Nova Hedwigia* 87(3/4): 414, 2008 (Reiner-Drehwald and Schäfer-Verwimp 2008). Holotype: Costa Rica, San José, Cordillera de Talamanca, San Gerardo de Dota, path from Chacon to “Las Cruces” on river Savegre, epiphyte on *Alnus* sp., 1,900 m, 25 Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0098/B (JE, isotype GOET, CR).

COSTA RICA. S. loc. (von Konrat et al. 2010). **SAN JOSÉ:** Dota cantón, San Gerardo, path from Chacon to “Las Cruces” on river Savegre, 1,900 m, 25 Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0098b (JE, GOET, CR, TYPE, Reiner-Drehwald and Schäfer-Verwimp 2008); Dota cantón, San Gerardo, path from Chacon to waterfall on river Savegre, *Schäfer-Verwimp & Holz* SV/H-0075a (JE, CR, Reiner-Drehwald and Schäfer-Verwimp 2008).

Not found outside Central America.

Lejeunea tamasii M.E.Reiner, N.Salazar Allen et C.Chung, *Polish Bot. J.* 58(2): 420, 2013 (Reiner-Drehwald et al. 2013). Holotype: Panama, Panamá West, Isla Barro Colorado, Zona del Canal, 9°10'N, 79°50'W, camino R. Shannon, sobre roca, 200 m desde la Quebrada Shannon, 4 Mar 1987, N. Salazar Allen 4281 (PMA, isotype GOET-013749 https://plants.jstor.org/stable/10.5555/al.ap.specimen.goet013749?searchUri=filter%3Dname%26so%3Dps_group_by_genus_species%2Basc%26Query%3DLejeunea%2Btamasii).

PANAMA. PANAMA WEST: La Chorrera distrito, Barro Colorado Island, *Gradstein & Salazar Allen* 15075 (Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, 9°10'N, 79°50'W, Camino J. Van Tyne 13, sobre piedra en quebrada seca, 25 Mar 1987, *Salazar Allen & Chung* 4583 (PMA,

GOET, Reiner-Drehwald et al. 2013; Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, 9°10'N, 79°50'W, Camino J. Van Tyne 9, 25 Mar 1987, *Salazar Allen & Chung* 4623 (PMA, GOET, Reiner-Drehwald et al. 2013; Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, 9°10'N, 79°50'W, camino R. Shannon, 200 m desde la Quebrada Shannon, 4 Mar 1987, *Salazar Allen* 4281 (PMA, GOET, TYPE; Reiner-Drehwald et al. 2013; Söderström et al. 2016b; Dauphin et al. 2022).

Not found outside Central America.

Lejeunea tenera (Sw.) Gottsche, Lindenb. et Nees, *Syn. Hepat.* 3: 406, 1845 (Gottsche et al. 1845a).

≡*Jungermannia tenera* Sw., *Prodr. (Swartz)*: 143, 1788 (Swartz 1788). Type: Jamaica.

≡*Neopotamolejeunea tenera* (Sw.) M.E.Reiner, *Nova Hedwigia* 71(3/4): 456, 2000 (Reiner-Drehwald 2000b).

GUATEMALA. S. loc. (Gradstein and Reiner-Drehwald 2007). ALTA VERAPAZ: S. loc., 5 Apr 1892, *Türckheim* (NY, BM, W, Reiner-Drehwald 2000b as *Neopotamolejeunea tenera*). Also reported from Mexico, the Caribbean, Brazil.

Lejeunea tonduziana (Steph.) M.E.Reiner, *Polish Bot. J.* 58(2): 421, 2013 (Reiner-Drehwald et al. 2013).

≡*Hygrolejeunea tonduziana* Steph., *Hedwigia* 35(3): 105, 1896 (Stephani 1896). Lectotype (Bonner 1966 and Söderström et al. 2023a: 151): Costa Rica, Rio Naranjo, 200–250 m, Mar 1893, *A. Tonduz s.n.*, *Vetter* 3077a (G-00280785 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=318288&lang=en>).

≡*Taxilejeunea tonduziana* Steph., *Sp. Hepat. (Stephani)* 5: 498, 1914 (Stephani 1914), syn. fide Gradstein (2021). Lectotype (Söderström et al. 2023a: 156): Costa Rica, forêts du Rio Naranjo, Mar 1893, *Tonduz* 15614 (G-00113325 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=147603&lang=en>, isoelectotypes NY-1059616 <http://sweetgum.nybg.org/science/vh/specimen-details/?irn=1199910>, JE-04002537 <https://je.jacq.org/JE04002537>).

≡*Schusteria tonduziana* (Steph.) Kachroo, *Bryologist* 60: 273, 1957 (Kachroo 1957).

EL SALVADOR. SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler* B/6/d/6, B/6/d/7 (Winkler 1967 as *Hygrolejeunea tonduziana*).

COSTA RICA. S. loc. (Stephani 1914 as *Taxilejeunea tonduziana*; Winkler 1967 as *Hygrolejeunea tonduziana*; Fulford and Sharp 1990 as *Taxilejeunea tonduziana*; Geissler and Bischler 1990 as *Taxilejeunea tonduziana* and also as *Schusteria tonduziana*; Reiner-Drehwald 2015; Gradstein 2021). CARTAGO: Jiménez cantón, Rio Naranjo (Stephani 1914 as *Hygrolejeunea tonduziana*); Jiménez cantón, Río Naranjo, *Vetter* 3077a (G, TYPE of *Hygrolejeunea tonduziana*, Morales 1991 as *Hygrolejeunea tonduziana*); Jiménez cantón, Río Naranjo, 1893, *Tonduz* (G, Morales 1991 as *Hygrolejeunea tonduziana*); Jiménez cantón, Río Naranjo, Mar 1893, *Tonduz* 15614 (G <https://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=147603&lang=en>, TYPE of *Taxilejeunea tonduziana*, Bischler 1966 as *Taxilejeunea*

tonduziana); Jiménez cantón, Rio Naranjo, 200–250 m, Mar 1893, *Tonduz* 3077a (G-11832, JE, Stephani 1896 as *Hygrolejeunea tonduziana*; Bonner 1966 as *Hygrolejeunea tonduziana*; Reiner-Drehwald et al. 2013).

Also reported from Mexico.

Lejeunea trinitensis Lindenb., *Syn. Hepat.* 3: 381, 1845 (Gottsche et al. 1845a). Type: Trinidad, var. *trinitensis*.

≡*Stylolejeunea trinitensis* (Lindenb.) Fulford, *Mem. New York Bot. Gard.* 45: 277, 1987 (Fulford 1987).

≡*Lejeunea pililoba* Spruce, *J. Linn. Soc., Bot.* 30(210): 346, 1895 (Gepp 1895), syn. fide Grolle (1981). Type: Dominica.

≡*Cheilolejeunea pililoba* (Spruce) A.Evans, *Mem. Torrey Bot. Club* 8(2): 147, 1902 (Evans 1902b).

≡*Rectolejeunea pililoba* (Spruce) R.M.Schust., *Hepat. Anthocer. N. Amer.* 4: 1153, 1980 (Schuster 1980d).

BELIZE. CAYO: Blue Hole National Park, 100–200 m, 1996, *Eggers & Timm* BEZ 3/16, det. Eggers (Eggers et al. 2004).

HONDURAS. S. loc. (Schuster 1980d also as *Rectolejeunea pililoba* var. *pililoba*; Fulford and Sharp 1990 as *Stylolejeunea trinitensis*; Oliveira-e-Silva and Yano 2000 as *Rectolejeunea pililoba*; Bastos 2004; Stotler and Crandall-Stotler 2017). ATLÁNTIDA: Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 55177, 55361, 55370, 55543, 55562 (Herzog 1951 as *Cheilolejeunea pililoba*).

EL SALVADOR. SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler* A/8/1 (Winkler 1967 as *Cheilolejeunea pililoba*).

Also reported from Western Indian Ocean, Indo-China, Malesia, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Lejeunea trinitensis var. *varians* (Herzog) B.Cañiza, *Lindbergia* 46 (e25016): 1, 2023 (Cañiza et al. 2023).

≡*Cheilolejeunea pililoba* f. *varians* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 167, 1951 (Herzog 1951). Lectotype (Söderström and Hentschel 2023: 6): Honduras, Atlántida, Lancetilla Valley near Tela, *Standley* 55577 (JE-04010835 <https://je.jacq.org/JE04010835>).

≡*Rectolejeunea pililoba* var. *varians* (Herzog) R.M.Schust., *Hepat. Anthocer. N. Amer.* 4: 1156, 1980 (Schuster 1980d).

HONDURAS. ATLÁNTIDA: Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 55577 p.p. (JE-04010855, TYPE of *Cheilolejeunea pililoba* f. *varians*, Herzog 1951 as *Cheilolejeunea pililoba* f. *varians*; Reiner-Drehwald and Grolle 2012 as *Rectolejeunea pililoba* var. *trinitensis*).

Only known from Central America.

Lejeunea urbanii (Steph.) Steph., *Sp. Hepat. (Stephani)* 5: 766, 1915 (Stephani 1915).

≡*Eulejeunea urbanii* Steph., *Hedwigia* 27(11/12): 301, 1888 (Stephani 1888b). Type: Dominican Republic.

PANAMA. S. loc., 1906, *Hélión* (PC, Bischler 1966).

Also reported from the Caribbean.

Lejeunea venezuelana (R.M.Schust.) R.L.Zhu et W.Ye, *J. Syst. Evol.* 51(4): 473, 2013 (Ye et al. 2013).

≡*Cyrtolejeunea venezuelana* R.M.Schust., *Phytologia* 39(6): 426, 1978 (Schuster 1978b). Type: Venezuela.

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,340 m, Schäfer-Verwimp & Verwimp 34335/A (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, El Volcán, 8°46.9'N, 82°38.8'W, 1,410 m, 1 Apr 2009, Schäfer-Verwimp & Verwimp 34653/C (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Volcán, along road to Rio Serena at western edge of the village, 8°47.6'N, 82°39.4'W, 1,370 m, 1 Apr 2009, Schäfer-Verwimp & Verwimp 34634/B (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Volcán, road to Rio Sereno, 8°49.5'N, 82°41.5'W, 1,580 m, 2 Apr 2009, Schäfer-Verwimp & Verwimp 34664/A, 34676/C (JE, Schäfer-Verwimp 2014).

Also reported from Northern South America, Western South America(?).

***Lepicolea* Dumort., Recueil Observ.
Jungerm.: 20, 1835 (Dumortier 1835).**

Lepicolea ochroleuca (Spreng.) Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 345, 1885 (Spruce 1885).

≡*Jungermannia ochroleuca* Spreng. *Syst. Veg. (ed. 16) [Sprengel]* 4(2): 325, 1827 (Sprengel 1827a).

GUATEMALA. S. loc. (Hässel and Solari 1975, 1985; Fulford and Sharp 1990). **ALTA VERAPAZ:** Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, 2,300–2,500 m, Pérez 398 (USCG, Pérez 2009); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). **EL PROGRESO:** Volcán Santa Luisa, *Steyermark* 43528 (F, Fulford 1963a; Freire 2006; Pérez 2009). **QUICHÉ:** S. loc., Pérez 2342 (USCG, Pérez 2009).

HONDURAS. S. loc. (Hässel and Solari 1975; Gradstein et al. 1983; Hässel and Solari 1985; Fulford and Sharp 1990; Váña and Engel 2013). **FRANCISCO MORAZÁN:** San Antonio de Oriente municipio, Cerro de Uyuca, 1,600–1,800 m, *Standley* 705, 721, 8040 p.p. (F, Fulford 1963a).

COSTA RICA. S. loc. (Gradstein 1999a; Dauphin 2005; Gradstein and Holz 2005); Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b). **ALAJUELA:** San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 5 Jul 2007, *Norris* 110407 (UC, Norris et al. 2017). **PUNTARENAS:** Buenos Aires cantón, Valle del Silencio, *Quesada* 1181 (CR, Dauphin 2005); Coto Brus cantón, Cordillera de Talamanca, Cerro Echandi at border with Panama, *Dauphin* 92 (USJ, Gradstein et al. 1994; Kappelle 1996); Coto Brus cantón, Parque Internacional La Amistad, Cerro Echandi, *Dauphin et al.* 92 (Dauphin 2005).

Also reported from Southern Africa, New Zealand(?), Mexico, Western South America, Brazil, Southern South America, Subantarctic Islands.

Lepicolea pruinosa (Taylor) Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 345, 1885 (Spruce 1885).

≡*Sendtnera pruinosa* Taylor, *London J. Bot.* 5: 373, 1846 (Taylor 1846a). Type: Ecuador.

=*Lepicolea pruinosa* f. *laxior-complanata* Herzog, *Rev. Bryol. Lichénol.* 11(1): 30, 1939 (Herzog 1938), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Costa Rica, southern slope of Volcán de Turrialba, near the Finca del Volcán de Turrialba, altitude about 2,000–2,400 m, on tree, 22 Feb 1924, *Standley* 35251 (US-04667893 <http://n2t.net/ark:/65665/375528b99-38a4-4f54-9efe-d16813bb8345>).

=*Lepicolea pruinosa* f. *longissime-lacinulata* Herzog, *Rev. Bryol. Lichénol.* 11(1): 30, 1939 (Herzog 1938), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Costa Rica, near Finca La Cima, above Los Lotes, north of El Copey, Provincia de San José, altitude 2,100–2,400 m, 21–22 Dec 1925, *Standley* 42694 (US-04667894 <http://n2t.net/ark:/65665/39483be51-0872-4455-aa45-2778147d6aa1>); Cerro de las Caricias, north of San Isidro, Provincia de Heredia, altitude 2,000–2,400 m, 11 Mar 1926, *Standley* 52170 (US-04667892 <http://n2t.net/ark:/65665/38028a4be-639f-49d2-8468-1f181a4df8b3>).

=*Lepicolea pruinosa* f. *spinuloso-lacinulata* Herzog, *Rev. Bryol. Lichénol.* 11(1): 30, 1939 (Herzog 1938), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Costa Rica, Cerro de las Vueltas, Provincia de San José, altitude 2,700–3,000 m, 29 Dec 1925–1 Jan 1926, *Standley & Valerio* 43846 (US-04667897 <http://n2t.net/ark:/65665/3d5128609-69ec-4483-aea1-49bd0818e220>, F-C0000175F <https://collections-botany.fieldmuseum.org/catalogue/1767029>).

COSTA RICA. Cordillera de Talamanca (Holz and Gradstein 2005b); Cordillera de Talamanca, *Kappelle* 4180 (U, Kappelle 1996); S. loc. (Fulford 1963a; Cole 1982, 1983; Gradstein 1999a, 2021; Schuster 2000c; Gradstein et al. 2001b; Dauphin 2005; Gradstein and Holz 2005; Schäfer-Verwimp et al. 2013). **CARTAGO:** Turrialba cantón, Volcán Turrialba, S slope near the Finca, 2,000–2,400 m, *Standley* 35251 (Herzog 1938 as *Lepicolea pruinosa* f. *laxior-complanata*; Geissler and Bischler 1985 as *Lepicolea pruinosa* f. *laxior-complanata*; Morales 1991; Dauphin 2005); Turrialba cantón, Volcán Turrialba, S slope near the Finca, 2,000–2,400 m, *Standley* 35296 (Herzog 1938; Morales 1991; Dauphin 2005). **HEREDIA:** San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, *Standley* 52170 (Herzog 1938 as *Lepicolea pruinosa* f. *longissime-lacinulata*; Geissler and Bischler 1985 as *Lepicolea pruinosa* f. *longissime-lacinulata*; Morales 1991; Dauphin 2005); San Isidro cantón, Cerro de Las Lajas, 2,000–2,400 m, *Standley* 51590 (Herzog 1938; Morales 1991; Dauphin 2005). **PUNTARENAS:** Monteverde cantón, Checo Trail near Adono clearing, 3 Aug 1968, *James, W.* (US, R, Reed and Robinson 1971). **SAN JOSÉ:** Coto Brus cantón, Pittier, *Dauphin* 1604.2 (CR, Dauphin 2005); Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, *Standley* 43846 (Herzog 1938 as *Lepicolea pruinosa* f. *spinuloso-lacinulata*; Geissler and Bischler 1985 as *Lepicolea pruinosa* f. *spinuloso-lacinulata*; Morales 1991; Dauphin 2005); Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, *Standley* 43918 (Herzog 1938; Morales 1991; Dauphin 2005); Dota cantón, Finca La Cima, above Los Lotes, N of El Copey, 2,100–2,400 m, *Standley* 42594 (F, Herzog 1938 as *Lepicolea pruinosa* f. *longissime-lacinulata*; Fulford 1963a; Geissler

and Bischler 1985 as *Lepicolea pruinosa* f. *longissime-lacinulata*; Morales 1991; Dauphin 2005); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, Holz (Holz 2003); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a); Pérez Zeledón cantón, Cerro Buena Vista, Schäfer-Verwimp 184 (CR, Dauphin 2005); Pérez Zeledón cantón, Chirripó National Park, Camino de Los Indios, Kappelle & Monge 5587 (B, Dauphin 2005).

PANAMA. CHIRIQUÍ: Gualaca distrito, Cerro Hornitos, Mori & Bolten 7458 (MO, PMA, Stotler et al. 1998); Gualaca distrito, Fortuna Forest Reserve, Cerro Hornito, 1,670–2,300 m (Salazar Allen et al. 2021); Tierras Altas distrito, Cerro Punta, Mori & Bolten 7312 (MO, PMA, Stotler et al. 1998); Tierras Altas distrito, Parque Internacional La Amistad, along trail to Cerro Punta, 2,462 m, Stotler & Crandall-Stotler 3490 (ABSH, Stotler et al. 1998).

Also reported from Mexico(?), Northern South America, Western South America, Southern South America.

Lepicolea ramentifissa Herzog, *Biblioth. Bot.* 88: 30, 1921 (Herzog 1920). Type: Bolivia.

COSTA RICA. S. loc. (Cole 1982, 1983; Schuster 2000c; Schäfer-Verwimp et al. 2013). HEREDIA: Zurquí, 2,000–2,400 m, Standley 50643 (B-04991, Herzog 1938; Morales 1991; Dauphin 2005). SAN JOSÉ: San Isidro cantón, Cerro Zurquí, 2,000–2,500 m, Standley 48227 (Herzog 1938; Morales 1991; Dauphin 2005).

Also reported from Northern South America, Western South America.

***Lepidolejeunea* R.M.Schust., Beih. Nova Hedwigia 9: 139, 1963 (Schuster 1963b).**

Lepidolejeunea cordifissa (Taylor) M.E.Reiner, *Nova Hedwigia* 83(3/4): 478, 2006 (Reiner-Drehwald 2006).

≡ *Lejeunea cordifissa* Taylor, *London J. Bot.* 5: 395, 1846 (Taylor 1846a). Type: Ecuador.

≡ *Hygrolejeunea cordifissa* (Taylor) Steph., *Sp. Hepat. (Stephani)* 5: 544, 1914 (Stephani 1914).

≡ *Kingiolejeunea ornata* H.Rob., *Bryologist* 70(1): 53, 1967 (Robinson 1967), syn. fide Reiner-Drehwald (2006). Type: Colombia.

≡ *Lepidolejeunea ornata* (H.Rob.) R.M.Schust., *Phytologia* 45(5): 425, 1980 (Schuster 1980b).

GUATEMALA. EL PROGRESO: San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007 as *Lepidolejeunea ornata*).

COSTA RICA. S. loc. (Gradstein and Costa 2003 as *Lepidolejeunea ornata*; Lavocat Bernard et al. 2009 as *Lepidolejeunea ornata*; Gradstein and Uribe 2016; Gradstein 2021); S. loc., Schäfer-Verwimp & Holz SV/H-0284/A (JE, Heinrichs et al. 2015; Schäfer-Verwimp et al. 2017; Zhu et al. 2017, 2018a, 2018b, 2019; Zhu and Shu 2018). GUANACASTE: Tilarán cantón, Los Ayotes, 600–700 m, Standley 45459 p.p. (Herzog 1951 as *Hygrolejeunea cordifissa*; Morales 1991 as

Hygrolejeunea cordifissa; Reiner-Drehwald 2006). LIMÓN: Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, Lücking 94-31 (hb. Lücking, Lücking 1995 as *Lepidolejeunea ornata*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, Lücking (Lücking 1997 as *Lepidolejeunea ornata*). PUNTARENAS: Golfito cantón, Corcovado National Park, Esquinas, Soto 4170 p.p. (U, USJ, Gradstein et al. 1994 as *Lepidolejeunea ornata*; Dauphin 2005 as *Lepidolejeunea ornata*). SAN JOSÉ: Moravia cantón, La Hondura, 1,300–1,700 m, Standley 36212a, 36319 (Herzog 1951 as *Hygrolejeunea cordifissa*; Morales 1991 as *Hygrolejeunea cordifissa*; Reiner-Drehwald 2006).

PANAMA. S. loc., Seemann (BM, NY, Thiers 1986 as *Lejeunea cordifissa*). CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, NE of camping site, 900–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, NW of camping site, 1,000–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, SW of camping site, from Finca Pitti to foothills of Cerro Fortuna, 1,000–1,270 m (Salazar Allen et al. 2021); Gualaca distrito, Hornito, Fortuna, 1,000–1,200 m, Salazar Allen et al. 521, 601, 647, etc. (PMA, Stotler et al. 1998 as *Hygrolejeunea cordifissa* and *Lepidolejeunea ornata*). COCLÉ: La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Río Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, Sierra & López 698 (PMA, Sierra et al. 2019a).

COCOS I. Bahía Yglesias, 0–20 m, Apr 1992, Lücking 459, 461, 462, 617 (USJ, ULM, Bernecker-Lücking 2000 as *Lepidolejeunea ornata*); Fila después de Mirador a Bahía Wafer, 500 m, 15 Feb 1994, Dauphin A-7 (USJ, Dauphin 1995, 1999, 2005, all as *Lepidolejeunea ornata*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Lepidolejeunea cuspidata (Gottsche) Heinrichs et Schäf.-Verw., *Taxon* 64(2): 224, 2015 (Heinrichs et al. 2015).

≡ *Lejeunea cuspidata* Gottsche, *Syn. Hepat.* 3: 351, 1845 (Gottsche et al. 1845a). Type: St. Kitts.

≡ *Hygrolejeunea punctata* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 163, 1951 (Herzog 1951), syn. fide Heinrichs et al. (2015). Lectotype (Heinrichs et al. 2015: 224): Costa Rica, Heredia, Cerros de Zurquí, 2,000–2,400 m, 3 Mar 1926, Standley 50640a (=JE-04002098 <https://je.jacq.org/JE04002098>, isoelectotypes JE-04002096 <https://je.jacq.org/JE04002096>, JE-04002097 <https://je.jacq.org/JE04002097>).

≡ *Lepidolejeunea punctata* (Herzog) R.M.Schust., *Beih. Nova Hedwigia* 9: 139, 1963 (Schuster 1963b).

≡ *Harpalejeunea punctata* (Herzog) S.W.Arnell, *Svensk Bot. Tidskr.* 59: 75, 1965 (Arnell 1965).

COSTA RICA. S. loc. (Arnell 1965 as *Harpalejeunea punctata*; Cole 1982, 1983, both as *Hygrolejeunea punctata*; Ellis et al. 2021); S. loc., Dauphin & Morales (GOET, Schäfer-Verwimp et al. 2017). HEREDIA: San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, 3 Jan 1926, Standley 50640a (JE-04002098, TYPE of *Hygrolejeunea punctata*, Herzog 1951 as *Hygrolejeunea punctata*; Bischler 1966 as *Lepidolejeunea punctata*; Bonner 1966 as

Hygrolejeunea punctata; Heinrichs et al. 2015). PUNTARENAS: S. loc., 2,400 m, Dauphin & Morales (GOET, Heinrichs et al. 2015); Monteverde, James (F, Robinson 1967 as *Hygrolejeunea punctata*); Monteverde, 10–17 Mar 1965, James, W. & James, M. 76 (R, MO-6163171, Reed and Robinson 1971 as *Hygrolejeunea punctata*).

PANAMA. S. loc. (Ellis et al. 2021). COCLÉ: Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8°N, 80°06.9–7.0°W, 860–1,015 m, 25 Mar 2009, Schäfer-Verwimp & Verwimp 34262/F (JE, Schäfer-Verwimp 2014 as *Lepidolejeunea punctata*). VERAGUAS: S. loc., 865 m, Schäfer-Verwimp & Verwimp 30835 (JE, Heinrichs et al. 2015; Schäfer-Verwimp et al. 2017).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Lepidolejeunea grossepapulosa (Steph.) Piippo, *Acta Bot. Fenn.* 132: 49, 1986 (Piippo 1986).

≡ *Prionolejeunea grossepapulosa* Steph., *Sp. Hepat. (Stephani)* 5: 220, 1913 (Stephani 1913). Type: Guadeloupe.

?BELIZE. ?ORANGE WALK: Rio Bravo Reserve, 1996, Eggers & Timm BEZ 4/14 (Eggers et al. 2004 as *Lepidolejeunea* cf. *grossepapulosa*). Note: We are not aware of any positively identified specimen from Belize.

PANAMA. COCLÉ: La Pintada distrito, Cerro El Tigreiro, 8°37'33"N, 80°41'18"W, 1,200 m, Salazar Allen & Villarreal 19031 (PMA, Dauphin et al. 2006).

Also reported from the Caribbean, Western South America.

Lepidolejeunea involuta (Gottsche) Grolle, *J. Hattori Bot. Lab.* 55: 504, 1984 (Grolle 1984a).

≡ *Lejeunea involuta* Gottsche, *Syn. Hepat.* 3: 350, 1845 (Gottsche et al. 1845a). Type: St. Vincent.

GUATEMALA. ALTA VERAPAZ: Cobán, Las Victorias National Park, 1,700 m, 2002 (Andersohn 2004).

*HONDURAS. *CORTÉS: San Pedro Sula municipio, Cusuco National Park, along Rio Cusuco, ~22 km W of San Pedro Sula, 15°31'N, 88°14'W, 1,500 m, 18 Mar 1993, Allen 14058 p.p., det. Dauphin May 2017 (MO-6699933! <http://tropicos.org/specimen/100988545>, this publication).

*EL SALVADOR. *SANTA ANA: Metapán municipio, Montecristo, Los Planes, 2,030 m, 12 Nov 2014, Búcaro H307, det. Dauphin (MHES!, this publication).

COSTA RICA. S. loc. (Fulford and Sharp 1990; Reiner-Drehwald 1995b; Ilkiu-Borges 2000; Bastos 2004). ALAJUELA: San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 27 Apr–9 May 2007, Norris 110185 (UC, Norris et al. 2017). CARTAGO: Jiménez cantón, Juan Viñas, 1895, Sarg (G-10310, PC, Piippo 1986). HEREDIA: San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, 3 Jan 1926, Standley 50640a (JE-04002098, Grolle 1984a; Morales 1991; Dauphin 2005). PUNTARENAS: S. loc. (Merwin et al. 2001; Dauphin 2005); S. loc., 125 m, Gradstein & Dauphin 9347 (GOET, Heinrichs et al. 2015; Schäfer-Verwimp et al. 2017). Monteverde (Morales 1991); Monteverde

cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, Gradstein et al. (U, Sillett et al. 1995); Monteverde, Jun 1962, James, det. Dauphin Jun 2017 (MO-6169959!, this publication); Monteverde, 10–17 Mar 1965, James, W. & James, M. 76 (R, MO-6163171, Dauphin 2005); Osa cantón, Osa Peninsula, Rincón, Centro Boscosa, 150 m, Oct 1993, Gradstein (Gradstein 1999b). SAN JOSÉ: Acosta cantón, El Cornelio, 1,350 m, Dauphin et al. 2945 p.p., det. Ilkiu-Borges (NY, Dauphin 2005).

PANAMA. S. loc. (Schäfer-Verwimp 2014). CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Cerro Hornito, 1,670–2,300 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quijada del Diablo, 1,200–1,600 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°41.4'N, 82°13.7'W, 1,280 m, 30 Mar 2009, Schäfer-Verwimp & Verwimp 34464 (JE, Schäfer-Verwimp 2014); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, near southern edge of storage lake, 8°44.0'N, 82°14.5'W, 1,215 m, 30 Mar 2009, Schäfer-Verwimp & Verwimp 34497/E (JE, Schäfer-Verwimp 2014); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,630 m, Schäfer-Verwimp & Verwimp 34412 (JE, Schäfer-Verwimp 2014). COCLÉ: Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8°N, 80°06.9–7.0°W, 860–1,015 m, 25 Mar 2009, Schäfer-Verwimp & Verwimp 34263/A (JE, Schäfer-Verwimp 2014). DARIÉN: S. loc. (Schäfer-Verwimp 2014); Cerro Pirre (Stotler et al. 1998); Cerro Pirre, 1,200–1,300 m, Salazar Allen & Gradstein 9281 (PMA, Stotler et al. 1998); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, Gradstein & Salazar Allen (PMA, U, Gradstein and Salazar Allen 1992). PANAMA WEST: Capira distrito, Altos de Campana National Park, Sendero de Interpretación, Lara 1462 (PMA, Stotler et al. 1998); La Chorrera distrito, Barro Colorado, Standley, 2003, Dauphin 3120 (CR, PMA, Dauphin et al. 2022). VERAGUAS: Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, Schäfer-Verwimp & Verwimp 30833/B (JE, Schäfer-Verwimp 2014).

COCOS I. S. loc. (Dauphin 1995); Cerro Pelón, 5°32'57"N, 87°03'56"W, 480 m, 15 Feb 1994, Dauphin 992 (CR, USJ, Dauphin 1995, 1999, 2005); Yglesias E, 500–634 m, Apr 1992, Lücking 606 (hb. Bernecker, Bernecker-Lücking 2000).

Also reported from Southwestern Pacific, Northwestern Pacific, Northeastern Pacific, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Lepidolejeunea sullivantii (Gottsche) M.E.Reiner, *Nova Hedwigia* 83(3/4): 479, 2006 (Reiner-Drehwald 2006).

=*Lejeunea sullivantii* Gottsche, *Mexik. Leverm.*: 196, 1863 (Gottsche 1863).

Type: Venezuela.

=*Lejeunea spongia* Spruce, *J. Bot.* 14: 132, 1876 (Spruce 1876c), syn. fide Reiner-Drehwald (2006). Type: Ecuador.

=*Lepidolejeunea spongia* (Spruce) B.M.Thiers, *Brittonia* 34(3): 295, 1982 (Thiers 1982).

COSTA RICA. ALAJUELA: San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 3 Nov 2010, *Lucas 20* (UC, Norris et al. 2017 as *Lepidolejeunea spongia*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America.

***Lepidozia* Dumort., *Recueil Observ. Jungerm.*: 19, 1835 (Dumortier 1835).**

Lepidozia armata Steph., *Sp. Hepat. (Stephani)* 3: 567, 1909 (Stephani 1909b). Lectotype: Venezuela.

=*Lepidozia karstenii* Steph., *Sp. Hepat.* 3: 576, 1909 (Stephani 1909b), syn. fide Fulford (1966). Type: Mexico.

=*Lepidozia karstenii* var. *standleyi* Herzog, *Rev. Bryol. Lichénol.* 11(1/2): 22, 1939 (Herzog 1938), syn. fide Fulford (1966). Lectotype (Fulford 1966: 201, supplemented by Söderström et al. 2023a: 152): Costa Rica, San Jose: Las Nubes, 1,500–1,600 m, *Standley 38735*, Verdoorn, Hep. Select. & Crit. 375 (BR-5040110401156 (<https://www.botanicalcollections.be/specimen/BR5040110401156>, islectotypes C, F <https://collections-botany.fieldmuseum.org/catalogue/2130884>).

=*Lepidozia standleyi* Herzog, *Rev. Bryol. Lichénol.* 11(1/2): 22, 1939 (Herzog 1938), nom. inval. (ICN2018 Art. 36.1(b); publ. in syn.).

=*Lepidozia karstenii* f. *angustisecta* Herzog, *Rev. Bryol. Lichénol.* 11(1/2): 22, 1939 (Herzog 1938), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Costa Rica: Zurquí, Prov. S. José, 2,000–2,500 m, on tree, *Standley 48173* (JE-04002072 <https://je.jacq.org/JE04002072>), *48194/a* (JE-04002066 <https://je.jacq.org/JE04002066>); Cerro de Las Caricias, Prov. de Heredia, 2,000–2,400 m, on tree, *Standley 52001* (JE-04002067 <https://je.jacq.org/JE04002067>); Cerros de Zurquí de Heredia, 2,000–2,400 m, on tree, *Standley 50512* (US-04666846 <http://n2t.net/ark:/65665/33f5090e7-f130-4285-9896-e5c90be44755>), *50518* (JE-04002070 <https://je.jacq.org/JE04002070>); La Palma. Prov. S. José, 1,600 m, wet bank, in large soft cushions, *Standley 32968* (JE-04002074 <https://je.jacq.org/JE04002074>, US-04666849 <http://n2t.net/ark:/65665/38b75a1e4-69ef-4944-bf2a-56db37824e97>).

=*Lepidozia karstenii* f. *brevifissa* Herzog, *Rev. Bryol. Lichénol.* 11(1/2): 22, 1939 (Herzog 1938), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Costa Rica: Cerro de Las Lajas, *Standley 51540* (JE-04002069 <https://je.jacq.org/JE04002069>); Zurquí, Prov. S. José, 2,000–2,500 m, *Standley 48214* (JE-04002071 <https://je.jacq.org/JE04002071>).

=*Lepidozia armata* f. *cavifolia* Herzog, *Rev. Bryol. Lichénol.* 11(1/2): 22, 1939 (Herzog 1938), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Costa Rica: La Palma, Prov. S. José, 1,600 m, *Standley 38028* (US-04666740 <http://n2t.net/ark:/65665/34b01b86a-ac96-40f0-983e-9a6c979de560>), La Palma, Prov. S. José, 1,600 m, on tree, *Standley 38144* (US-04666735 <http://n2t.net/ark:/65665/370ad1b67-60f0-4f87-9c37-ee4b820892>).

GUATEMALA. S. loc. (Fulford and Sharp 1990); S. loc., *Türckheim 5581* (FH, Fulford 1966; Freire 2006); S. loc., *Türckheim*, hb. Levier 5823 (G, NY, Verdoorn 1935 as *Lepidozia karstenii* var. *standleyi*; Geissler and Bischler 1985 as *Lepidozia karstenii* var. *standleyi*); S. loc., 3,800 ft (1,158 m), *Türckheim* (NY Bryo. Levier 5084, M, Herzog 1938 as *Lepidozia karstenii*). ALTA VERAPAZ: S. loc., *Steyermark 90413* (F, Pérez 2009); Tactic municipio, near Tactic, 1,400–1,500 m, *Standley 90413* (F, Fulford 1966; Freire 2006). BAJA VERAPAZ: S. loc., *Sharp 5172* (TENN, Fulford 1966; Freire 2006; Pérez 2009). HUEHUETENANGO: Cerro Chiblac, between Finca San Rafael and Ixcán, Sierra de los Cuchumatanes, 1,200–2,000 m, *Steyermark 49172D* (F-C0047048F <https://collections-botany.fieldmuseum.org/catalogue/4071586>, Fulford 1966; Freire 2006); N of Barillas, *Steyermark 48796* (F, Fulford 1966; Freire 2006; Pérez 2009). ZACAPA: Sierra de Las Minas, summit, 2,500 m, *Steyermark 29898* (F, Fulford 1966; Freire 2006; Pérez 2009); upper Río Sitio Nuevo, *Steyermark 43202* (F, Fulford 1966; Freire 2006).

HONDURAS. S. loc. (Fulford and Sharp 1990). COMAYAGUA: Siguatopeque, 1,080–1,400 m, *Standley 56194 p.p.* (F, Fulford 1966).

COSTA RICA. S. loc. (Cole 1982, 1983; Geissler and Bischler 1985 as *Lepidozia karstenii* var. *standleyi*; Fulford and Sharp 1990); S. loc., *Brenes 11207, 11689, Gutiérrez 186* (F, Fulford 1966); S. loc., *Motelay* (G, Stephani 1909b; Fulford 1966; Geissler and Bischler 1985); Cordillera de Talamanca, *Kappelle 5516* (U, Kappelle 1996 as *Lepidozia armata* f. *cavifolia*). ALAJUELA: San Ramón cantón, El Silencio, *Brenes 17117 p.p.* (F, Fulford 1966; Dauphin 2005); San Ramón cantón, Los Ángeles, *Brenes 16262* (F, Fulford 1966; Dauphin 2005). CARTAGO: Alto de La Estrella, *Standley 39061* (Herzog 1938 as *Lepidozia karstenii* var. *standleyi*; Morales 1991; Dauphin 2005); El Guarco cantón, Santa Clara, *Torres 220 p.p.*, 234 (F, Fulford 1966); La Unión cantón, Cerro de La Carpintera, *Little 5579* (hb. Little, Fulford 1966); Paraíso cantón, Orosi, *Standley 39823* (Herzog 1938; Taylor 1960; Morales 1991; Dauphin 2005); Sierra de Talamanca, S of Cartago, 7,238 ft (2,206 m), *Little 5602* (hb. Little, Fulford 1966). HEREDIA: Barva cantón, Cerro Galilito, 2,000 m, *Valerio 13* (Herzog 1938 as *Lepidozia karstenii* f. *brevifissa*; Morales 1991; Dauphin 2005); Barva cantón, road near Volcán Barba, 1,600–1,950 m, *Maxon & Harvey 8470a* (US, Fulford 1966); San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, *Standley 52101, 52166*, det. Herzog (B-19554, JE, US, Taylor 1960; Dauphin 2005); San Isidro cantón, Cerro de las Caricias y Zurquí, 2,000–2,400 m, *Standley 50512, 50518, 52001*, det. Herzog (Herzog 1938 as *Lepidozia karstenii* and *Lepidozia karstenii* f. *angustisecta*; Taylor 1960 also as *Lepidozia karstenii* f. *angustisecta*; Geissler and Bischler 1985 as *Lepidozia karstenii* f. *angustisecta*; Morales 1991; Dauphin 2005); San Isidro cantón, Cerro de Las Lajas, 2,000–2,400 m, *Standley 51432* (Herzog 1938 as *Lepidozia karstenii* var. *standleyi*; Morales 1991; Dauphin 2005); San Isidro cantón, Cerro de Las Lajas, 2,000–2,400 m, *Standley 51540* (Herzog 1938 as *Lepidozia karstenii* f. *brevifissa*; Geissler and Bischler 1985 as *Lepidozia*

karstenii f. *brevifissa*; Morales 1991; Dauphin 2005); San Isidro cantón, Cerro de Las Lajas, Standley 51586 (B-19553, Dauphin 2005); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, Standley 50696, det. Herzog (Herzog 1938 as *Lepidozia karstenii* f. *brevifissa*; Taylor 1960 as *Lepidozia karstenii* f. *brevifissa*; Geissler and Bischler 1985 as *Lepidozia karstenii* f. *brevifissa*); San Isidro cantón, Yerba Buena, 2,000 m, Standley 49108, 51504, det. Herzog (Herzog 1938; Taylor 1960). LIMÓN: La Asunción, Río Banano, Gutiérrez 186 p.p., 187 p.p., 200 p.p. (F, Fulford 1966; Dauphin 2005). PUNTARENAS: S. loc. (Merwin et al. 2001); Cerro Vueltas, 3,000 ft (914 m), 1969, Gómez-Pignataro 2117 (R, Reed and Robinson 1971); Monteverde cantón, Checo Trail near Adorno clearing, 4,300 ft (1,310 m), Feb 1969, James, W. (R, Reed and Robinson 1971); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde, 4,300 ft (1,310 m), Feb 1969, James, W. 1969-31, 1969-107 (R, Reed and Robinson 1971). SAN JOSÉ: Moravia cantón, Cerro Zurquí, 2,000–2,500 m, Standley 48173, 48194a (Herzog 1938 as *Lepidozia karstenii* and *Lepidozia karstenii* f. *angustisecta*; Taylor 1960 as *Lepidozia karstenii* f. *angustisecta*; Geissler and Bischler 1985 as *Lepidozia karstenii* f. *angustisecta*; Morales 1991; Dauphin 2005); Moravia cantón, Cerro Zurquí, 2,000–2,500 m, Standley 48204, 48281 (B-19552, Herzog 1938; Taylor 1960; Morales 1991; Dauphin 2005); Moravia cantón, Cerro Zurquí, 2,000–2,500 m, Standley 48214 (Herzog 1938 as *Lepidozia karstenii* f. *brevifissa*; Geissler and Bischler 1985 as *Lepidozia karstenii* f. *brevifissa*; Morales 1991; Dauphin 2005); Moravia cantón, La Hondura, 1,300–1,700 m, Standley 37652 (Herzog 1938; Morales 1991; Dauphin 2005); Moravia cantón, La Hondura, 1,200–1,500 m, Standley 51802, 51828, det. Herzog (Taylor 1960); Moravia cantón, La Palma, 1,600 m, Standley 32968, 38028, 38144 (Herzog 1938 also as *Lepidozia karstenii* f. *angustisecta* and *Lepidozia armata* f. *cavifolia*; Taylor 1960; Geissler and Bischler 1985 as *Lepidozia karstenii* f. *angustisecta* and *Lepidozia armata* f. *cavifolia*; Morales 1991; Dauphin 2005); Moravia cantón, La Palma, 1,469 m, Tonduz 2945 (G, Fulford 1966); Moravia cantón, La Palma, Valerio 20, det. Herzog as *Lepidozia karstenii* Steph. (CR, B-19594, Herzog 1938 as *Lepidozia karstenii* var. *standleyi*; Morales 1991; Dauphin 2005); Vásquez de Coronado cantón, Las Nubes, 1,500–1,600 m, Standley 38735 (BR, C, F, TYPE of *Lepidozia karstenii* var. *standleyi*, Herzog 1938 as *Lepidozia karstenii* var. *standleyi*; Taylor 1960 also as *Lepidozia karstenii* var. *standleyi*; Fulford 1966; Morales 1991; Dauphin 2005); Vásquez de Coronado cantón, Las Nubes, Verdoorn 375 (Dauphin 2005).

PANAMA. S. loc. (Fulford and Sharp 1990); S. loc., 1906, Hélon (PC, Stephani 1909b; Fulford 1966; Stotler et al. 1998); S. loc., 1907, Hélon (NY, Geissler and Bischler 1985). CHIRIQUÍ: S. loc., Hélon (G-00069229, Fulford 1966; Stotler et al. 1998); Tierras Altas distrito, Las Nubes, Croat 26467 (MO, Stotler et al. 1998). VERAGUAS: Santa Fe distrito, Cerro Tute, Mori et al. 7602 (MO, Stotler et al. 1998).

Also reported from Mexico, the Caribbean, Northern South America, Western South America.

Lepidozia brasiliensis Steph., *Sp. Hepat. (Stephani)* 3: 571, 1909 (Stephani 1909b). Type: Brazil.

=*Lepidozia moritziana* Steph., *Sp. Hepat. (Stephani)* 3: 575, 1909 (Stephani 1909b), syn. fide Fulford (1966). Type: Colombia, Venezuela.

*GUATEMALA. *CHIMALTENANGO: Los Calderos, 1,800–2,100 m, 22 Nov 1938, Standley 57823, det. Dauphin 2017 (MO-6096017! <http://tropicos.org/specimen/90093915>, this publication).

COSTA RICA. S. loc. (Fulford 1966; Cole 1982, 1983). ALAJUELA: Poás Volcano, Morales & Canessa 429 (USJ, Morales 1991; Dauphin 2005); Poás Volcano, 11 Jun 1972, Morales 429 (Morales and Griffin 1983). *GUANACASTE: Liberia cantón, Guanacaste National Park, Estación Cacao, 10°55'45"N, 85°28'15"W, 28 Oct 1990, Chavez 379a, det. Dauphin May 2017 (MO-5280475!, this publication). HEREDIA: San Isidro cantón, Yerba Buena, 2,000 m, Standley 50021 (Herzog 1938 as *Lepidozia moritziana*; Taylor 1960; Morales 1991; Dauphin 2005). PUNTARENAS: Monteverde, 4,300 ft (1,310 m), Feb 1969, James, W. 1969-33a (US, MO-6096017, Reed and Robinson 1971). SAN JOSÉ: Moravia cantón, Cerro Zurquí, 2,000–2,500 m, Standley 48281, det. Herzog (Herzog 1938 as *Lepidozia moritziana*; Taylor 1960; Dauphin 2005).

PANAMA. S. loc. (Schäfer-Verwimp and Pócs 2009). CHIRIQUÍ: Gualaca distrito, Cerro Hornitos, Mori & Bolten 7456 (MO, Stotler et al. 1998). ?NASO TJËR DI COMARCA: Cerro Fábrega, De Gracia 280 (PMA, Dauphin 2007 as *Lepidozia brasiliensis*?). Note: We are not aware of any positively identified specimen from Naso Tjër Di comarca.

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Lepidozia cupressina (Sw.) Lindenb., *Syn. Hepat.* 2: 207, 1845 (Gottsche et al. 1845b) subsp. *cupressina*.

=*Jungermannia cupressina* Sw., *Prodr. (Swartz)*: 144, 1788 (Swartz 1788). Type: Jamaica.

=*Lepidozia caespitosa* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 362, 1885 (Spruce 1885), syn. fide Gradstein (2021). Type: Ecuador.

=*Lepidozia wallisiana* Steph., *Sp. Hepat. (Stephani)* 3: 573, 1909 (Stephani 1909b) 'wallisana', syn. fide Pócs (1984a). Type: Colombia.

=*Lepidozia muenchiana* Steph., *Sp. Hepat. (Stephani)* 3: 578, 1909 (Stephani 1909b), syn. fide Pócs (1984a). Type: Mexico.

GUATEMALA. S. loc. (Fulford 1967 as *Lepidozia caespitosa*; Gradstein et al. 1977 as *Lepidozia caespitosa*; Fulford and Sharp 1990 also as *Lepidozia caespitosa*, *Lepidozia muenchiana*, and *Lepidozia wallisiana*; Dauphin et al. 1998 as *Lepidozia* 'wallisana'; León et al. 1998 as *Lepidozia wallisiana*). ALTA VERAPAZ: S. loc., Standley 91601 (F, Fulford 1966; Freire 2006); Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, 2,300–2,500 m, Pérez 387 (USCG, Pérez 2009); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). EL PROGRESO: Between Calera and summit of Volcán Siglo, 2,200–3,300 m, Steyermark 43124 (F, Fulford 1966; Freire 2006; Pérez 2009); Finca Bucaral, 6,200 ft (1,890 m), Sharp 2733, 2736 p.p. (TENN, Fulford 1966 as *Lepidozia muenchiana*; Pérez 2009 as *Lepidozia* 'münchiana'); Sierra de Las Minas, 2,500 m, Steyermark 29828

(F, Fulford 1966 as *Lepidozia muenchiana*); Volcán Santa Luisa, 2,400–3,333 m, *Steyermark* 43527 p.p. (F, Fulford 1966 as *Lepidozia caespitosa*; Freire 2006 as *Lepidozia caespitosa*; Pérez 2009 as *Lepidozia caespitosa*). HUEHUETENANGO: Above Macx, 2,500–3,000 m, *Steyermark* 51899 (F, Fulford 1966 as *Lepidozia muenchiana*; Pérez 2009 as *Lepidozia 'münchiana'*); Puente Alto, 7,700 ft (2,347 m), *Sharp* 4903 p.p. (TENN, Fulford 1966 as *Lepidozia muenchiana*); Todos Santos Cuchumatán, Chinhuitz, 15°30'40"N, 91°38'56"W, 2006, Pérez et al. 1236 (USCG, Pérez 2009). JALAPA: Jalapa municipio, Volcán Jumay, 1,300–2,200 m, *Steyermark* 32491 (F, Fulford 1966; Freire 2006; Pérez 2009). *QUETZALTENANGO: Zunil municipio, road to Fuentes Georginas, 4 km S of Zunil, NW slopes of Pico Zunil, 14°45'4.0"N, 91°28'35.8"W, 2 Jan 2006, *Quedensley* 3831, det. Dauphin Sep 2017 (MO, W-00890731, this publication). ZACAPA: Sierra Virgen, 2,200–2,400 m, *Steyermark* 42621 (F, Fulford 1966 as *Lepidozia muenchiana*; Pérez 2009 as *Lepidozia 'münchiana'*); Volcán Gemelos, 2,100–3,200 m, *Steyermark* 43291 p.p. (F, Fulford 1966 as *Lepidozia 'wallisana'*; Pérez 2009 as *Lepidozia wallisana*).

BELIZE. CAYO: S. loc., Dec 1993, *Allen* 15114, 15257 (BRH, MO, Whittemore and Allen 1996 as *Lepidozia muenchiana*).

HONDURAS. S. loc. (Fulford and Sharp 1990 also as *Lepidozia caespitosa*, *Lepidozia muenchiana*, and *Lepidozia caespitosa*). COMAYAGUA: Siguatepeque municipio, El Achote, *Yunker* 6583, 6615 p.p. (DPU, Fulford 1966 as *Lepidozia caespitosa*). FRANCISCO MORAZÁN: S. loc., 1,600–1,800 m, *Standley* 8023 p.p. (F, Fulford 1966 as *Lepidozia caespitosa*); San Antonio de Oriente municipio, Cerro de Uyuca, 1,620–1,800 m, *Standley et al.* 8023 p.p. (F, Fulford 1966).

EL SALVADOR. S. loc. (Fulford 1967 as *Lepidozia caespitosa*; Fulford and Sharp 1990 as *Lepidozia caespitosa*). SANTA ANA: Above Hacienda Los Planos, *Carlson* 961b (hb. Carlson, Fulford 1966 as *Lepidozia caespitosa*).

COSTA RICA. S. loc. (Fulford 1967 as *Lepidozia caespitosa*; Cole 1982, 1983, both as *Lepidozia 'wallisana'*, *Lepidozia caespitosa*, and *Lepidozia 'muenchiana'*; Fulford and Sharp 1990 as *Lepidozia caespitosa* and *Lepidozia muenchiana*; Gradstein 1993; Gradstein and Holz 2005); S. loc., *Endre* (G, Fulford 1966 as *Lepidozia caespitosa*; Morales 1991 as *Lepidozia caespitosa*; Dauphin 2005 as *Lepidozia caespitosa*); Cordillera de Talamanca (Holz and Gradstein 2005b; Holz 2006); Cordillera de Talamanca, *Kappelle* 4617c (U, *Kappelle* 1996). ALAJUELA: San Ramón cantón, Cerro Azahar, 1,400–1,500 m, *Liesner et al.* 15627, det. Gradstein (B-273998, EGR, U, Dauphin 2005; Pócs et al. 2016); San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 5 Jul 2007, *Norris* 109986 (UC, Norris et al. 2017 as *Lepidozia caespitosa*); San Ramón cantón, Los Ángeles, *Brenes* 14859 p.p. (F, Fulford 1966 as *Lepidozia muenchiana*; Morales 1991 as *Lepidozia muenchiana*; Dauphin 2005 as *Lepidozia muenchiana*); San Ramón cantón, Nectandra Cloud Forest (UC, Norris et al. 2017). CARTAGO: El Guarco cantón, La Chonta, *Mata* 33 (USJ, Dauphin 2005). HEREDIA: Barva cantón, Braulio Carrillo National Park, Sector Volcán Barva, *Griffin et al.* D248, D257 (FLAS, USJ, Morales 1991; Dauphin 2005). LIMÓN:

Talamanca cantón, Cordillera de Talamanca, Parque Internacional La Amistad, Cerro Kámuk, 3,550 m, *Quesada* 1381 (CR, USJ, Dauphin et al. 1998 as *Lepidozia 'wallisana'*; Dauphin 2005 as *Lepidozia 'wallisana'*). PUNTARENAS: S. loc. (Merwin et al. 2001 also as *Lepidozia muenchiana*); Monteverde, <1,500 m (Dauphin 2005 also as *Lepidozia muenchiana*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995 also as *Lepidozia muenchiana*). SAN JOSÉ: S. loc. (Markham and Fernández 2021); Cerro Zurquí, *Dodge* 6074 p.p. (NY, Fulford 1966 as *Lepidozia caespitosa*; Morales 1991 as *Lepidozia caespitosa*; Dauphin 2005 as *Lepidozia caespitosa*); Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, El Empalme, 1,475–2,400 m, *Lems* 5147 (NY, Fulford 1966 as *Lepidozia muenchiana*; Kappelle 1996 as *Lepidozia muenchiana*; Morales 1991 as *Lepidozia muenchiana*; Dauphin 2005 as *Lepidozia muenchiana*); Dota cantón, El Jardín, *Morales* 301 (FLAS, USJ, Morales 1991; Dauphin 2005); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, *Holz* (Holz 2003); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a); Pérez Zeledón cantón, Chirripó National Park, upper Río Talari Valley, 1,400–3,000 m, *Kubbier* 557, det. Grolle (B-225751, Dauphin 2005).

PANAMA. S. loc. (Gradstein 1999a). †BOCAS DEL TORO: S. loc. (Schäfer-Verwimp 2014). Note: This must refer to the “new” comarca Naso Tjër Di. CHIRIQUÍ: Boquete distrito, along Boquete trail to Paso Respingo, 2,000–2,500 m, *Gentry* 6042 (MO, PMA, Stotler et al. 1998 as *Lepidozia muenchiana*); Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,440 m, *Schäfer-Verwimp & Verwimp* 34383 (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Cerro Punta, *Croat* 26374 (MO, Stotler et al. 1998 as *Lepidozia muenchiana*); Barú Volcano National Park (Rodríguez-Quiel et al. 2022). DARIÉN: Summit of Pirre Massif, 1,200–1,350 m, *Allen* 8852 (MO, Stotler et al. 1998 as *Lepidozia muenchiana*). NASO TJËR DI COMARCA: Cerro Fábrega, 11 Mar 2003, *De Gracia* 228 (PMA, Dauphin 2007 as *Lepidozia muenchiana*); Parque Internacional La Amistad, Cerro Fábrega, 3,150–3,353 m, *Dauphin* 1580 (GOET, CR, PMA, U, Stotler et al. 1998; Dauphin 2007).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Macaronesia, West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Indian Subcontinent(?), Malesia(?), Australia(?), Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands, Antarctic Continent.

Lepidozia dendritica Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 362, 1885 (Spruce 1885). Type: Ecuador.

=*Lepidozia peruviansis* Steph., *Sp. Hepat. (Stephani)* 3: 575, 1909 (Stephani 1909b), syn. fide Gradstein (2021). Type: Peru.

COSTA RICA. **ALAJUELA:** Poás National Park, 10°12'N, 84°14'W, Aug 1973, *Griffin et al.* (*Griffin et al.* 1974 as *Lepidozia peruviansis*); Poás Volcano, *Griffin & Eakin* 30, det. Breil (FLAS, Morales 1991 as *Lepidozia peruviansis*; Dauphin 2005 as *Lepidozia peruviansis*); Poás Volcano, Aug 1977, *Griffin et al.* 59, det. Breil (FLAS-020497, Morales and Griffin 1983 as *Lepidozia peruviansis*, Morales 1991 as *Lepidozia peruviansis*; Dauphin 2005 as *Lepidozia peruviansis*).

Also reported from Northern South America, Western South America, Brazil.

Lepidozia inaequalis (Lehm. et Lindenb.) Lehm. et Lindenb., *Syn. Hepat.* 2: 209, 1845 (Gottsche et al. 1845b).

≡*Jungermannia inaequalis* Lehm. et Lindenb., *Nov. Stirp. Pug.* 5: 1, 1833 (Lehmann 1833). Type: Brazil.

GUATEMALA. **ALTA VERAPAZ:** Tucurú municipio, Reserva Privada Chelemhá (Pérez 2006). **EL PROGRESO:** San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007). **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007).

Also reported from Western South America, Brazil.

Lepidozia incurvata Lindenb., *Syn. Hepat.* 2: 203, 1845 (Gottsche et al. 1845b). Type: Colombia.

GUATEMALA. S. loc. (Schäfer-Verwimp 1996). **QUETZALTENANGO:** San Carlos Sija municipio, Gatena area, N of Sija, *Sharp* 2260 p.p. (TENN, Fulford 1966; Freire 2006; Pérez 2009). **QUICHÉ:** Between Chajul and Nebaj, *Sharp* 5306 p.p. (TENN, Fulford 1966; Freire 2006; Pérez 2009).

COSTA RICA. S. loc. (Cole 1982, 1983; Schäfer-Verwimp 1996); Cordillera de Talamanca, *Kappelle* 5777a (U, Kappelle 1996). **ALAJUELA:** Poás cantón, upper slope between the hotel and the crater, *Standley* 34861 (?=34681), det. Herzog (B-195891, Herzog 1938; Taylor 1960; Dauphin 2005); Poás National Park, 10°12'N, 84°14'W, Aug 1973, *Griffin et al.* (*Griffin et al.* 1974); Poás Volcano, *Griffin & Araya* 38, *Griffin & Eakin* 18, 40, 82, 149, 172 (Morales 1991; Dauphin 2005); Poás Volcano, *Morales & Canessa* 442 (USJ, Morales 1991; Dauphin 2005); Poás Volcano, 10 Jun 1968, *Morales & Canessa* 442 (Morales and Griffin 1983); Poás Volcano, Aug 1977, *Griffin et al.* 74 (USJ, FLAS-019998, Morales and Griffin 1983; Morales 1991; Dauphin 2005); San Ramón, *Brenes* 16206 (C, F, Fulford 1966; Morales 1991; Dauphin 2005). **CARTAGO:** Sierra de Talamanca, S of Cartago, *Little* 5630 p.p. (hb. Little, Fulford 1966). **HEREDIA:** Barva cantón, Bosques entre el Volcán Barva y Carrizal, 2800, *Pittier* 6011 (BR, Stephani 1893c; Taylor 1960; Fulford 1966; Morales 1991; Dauphin 2005). **SAN JOSÉ:** Moravia cantón, La Palma, *Standley* 16217 p.p. (F, Fulford 1966; Morales 1991; Dauphin 2005); Vásquez de Coronado cantón, Las Nubes, 1,500–1,900 m, *Standley* 38458 (Herzog 1938; Taylor 1960).

Also reported from Northern South America, Western South America, Brazil.

Lepidozia macrocolea Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 363, 1885 (Spruce 1885).

PANAMA. **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (Salazar Allen et al. 2021).

Also reported from Mexico(?), the Caribbean(?), Northern South America, Western South America, Brazil.

Lepidozia patens Lindenb., *Syn. Hepat.* 2: 202, 1845 (Gottsche et al. 1845b). Type: Antilles.

=*Lepidozia commutata* Steph., *Hedwigia* 27(11/12): 293, 1888 (Stephani 1888a), syn. fide Fulford (1966). Type: Puerto Rico.

GUATEMALA. S. loc. (Fulford 1967, 1987; Fulford et al. 1970; Fulford and Sharp 1990; Schäfer-Verwimp and Pócs 2009). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 223, 339 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). **ZACAPA:** Faldas del Volcán Gemelos, *Steyermark* 58926 (F, Freire 2006); Volcán Gemelos, *Steyermark* 43291 (F, Fulford 1966; Pérez 2009).

COSTA RICA. S. loc. (Pagán 1942b as *Lepidozia commutata*; Schäfer-Verwimp and Pócs 2009); Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b). **HEREDIA:** San Isidro cantón, Cerro de Las Lajas, 2,000–2,400 m, *Standley* 51436, 51513, 51631, det. Herzog (Herzog 1938 as *Lepidozia commutata*; Taylor 1960; Morales 1991; Dauphin 2005); San Isidro cantón, Cerro de Las Lajas, *Standley* 51518 (B-19573, Dauphin 2005); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley* 50393, det. Herzog (Herzog 1938 as *Lepidozia commutata*; Taylor 1960; Morales 1991; Dauphin 2005). **PUNTARENAS:** Monteverde (Morales 1991); Monteverde, *James*, W. 24076 (Dauphin 2005); Monteverde, 4,300 ft (1,310 m), Feb 1969, *James*, W. 1969-12 (US, Reed and Robinson 1971). **SAN JOSÉ:** Acosta cantón, Cangrejal, Cerro Caraigres, *Dauphin* 3401 (CR, Dauphin 2005); Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin 2005).

PANAMA. **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, foothills of Cerro Pinola, 1,280–2,000 m (Salazar Allen et al. 2021). **COCLÉ:** Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8°N, 80°06.9–7.0°W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34221 (JE, Schäfer-Verwimp 2014). **DARIÉN:** S. loc. (Schäfer-Verwimp 2014); Cerro Pirre (Stotler et al. 1998); Cerro Pirre, 1,200–1,300 m, *Salazar Allen & Gradstein* 9282 (PMA, Stotler et al. 1998); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992). **PANAMA:** S. loc. (Schäfer-Verwimp 2014); Panamá distrito, Cerro Jefe (Stotler et al. 1998); Panamá distrito, Cerro Jefe, *Spörle* 0.6 (PMA, Spörle 1990; Stotler et al. 1998); Panamá distrito, Cerro Jefe,

forest behind INTEL tower toward north, 900–1,000 m, *Salazar Allen et al.* 5221 (PMA, *Stotler et al.* 1998).

Also reported from Mexico, the Caribbean, Northern South America, Western South America.

Lepidozia pinnaticurris Spruce ex Steph., *Sp. Hepat. (Stephani)* 3: 579, 1909 (Stephani 1909b). Type: Ecuador.

¿COSTA RICA. S. loc. (Cole 1983; Schuster 2000c; Gradstein and Uribe 2016). Note: We are not aware of any firsthand report from mainland Costa Rica and think the reports refer to Cocos I.

COCOS I. S. loc., *Holdridge* 5184 (NY, *Fulford* 1966).

Also reported from Northern South America, Western South America.

Lepidozia reptans (L.) Dumort., *Recueil Observ. Jungerm.*: 19, 1835 (Dumortier 1835).

≡*Jungermannia reptans* L., *Sp. Pl.* 1: 1133, 1753 (Linnaeus 1753). Type: Europe.

=*Lepidozia macropatens* Herzog, *Rev. Bryol. Lichénol.* 11(1/2): 20, 1939 (Herzog 1938), syn. fide *Fulford* (1966). Lectotype (Söderström and Hentschel 2023: 11): Costa Rica: Cerro de Las Vueltas, Prov. S. José, 2,700–3,000 m, on tree, *Standley* 43723 (JE-04002087 <https://je.jacq.org/JE04002087>, isocototype US-00289481 <http://n2t.net/ark:/65665/3f0f8ebad-c8b4-4953-9a47-20a1f36bbbc9>).

GUATEMALA. S. loc. (*Fulford* 1987; *Gradstein and Váňa* 1987; *Fulford and Sharp* 1990; *Sharma and Srivastava* 1993). EL PROGRESO: Between Calera and summit of Volcán Siglo, 2,000–3,000 m, *Steyermark* 43057 (F, *Fulford* 1966; *Freire* 2006; *Pérez* 2009). HUEHUETENANGO: Below Núcá, 7,400 ft (2,256 m), *Sharp* 4934 p.p. (TENN, *Fulford* 1966; *Freire* 2006; *Pérez* 2009). JALAPA: Jalapa municipio, Mount Miramundo, summit, 2,000–2,500 m, *Steyermark* 32771 p.p. (F, *Fulford* 1966; *Freire* 2006; *Pérez* 2009). QUETZALTENANGO: Above Chiquival, 7,500 ft (2,286 m), *Sharp* 2024, 2081 p.p., 2136, 2143, 2144, 2161 (TENN, *Fulford* 1966; *Freire* 2006; *Pérez* 2009); San Carlos Sija municipio, Cerro de Sija, 9,900 ft (3,018 m), *Sharp* 5065 p.p. (TENN, *Fulford* 1966; *Freire* 2006). SAN MARCOS: Tajumulco municipio, Volcán Tajumulco, 10,200 ft (3,109 m), *Sharp* 5400 p.p. (TENN, *Fulford* 1966; *Freire* 2006; *Pérez* 2009). TOTONICAPÁN: S. loc., 10,500 ft (3,200 m), *Sharp* 2613 (TENN, *Fulford* 1966; *Freire* 2006; *Pérez* 2009).

*EL SALVADOR. *SANTA ANA: Metapán municipio, Cerro Monte Cristo, ~14 mi NE of Metapán, trail to Punto Trifinio, 2,100 m, 31 Jul 1977, *Croat* 42497 p.p., det. Dauphin May 2017 (MO-6699944! <http://tropicos.org/specimen/100988162>, this publication).

*NICARAGUA. *ESTELÍ: Estelí municipio, Cerro Quiabú (Cerro Las Brisas), 13°06'N, 86°25'W, 1,550–1,600 m, 24 Nov 1979, *Stevens & Grijalva* 16191 p.p., det. Dauphin May 2017 (MO-6699900! <http://tropicos.org/specimen/100988685>, this publication).

COSTA RICA. S. loc. (*Fulford* 1987; *Gradstein and Váňa* 1987; *Fulford and Sharp* 1990; *Sharma and Srivastava* 1993).

ALAJUELA: Poás National Park, 10°12'N, 84°14'W, Aug 1973, *Griffin et al.* (*Griffin et al.* 1974); Poás Volcano, *Griffin & Eakin* 47 (FLAS, USJ, *Morales* 1991; *Dauphin* 2005); Poás Volcano, Aug 1977, *Griffin et al.* 47 (*Morales and Griffin* 1983). CARTAGO: Paraíso cantón, La Georgina, *Bowers* 675d (*Morales* 1991); Páramo Buenavista, *Dauphin* 2914 (NY, *Dauphin* 2005); Pococí cantón, La Georgina, *Bowers* 675d (*Dauphin* 2005). GUANACASTE: Liberia cantón, Rincón de La Vieja National Park, Laguna Jilgueros, *Dauphin* 1865 (CR, *Dauphin* 2005). SAN JOSÉ: Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, *Standley* 43723 (hb. Herzog, TYPE of *Lepidozia macropatens*, *Herzog* 1938 as *Lepidozia macropatens*; *Fulford* 1966; *Geissler and Bischler* 1985 as *Lepidozia macropatens*; *Morales* 1991; *Kappelle* 1996; *Dauphin* 2005).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, Macaronesia, West-Central Tropical Africa, Siberia, Russian Far East, Middle Asia, Caucasus, Western Asia, China, Mongolia, Eastern Asia, Indian Subcontinent, Indo-China, Malaysia, Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, South-Central USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Lepidozia squarrosa Steph., *Sp. Hepat. (Stephani)* 3: 573, 1909 (Stephani 1909b). Lectotype (*Fulford* 1966: 189): Costa Rica, s. loc., *Tonduz*. hb. Boissier 2945 (G-00069674 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=123599&lang=en>).

=*Lepidozia costaricensis* Steph., *Sp. Hepat. (Stephani)* 3: 573, 1909 (Stephani 1909b), syn. fide *Fulford* (1966). Lectotype (*Fulford* 1966: 189) if not holotype: Costa Rica, somet volcan Poas, 2,644 m, *Pittier* 2945 (G-00069622 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=123263&lang=en>).

=*Lepidozia durandii* Steph., *Sp. Hepat. (Stephani)* 3: 568, 1909 (Stephani 1909b), syn. fide *Fulford* (1966). Lectotype (*Fulford* 1966: 189): Costa Rica, summit of Volcán de Poas, 2,644 m, *Pittier* 6017 (G-00060920 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=116138&lang=en>).

*EL SALVADOR. *SANTA ANA: Metapán municipio, Monte Cristo, ~14 mi NE of Metapán, 2,100 m, 31 Jul 1977, *Croat* 42495, det. Dauphin 2017 (MO-5228832! <http://tropicos.org/specimen/100990948>, this publication).

COSTA RICA. S. loc. (*Stephani* 1909b as *Lepidozia costaricensis*; *Geissler and Bischler* 1985 as *Lepidozia costaricensis* and *Lepidozia durandii*; *Schäfer-Verwimp et al.* 2013; *Gradstein and Uribe* 2016; *Gradstein* 2021); S. loc., *Pittier* (G, *Stephani* 1909b as *Lepidozia durandii*); S. loc., *Tonduz* 2945 p.p. (G, *Fulford* 1966; *Morales* 1991; *Dauphin* 2005); S. loc., *Tonduz* 2945 (G-00069674, TYPE, *Taylor* 1960; *Fulford* 1966; *Morales* 1991; *Dauphin* 2005); S. loc., *Tonduz* (*Stephani* 1909b also as *Lepidozia durandii*; *Geissler and Bischler* 1985); Cordillera de Talamanca (*Holz* 2003; *Holz and Gradstein* 2005b). ALAJUELA:

S. loc., Pittier 2944 (Morales and Griffin 1983 as *Lepidozia durandii*); Poás National Park, 10°12'N, 84°14'W, Aug 1973, Griffin et al. (Griffin et al. 1974); Poás Volcano, Griffin & Eakin 157, det. Breil (FLAS, Morales 1991; Dauphin 2005); Poás Volcano, Standley 49150 (Morales 1991; Dauphin 2005); Poás Volcano, Aug 1978, Griffin et al. 157 (FLAS-020496, Morales and Griffin 1983); Poás Volcano, summit, 2,644 m, Pittier 6017 (G-00060920 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=116138&lang=en>, TYPE of *Lepidozia durandii*, Taylor 1960 as *Lepidozia durandii*; Morales 1991; Dauphin 2005); Poás Volcano, summit, 2,644 m, Pittier 2945 (G-00069622 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=123263&lang=en>, TYPE of *Lepidozia costaricensis*, Taylor 1960 as *Lepidozia costaricensis*); San Ramon cantón, La Palma, Brenes 19020 (F, Fulford 1966; Morales 1991; Dauphin 2005); San Ramón cantón, Nectandra Cloud Forest (UC, Norris et al. 2017); San Ramón cantón, San Pedro, Brenes 19133 (F, Fulford 1966; Morales 1991; Dauphin 2005). CARTAGO: La Unión cantón, Cerro de La Carpintera, Little 5667 (hb. Little, Fulford 1966); Sierra de Talamanca, S of Cartago, 7,238 ft (2,206 m), Little 5618 (hb. Little, Fulford 1966; Morales 1991; Kappelle 1996; Dauphin 2005). HEREDIA: San Isidro cantón, Yerba Buena, 2,000 m, Standley 49150, det. Herzog (B-19580, Herzog 1938 as *Lepidozia durandii*; Taylor 1960 as *Lepidozia durandii*; Dauphin 2005). PUNTARENAS: S. loc. (Merwin et al. 2001); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a). SAN JOSÉ: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, south of El Empalme, Little 5631 p.p., 5633 (hb. Little, Fulford 1966; Morales 1991; Dauphin 2005).

PANAMA. S. loc. (Gradstein 2021). NASO TJËR DI COMARCA: Cerro Fábrega, *De Gracia* 248 (PMA, Dauphin 2007); Cerro Fábrega, *De Gracia* 255 (PMA, Dauphin 2007).

Also reported from Northern South America, Western South America.

Lepidozia subdichotoma Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 361, 1885 (Spruce 1885). Type: Ecuador.

COSTA RICA. S. loc. (Gradstein and León-Yáñez 2011; Gradstein 2021). ALAJUELA: Poás National Park, Arndt 1782 (Dauphin 2005); Poás Volcano, Morales 1782 (USJ, Morales 1991). GUANACASTE: Liberia cantón, Guanacaste National Park, Sector Volcán Cacao, 10°55'43"N, 85°28'10"W, Dauphin 2461 (CR, Dauphin 2005). PUNTARENAS: Coto Brus cantón, Parque Internacional La Amistad Caribe, Cerro Bekom, 2,780 m, Quesada 1367 (CR, Dauphin 2005).

PANAMA. VERAGUAS: Santa Fe distrito, Alto de Piedra, 1,600 m, Toribio, det. J. Gudiño and G. Dauphin (PMA, Dauphin 2007).

Also reported from Northern South America, Western South America.

***Leptolejeunea* (Spruce) Steph., *Hedwigia* 30(6): 270, 1891 (Stephani 1891b).**

Leptolejeunea convexistipa Bischl., *Nova Hedwigia* 17: 325, 1969 (Bischler 1969). Type: Brazil.

=*Leptolejeunea mexicana* Bischl., *Nova Hedwigia* 17: 321, 1969, syn. with *Leptolejeunea maculata* s. lat. in Grolle (1976) but type is from the Neotropics. Type: “Patria ignota.”

?COSTA RICA. S. loc. (Schäfer-Verwimp 2014; Schäfer-Verwimp and Van Melick 2016; Sierra et al. 2019b). ?LIMÓN: Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, Lücking 92-493 (hb. Lücking, Lücking 1995 as *Leptolejeunea* cf. *convexistipa*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, Lücking (Lücking 1997 as *Leptolejeunea* cf. *convexistipa*). Note: We are not aware of any positively identified specimen from Costa Rica.

PANAMA. S. loc. (Schäfer-Verwimp and Van Melick 2016; Sierra et al. 2019b); S. loc., Schäfer-Verwimp & Verwimp 30937/A (hb. Schäfer-Verwimp, Bechteler et al. 2016b; Shu and Zhu 2019; Shu et al. 2022). COCLÉ: La Pintada distrito, El Copé, Parque Nacional General División Omar Torrijos Herrera, sendero La Rana Dorada, Río Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, Sierra & López 662, 668, etc. (PMA, Sierra et al. 2019a). VERAGUAS: Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, Schäfer-Verwimp & Verwimp 30861 (JE, Heinrichs et al. 2014a, 2014b; Schäfer-Verwimp 2014; Schäfer-Verwimp et al. 2014; Bechteler et al. 2016a, 2016b, 2016c; Zhu et al. 2017, 2018a, 2018b, 2019; Zhu and Shu 2018; Shu and Zhu 2019; Shu et al. 2022).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Leptolejeunea elliptica (Lehm. et Lindenb.) Besch., *Rev. Bryol.* 19(1): 14, 1892 (Bescherelle 1892).

=*Jungermannia elliptica* Lehm. et Lindenb., *Nov. Stirp. Pug.* 5: 13, 1833 (Lehmann 1833). Type: Surinam.

=*Lejeunea elliptica* (Lehm. et Lindenb.) Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 14: 335, 1840 (Montagne 1840).

=*Jungermannia elliptica* var. *laxa* Lehm. et Lindenb., *Nov. Stirp. Pug.* 5: 13, 1833 (Lehmann 1833), syn. in Bischler (1969). Type: Mexico.

=*Lejeunea elliptica* β *laxa* (Lehm. et Lindenb.) Gottsche, Lindenb. et Nees, *Syn. Hepat.* 3: 404, 1845 (Gottsche et al. 1845a).

GUATEMALA. S. loc. (Schuster 1980d as *Leptolejeunea elliptica* subsp. *elliptica*; Miller et al. 1983; Fulford and Sharp 1990; Lücking 1995; Ilkiu-Borges 2000; Oliveira-e-Silva and Yano 2000; Bastos 2004). ALTA VERAPAZ: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008); Panzós municipio, Cahabón and/or Senahú, 2012, Pérez & López-Medina, det. M. Pérez (Pérez and López-Medina 2012). BAJA VERAPAZ: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 101, 465, 526 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la

Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). **HUEHUETENANGO**: S. loc., Pérez 1415 (USCG, Pérez 2009). **IZABAL**: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008); Los Amates municipio, near Quiriguá, 72–150 m, 26–29 Apr 1939, Standley 72517, 72521 (FH, NY, US, Bischler 1969); Puerto Barrios, ~0 m, 25 Apr–6 May 1939, Standley 73102 (FH, NY, Bischler 1969). **QUICHÉ**: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008). **SAN MARCOS**: Río Ixpal, below Rodeo, 750 m, 14 Mar 1939, Standley 68728 (FH, NY, Bischler 1969).

BELIZE. **CAYO**: Blue Hole National Park, 100 m, 1996, Eggers BEZ 3/6, 4/10 (O'Shea et al. 1997); Mountain Pine Ridge, Cave Rio Frio, 600 m, 1996, Eggers BEZ 2/32 (O'Shea et al. 1997). **STANN CREEK**: Cockscombe Reserve (hb. Eggers, O'Shea et al. 1997).

HONDURAS. S. loc. (Schuster 1980d as *Leptolejeunea elliptica* subsp. *elliptica*; Miller et al. 1983; Fulford and Sharp 1990; Lücking 1995; Ilkiu-Borges 2000; Oliveira-e-Silva and Yano 2000; Bastos 2004); S. loc., 1903, Wilson 602 (NY, YU, Bischler 1969). **ATLÁNTIDA**: Tela municipio, Lancetilla Valley, Standley (Standley 1931); Tela municipio, Lancetilla Valley, 20–600 m, 6 Jul 1927–20 Mar 1928, Standley 54654, 54803, 54860, etc. (FH, F, M, JE, US, Zwickel 1932; Herzog 1951; Bischler 1969). **CORTÉS**: N of Lake Yojoa, 600–900 m, 1951, Morton 7880d (US, Bischler 1969); San Francisco de Yojoa municipio, along Río Lindo, N of Lake Yojoa, 500–600 m, 9–12 Apr 1951, Morton 7664d, 7879b (US, Bischler 1969).

COSTA RICA. S. loc. (Schuster 1980d as *Leptolejeunea elliptica* subsp. *elliptica*; Miller et al. 1983; Schuster 1983a; Fulford and Sharp 1990; Ilkiu-Borges 2000; Oliveira-e-Silva and Yano 2000; Bastos 2004; Lücking et al. 2010). **CARTAGO**: Jiménez cantón, Río Naranjo, 1893, Tonduz (G, Morales 1991; Dauphin 2005 as *Leptolejeunea elliptica* subsp. *elliptica*); Jiménez cantón, Río Naranjo, Mar 1893, Tonduz 15571 (M, YU, NY, Bischler 1969; Morales 1991 as *Leptolejeunea elliptica* subsp. *elliptica*; Dauphin 2005 as *Leptolejeunea elliptica* subsp. *elliptica*); Jiménez cantón, Río Naranjo, Mar 1893, Tonduz (B, M, Bischler 1969); Turrialba cantón, Vallée de Tuis, bassin de Reventazón, 600 m, Sep 1893, Tonduz 15592, 15593 (G, Bischler 1969; Morales 1991 as *Leptolejeunea elliptica* subsp. *elliptica*; Dauphin 2005 as *Leptolejeunea elliptica* subsp. *elliptica*). **GUANACASTE**: Caribbean slope N of Tenorio, 500 m, 3 Feb 1985, Eggers CR 3/49 (Eggers et al. 2001); Liberia cantón, Rincón de la Vieja National Park, Hacienda Santamaría, Dauphin 2335 (CR, Dauphin 2005 as *Leptolejeunea elliptica* subsp. *elliptica*). **HEREDIA**: Sarapiquí cantón, La Selva, Cordero & Morales 2243 (Morales 1991 as *Leptolejeunea elliptica* subsp. *elliptica*; Dauphin 2005 as *Leptolejeunea elliptica* subsp. *elliptica*). **LIMÓN**: Guácimo cantón, Jalova, southern border of the Tortuguero National Park, 2 m, 19 Feb 1985, Eggers CR 12/7 (Eggers et al. 2001); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, Lücking 91-4, 92-338 (hb. Lücking, Lücking 1995); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, Lücking (Lücking

1997); Pococí cantón, Cariari, El Carmen, Estación Biológica El Zota, 10°34'N, 83°45'W, 45 m, Egremy 325, det. Dauphin (CR, Dauphin 2005); Pococí cantón, Tortuguero, 10°31'N, 83°32'W, 2 Aug 1993, Timme 11224a, det. Dauphin Jun 2017 (MO-6690027!, this publication). **PUNTARENAS**: Buenos Aires cantón, Boruca, Jul 1891, Tonduz 15585 (G, Bischler 1969; Morales 1991 as *Leptolejeunea elliptica* subsp. *elliptica*; Dauphin 2005 as *Leptolejeunea elliptica* subsp. *elliptica*); Buenos Aires cantón, Boruca, Jul 1891, Tonduz 15587 (G, Bischler 1969); Buenos Aires cantón, Cobagra, Mar 1892, Tonduz 15570 (G, Bischler 1969; Morales 1991 as *Leptolejeunea elliptica* subsp. *elliptica*; Dauphin 2005 as *Leptolejeunea elliptica* subsp. *elliptica*); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a); Osa cantón, Osa Peninsula, Rincón, Centro Boscosa, 150 m, Oct 1993, Gradstein (Gradstein 1999b); Osa cantón, Santo Domingo de Golfo Dulce, Mar 1896, Tonduz 15598 (G, Bischler 1969; Morales 1991 as *Leptolejeunea elliptica* subsp. *elliptica*; Dauphin 2005 as *Leptolejeunea elliptica* subsp. *elliptica*).

PANAMA. S. loc. (Lehmann 1833 as *Jungermannia elliptica* var. *laxa*; Gottsche et al. 1845a as *Lejeunea elliptica laxa*; Schuster 1980d as *Leptolejeunea elliptica* subsp. *elliptica*; Miller et al. 1983; Fulford and Sharp 1990; Lücking 1995; Stotler et al. 1998 as *Leptolejeunea elliptica* subsp. *elliptica*; Ilkiu-Borges 2000; Oliveira-e-Silva and Yano 2000; Bastos 2004); S. loc., Presl. 6853 (W, Stephani 1890c as *Lejeunea elliptica*); S. loc., 1832 (S-PA, W 6853, Bischler 1969; Stotler et al. 1998 as *Leptolejeunea elliptica* subsp. *elliptica*). **BOCAS DEL TORO**: Bocas del Toro distrito, Bastimentos, Salt Creek, Sendero a Long Beach, 9.29456°N, 82.10303°W, 70 m, 16 Aug 2017, Gudiño & Salazar Allen 3364, 3396, det. Gudiño Aug 2017 (PMA, this publication); Bocas del Toro distrito, Salt Creek, Aug 2017, Dauphin et al. 4628 (PMA, this publication); Salt Creek (9°17'39.7"N, 82°06'11.2"W) on Isla Bastimento, Aug 2017 (Salazar Allen et al. 2022). **COCLÉ**: La Pintada distrito, El Copé, Meijer 165 (PMA, Stotler et al. 1998 as *Leptolejeunea elliptica* subsp. *elliptica*). ***COLÓN**: Colón distrito, W arm of Quebrada Salamanca, 16 Dec 1934, Dodge 17011, det. Dauphin Jun 2017 (MO-5243759!, this publication). **DARIÉN**: Cerro Pirre (Stotler et al. 1998 as *Leptolejeunea elliptica* subsp. *elliptica*); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, Gradstein & Salazar Allen (PMA, U, Gradstein and Salazar Allen 1992); Cerro Pirre, along trail to Rancho Mojado, 400–500 m, 4–8 Jun 1991, Gradstein & Salazar Allen (PMA, U, Gradstein and Salazar Allen 1992); Cerro Pirre, Trail El Real–Pirre, along Río Pirre, ~50 m, 4–8 Jun 1991, Gradstein & Salazar Allen (PMA, U, Gradstein and Salazar Allen 1992). **PANAMA WEST**: La Chorrera distrito, Barro Colorado Island, Gradstein & Salazar Allen 15113 (Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Mežaka et al. (PMA, Mežaka et al. 2020); La Chorrera distrito, Barro Colorado Island, Salazar Allen et al. 5965 (PMA, Stotler et al. 1998

as *Leptolejeunea elliptica* subsp. *elliptica*; Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, 9°09'N, 79°51'W, 20–145 m, Aug 2016–Jan 2017, Rodríguez-Castro (Rodríguez-Castro and Flores 2021); La Chorrera distrito, Barro Colorado Island, Camino Wetmore 21, Salazar Allen et al. 5943 (PMA, Stotler et al. 1998 as *Leptolejeunea elliptica* subsp. *elliptica*); La Chorrera distrito, Barro Colorado Island, Shannon Creek and ridge top, 1 Dec 1990, Marino & Salazar Allen (STRI, Marino and Salazar Allen 1992); La Chorrera distrito, Barro Colorado Island, Zetek 15, 2003, Dauphin 3223 (CR, PMA, Dauphin et al. 2022); La Chorrera distrito, Barro Colorado, on Zetek, Salazar Allen et al. 5890, 5906, 5922 (PMA, Stotler et al. 1998 as *Leptolejeunea elliptica* subsp. *elliptica*; Dauphin et al. 2022); La Chorrera distrito, Barro Colorado, Shannon, 2003, Dauphin 3062 p.p., 3063 (CR, PMA, Dauphin et al. 2022). PANAMA: Panamá distrito, between Madden Dam and Saddle II near Alahuela, 25 Nov 1934, Dodge et al. 16517, det. Dauphin Jun 2017 (MO-5243755!, this publication); Panamá distrito, Canal Zone Forest Preserve, Aug 1950, Chickering (MICH, Crum and Arzeni 1953; Stotler et al. 1998 as *Leptolejeunea elliptica* subsp. *elliptica*). VERAGUAS: Montijo distrito, Isla de Coiba (Parque Nacional Coiba), Ensenada Santa Cruz, río arriba por el margen derecho, 7°36'29.0"N, 81°45'48.0"W, 1995–1996, Aranda 2473 (MA, PMA, Salazar Allen and Chung 1997a).

COCOS I. S. loc. (Dauphin 1995, 1999, 2005 as *Leptolejeunea elliptica* subsp. *elliptica*); Bahía Yglesias, 0–20 m, Apr 1992, Lücking 460, 462, 463 (USJ, Bernecker-Lücking 2000); Río Genio, 5°32'57"N, 87°03'56"W, 0–50 m, Apr 1992, Lücking 320, 636 (ULM, USJ, Bernecker-Lücking 2000); Wafer Bay, Mar 1970, Gómez-Pignataro 3286A, det. Dauphin Jun 2017 (F!, this publication); Yglesias A, 50–100 m, Apr 1992, Lücking 697 (USJ, Bernecker-Lücking 2000); Yglesias D, 350–500 m, Apr 1992, Lücking 582 (hb. Bernecker, Bernecker-Lücking 2000).

Also reported from Western Indian Ocean, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasias, Australia, New Zealand, Southwestern Pacific, Southeastern Pacific, Northwestern Pacific, Northeastern Pacific(?), Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Leptolejeunea exocellata (Spruce) A.Evans, *Bull. Torrey Bot. Club* 29(8): 498, 1902 (Evans 1902c).

≡ *Lejeunea exocellata* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 195, 1884 (Spruce 1884). Type: Peru.

GUATEMALA. S. loc. (Fulford and Sharp 1990; Bastos 2004). ALTA VERAPAZ: Cobán, 1,260–1,440 m, 26 Mar–15 Apr 1939, Standley 69517 (NY, FH, Bischler 1969); E of Tactic Road to Tamakú, 1,500–1,650 m, 9 Apr 1939, Standley 71308 (NY, Bischler 1969); San Pedro Carchá municipio, NE of Carchá, 1,200 m, 2 Apr 1939, Standley 70330, 70331 (NY, Bischler 1969); SE of Taché, 1,500 m, 30 Mar 1939, Standley 69997 (FH, NY, Bischler 1969); vicinity PF Laguna Sapalá, 1 mi SW of Sibidé, 280 m, 11 Mar 1942, Steyermark 44933b (US,

Bischler 1969). SAN MARCOS: Río Ixpal, below Rodea, 750 m, 14 Mar 1939, Standley 68728 (FH, NY, Bischler 1969).

COSTA RICA. S. loc. (Fulford and Sharp 1990; Bastos 2004). PUNTARENAS: Buenos Aires cantón, Boruca, Standley 25691 (JE, PC, Zwickel 1932; Bischler 1966, 1969); Buenos Aires cantón, Boruca, Jul 1891, Tonduz 15584, 15585, 15586, 15587 (G, NY, M, Bischler 1969; Morales 1991; Dauphin 2005); Buenos Aires cantón, Boruca, Las Cascadas Plantation, near summit, 2 Jul 1923, Standley 25691 (JE, P, US, Bischler 1969; Morales 1991; Stotler et al. 1998; Dauphin 2005).

PANAMA. S. loc. (Fulford and Sharp 1990; Bastos 2004). COLÓN: Colón distrito, Fort Sherman, 15 Jan 1924, Standley 31004 (S, US, Zwickel 1932). PANAMA WEST: La Chorrera distrito, Barro Colorado Island, Marino 14, 25 (Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Basilisk Bay, 2003, Dauphin 3167 (CR, PMA, Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Quebrada R. Shannon, Marino 10, 12, 13, 28, 30 (PMA, Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Shannon Creek and ridge top, 1 Dec 1990, Marino & Salazar Allen (STRI, Marino and Salazar Allen 1992); La Chorrera distrito, Barro Colorado, Fuertes Cove, 2003, Dauphin 3109 (CR, PMA, Dauphin et al. 2022).

*COCOS I. S. loc., Jun 2016, Sánchez 2758, det. Dauphin 2016 (CR-283717!, this publication); Fila entre Bahía Wafer y Chatham, sobre ladera que va hacia Bahía Weston, 5°32'54.8"N, 87°03'11.4"W, 216 m, Estrada et al. 6139, det. G. Dauphin Jul 2021 (CR-4468343!, this publication).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Leptolejeunea jamaicensis R.M.Schust., *J. Elisha Mitchell Sci. Soc.* 83(4): 229, 1967 (Schuster 1967). Type: Jamaica.

PANAMA. PANAMA WEST: La Chorrera distrito, Barro Colorado Island, old dining hall, 2003, Dauphin 3211 (CR, PMA, Dauphin et al. 2022); La Chorrera distrito, Barro Colorado, Shannon, 2003, Dauphin 3062 p.p. (CR, PMA, Dauphin et al. 2022); La Chorrera distrito, Barro Colorado, Snyder-Molino, 2003, Dauphin 3051 (CR, PMA, Dauphin et al. 2022).

Also reported from the Caribbean, Western South America, Brazil.

Leptolejeunea maculata (Mitt.) Schiffn., *Consp. Hepat. Arch. Ind.*: 275, 1898 (Schiffner 1898a).

≡ *Lejeunea maculata* Mitt., *J. Proc. Linn. Soc., Bot.* 5(18): 118, 1861 (Mitten 1860a). Type: Sri Lanka.

COSTA RICA. S. loc. (Schäfer-Verwimp and Pócs 2009; Schäfer-Verwimp et al. 2013). *ALAJUELA: San Ramon cantón, La Palma, 12 Nov 1920, Brenes 168a, det. Dauphin May 2017 (MO-5217026!, this publication). LIMÓN: Pococí cantón, Cariari, El Carmen, Estación Biológica El Zota, 10°34'N, 83°45'W, 45 m, Egremy 325, det. Dauphin (CR, Dauphin 2005).

*PANAMA. *BOCAS DEL TORO: Bocas del Toro distrito, Bastimentos, Salt Creek, Sendero a Long Beach, 9.29456°N,

82.10303°W, 70 m, 16 Aug 2017, *Dauphin* 4638, det. Dauphin Aug 2017 (PMA, **this publication**).

*COCOS I. Cuenca alta del Río Yglesias, 368 m, Jun 2016, *Sánchez et al.* 2754, det. Dauphin 2016 (CR-283709!, **this publication**).

Also reported from West Tropical Africa, West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Western Indian Ocean, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasia, Australia, Southwestern Pacific, Southeastern Pacific, Northwestern Pacific.

Leptolejeunea moniliata Steph., *Sp. Hepat. (Stephani)* 5: 371, 1913 (Stephani 1913). Type: Surinam.

=*Leptolejeunea chrysophthalma* Herzog, *Hedwigia* 71(6): 344, 1932 (Herzog 1931), syn. fide Bischler (1969). Type: Brazil, Venezuela.

GUATEMALA. S. loc. (Fulford and Sharp 1990; Oliveira-Silva and Yano 2000; Schäfer-Verwimp and Reiner-Drehwald 2009). ALTA VERAPAZ: Cobán, 1,550 m, Sep 1906, *Türckheim* 5077 (BM, G, NY, Bischler 1969); Santa María Cahabón municipio, Secanquin, 550 m, 7 Jan 1905, *Maxon & Hay* 3211a (YU, Bischler 1969).

BELIZE. STANN CREEK: Cockscombe Reserve, 1996, *Eggers BEZ* 5/21 (hb. Eggers, O'Shea et al. 1997).

HONDURAS. S. loc. (Fulford and Sharp 1990; Oliveira-Silva and Yano 2000; Schäfer-Verwimp and Reiner-Drehwald 2009). ATLÁNTIDA: Tela municipio, Lancetilla Valley, 20–600 m, 27 Jul 1927–Mar 1928, *Standley* 54900 (JE, Herzog 1951 as *Leptolejeunea chrysophthalma*; Bischler 1969).

COSTA RICA. S. loc. (Fulford and Sharp 1990; Oliveira-Silva and Yano 2000; Schäfer-Verwimp and Reiner-Drehwald 2009); S. loc., *Tonduz* 15571c (M, Zwickel 1932 as *Leptolejeunea chrysophthalma*). CARTAGO: Jiménez cantón, Río Naranjo, Mar 1893, *Tonduz* 15571 (M, YU, NY, Bischler 1969; Morales 1991; Dauphin 2005).

PANAMA. PANAMA WEST: La Chorrera distrito, Barro Colorado Island, *Salazar Allen et al.* 5965 (PMA, Stotler et al. 1998); La Chorrera distrito, Barro Colorado Island, Quebrada R. Shannon, *Marino* 10 (PMA, Stotler et al. 1998; Dauphin et al. 2022).

Also reported from Mexico, the Caribbean, Northern South America, Brazil.

Leptolejeunea obfuscata (Spruce) Steph., *Sp. Hepat. (Stephani)* 5: 373, 1913 (Stephani 1913).

=*Lejeunea obfuscata* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 579, 1885 (Spruce 1885). Type: Brazil.

BELIZE. CAYO: Mountain Pine Ridge, Cave Rio Frio, ~600 m, 1996, *Eggers & Timm BEZ* 2/44, det. Eggers (Eggers et al. 2004).

Also reported from Mexico, Northern South America, Western South America, Brazil.

Leptolejeunea radicata (Nees ex Mont.) Grolle, *J. Hattori Bot. Lab.* 45: 178, 1979 (Grolle 1979a).

=*Lejeunea radicata* Nees ex Mont., *Hist. Phys. Cuba, Bot., Pl. Cell.*: 475, 1842 (Montagne 1842b). Lectotype: French Guiana.

=*Leptolejeunea obovata* Bischl., *Nova Hedwigia* 17: 319, 1969 (Bischler 1969), syn. fide Grolle (1979a). Type: Jamaica.

BELIZE. S. loc. (Eggers et al. 2004; Schäfer-Verwimp 2014). STANN CREEK: Cockscombe Reserve, 1996, *Eggers BEZ* 5/20 (hb. Eggers, O'Shea et al. 1997).

COSTA RICA. S. loc. (Dauphin et al. 1998; Schäfer-Verwimp 1999; Eggers et al. 2004; Lavocat Bernard et al. 2009; Schäfer-Verwimp and Reiner-Drehwald 2009; Schäfer-Verwimp 2014). CARTAGO: Paraíso cantón, Jardín Lankester, *Morales* 2276, det. Morales (USJ, Morales 1991 as *Leptolejeunea obovata*; Dauphin 2005); Turrialba cantón, Tuis Valley, Rancho Naturalista, 900 m, 30 Jan 2001, *Eggers CR* 17/28 (Eggers et al. 2001 as *Leptolejeunea obovata*). HEREDIA: Sarapiquí cantón, La Selva Biological Station, Arroyo-Rodríguez (Arroyo-Rodríguez et al. 2007 as *Leptolejeunea obovata*). LIMÓN: Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 91-64, 92-132, 92-133, 92-445 (hb. Lücking, Lücking 1995 as *Leptolejeunea obovata*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (Lücking 1997). PUNTARENAS: Golfito cantón, Nacionales Refugium Golfito, 50 m, Sep 1991, *Lücking* 91-126 (hb. Lücking, Lücking 1995 as *Leptolejeunea obovata*); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009).

PANAMA. S. loc. (Lücking 1995 as *Leptolejeunea obovata*; Dauphin et al. 1998; Schäfer-Verwimp 1999; Linares and Uribe 2002; Eggers et al. 2004; Lavocat Bernard et al. 2009; Schäfer-Verwimp and Reiner-Drehwald 2009); S. loc., *Schäfer-Verwimp & Verwimp* 30766 (JE, Heinrichs et al. 2014a, 2014b; Shu et al. 2022); S. loc., *Schäfer-Verwimp & Verwimp* 30795 (hb. Schäfer-Verwimp, Bechteler et al. 2016b; Shu and Zhu 2019; Shu et al. 2022); Canal Zone (Schäfer-Verwimp 2014). COCLÉ: Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 700–1,000 m, 31 Mar 2006, *Schäfer-Verwimp & Verwimp* 30766 (JE, Schäfer-Verwimp 2014). COLÓN: Colón distrito, Fort Sherman, 15 Jan 1924, *Standley* 31004 (S, US, Bischler 1969 as *Leptolejeunea obovata*; Stotler et al. 1998). PANAMA WEST: La Chorrera distrito, Barro Colorado Island, *Gradstein & Salazar Allen s.n.* (Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, *Mežaka et al.* (PMA, Mežaka et al. 2020 as *Leptolejeunea obovata*); La Chorrera distrito, Barro Colorado Island, Quebrada R. Shannon, *Marino* 10, 12, 13, 14, 25, 28, 30 (PMA, Stotler et al. 1998).

COCOS I. S. loc. (Dauphin 1995, 1999); Yglesias A, 50–100 m, Apr 1992, *Lücking* 554, 561, 566, 650 (ULM, USJ, Bernecker-Lücking 2000).

Also reported from Mexico(?), the Caribbean, Northern South America, Western South America, Brazil.

Leptolejeunea serratifolia Schiffn., *Bot. Jahrb. Syst.* 23(5): 594, 1897 (Schiffner 1897). Type: Cuba.

***HONDURAS.** ***ATLÁNTIDA:** El Porvenir municipio, Parque Nacional Pico Bonito, desde la quebrada Zacate al límite zona núcleo punto 54, 15°40'N, 86°55'W, 200–400 m, 29 Dec 2001, *Dauphin & Ferrufino 3050.1*, det. Dauphin Dec 2020 (CR-5152107!, **this publication**).

COSTA RICA. **PUNTARENAS:** Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, **Gradstein et al. 2001a**).

***COCOS I.** Cuenca de la Quebrada Pittier, rumbo a Bahía Yglesias, 5°31'81.5"N, 87°03'32.3"W, 285 m, 29 Nov 2013, *Estrada et al. 6164*, det. G. Dauphin Jun 2021 (CR-4468353!, **this publication**).

Also reported from the Caribbean, Western South America, Brazil.

***Leptoscyphus* Mitt., Hooker's J. Bot. Kew Gard. Misc. 3: 358, 1851 (Mitten 1851).**

Leptoscyphus amphibolius (Nees) Grolle, *Nova Acta Leop.*, n.s., 25(161): 54, 1963 (Grolle 1962a).

≡*Jungermannia amphibolia* Nees, *Fl. Bras. (Martius)* 1(1): 334, 1833 (Nees 1833b). Type: Brazil.

=*Chiloscyphus pittieri* Steph., *Prim. Fl. Cost.*: 112, 1893 (Stephani 1893c), syn. fide Grolle (1962a). Lectotype (Grolle 1962a: 57 as "holotypus"): Costa Rica, entre la Lagune de Barba et le Carrisel, 2,800 m, Jan 1889, *Pittier 6014* (G-00069439 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=115868&lang=en>, isoelectotypes JE-04002039 <https://je.jacq.org/JE04002039>, JE-04002038 <https://je.jacq.org/JE04002038>).

≡*Heteroscyphus pittieri* (Steph.) Schiffn., *Österr. Bot. Z.* 60(5): 172, 1910 (Schiffner 1910).

=*Lophocolea aberrans* Lindenb. et Gottsche var. *costaricensis* Herzog, *Rev. Bryol. Lichénol.* 11(1/2): 17, 1939 (Herzog 1938), syn. fide Grolle (1962a). Lectotype (Söderström and Hentschel 2023: 12): Costa Rica, Cerro de las Vueltas, Provincia de San José, on old log, altitude 2,700–3,000 m, 29 Dec 1925–1 Jan 1926, *Standley & Valerio 43758* (JE-04002012 <https://je.jacq.org/JE04002012>, isoelectotypes JE-04002011 <https://je.jacq.org/JE04002011>, US-04628457 <http://n2t.net/ark:/65665/331215e63-87b4-4a33-a9f3-8e3c14753ea1>).

GUATEMALA. S. loc. (Fulford and Sharp 1990; Freire et al. 2012). **ALTA VERAPAZ:** S. loc., Pérez 2326 (USCG, Pérez 2009); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al. 517* (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). **EL PROGRESO:** S. loc., *Steyermark 43026* (F, Fulford 1976; Freire 2006; Pérez 2009); Finca Bucaral, 6,200 ft (1,890 m), *Sharp 2733* (TENN, Fulford 1976; Freire 2006); Finca Bucaral, *Sharp 2738 p.p.* (TENN, Fulford 1976; Freire 2006); San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, *Ramírez* (USCG, BIGU, Ramírez 2007). **HUEHUETENANGO:** S. loc., *Sharp 4955 p.p.* (TENN, Fulford 1976; Freire 2006; Pérez 2009); above Macx, Sierra de los Cuchumatanes, 2,500–3,000 m,

Steyermark 51899 p.p. (F, Fulford 1976; Freire 2006); between Yulhitz and Maxbal, 1,400–1,500 m, *Standley 48691* (F, Fulford 1976; Freire 2006); San Juan Ixcay municipio, above San Juan Ixcay, *Steyermark 50011 p.p.* (F, Fulford 1976; Freire 2006). **QUETZALTENANGO:** A lo largo del Río Repallal, *Steyermark 34907* (F, Freire 2006); above Chiquival, *Sharp 2145* (TENN, Fulford 1976; Freire 2006; Pérez 2009); along Río Repallal, *Steyermark 29882, 42536* (F, Fulford 1976; Freire 2006); Zunil municipio, ridge to Volcán Zunil, *Steyermark 34906, 34907* (F, Fulford 1976; Freire 2006). **QUICHÉ:** S. loc., Pérez 2338 (USCG, Pérez 2009). **SAN MARCOS:** S. loc., *Sharp 5496* (TENN, Fulford 1976; Freire 2006; Pérez 2009). **SUCHITEPÉQUEZ:** Volcán Santa Clara, *Steyermark 46742* (F, Fulford 1976; Freire 2006; Pérez 2009). **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, Ramírez 2007).

HONDURAS. S. loc. (Fulford and Sharp 1990). **COMAYAGUA:** Siguatopeque, *Yuncker 6560* (DPU, Fulford 1976). ***LEMPIRA:** Gracias municipio, Montaña de Celaque, 14°33'N, 88°38'W, 10 May 1992, *Allen 11853*, det. Whittemore 1993 (MO-3994174!, **this publication**).

COSTA RICA. S. loc. (Bonner 1966 as *Heteroscyphus pittieri*; Fulford and Sharp 1990; Gradstein and Holz 2005); S. loc., *Pittier* (G, Stephani 1908c as *Chiloscyphus pittieri*); S. loc., *Schäfer-Verwimp & Holz SV/H-0474/A* (JE, Vanderpoorten and Long 2006); Cordillera de Talamanca (Holz and Gradstein 2005b; Holz 2006); Cordillera de Talamanca, *Kappelle 2829* (U, Kappelle 1996). **ALAJUELA:** Poás Volcano, *Morales & Canessa 418* (USJ, Morales and Griffin 1983; Morales 1991); Poás Volcano, 30 Jul 1977, *Griffin & Araya 18, 98* (FLAS, B-209946, Morales and Griffin 1983; Morales 1991; Dauphin 2005); Poás Volcano, Aug 1977, *Griffin et al. 93* (FLAS-020509, Morales and Griffin 1983; Morales 1991; Dauphin 2005). **CARTAGO:** Cartago cantón, El Muñeco, 1,400–1,500 m, *Standley & Torres 50931* (JE, Fulford 1976); Cartago cantón, El Muñeco, 1,400–1,800 m, *Standley 50931* (B-05836, Herzog 1938 as *Lophocolea aberrans* var. *costaricensis*; Grolle 1962a; Geissler and Bischler 1985 as *Lophocolea aberrans* var. *costaricensis*; Dauphin 2005); Pococí cantón, La Georgina, *Dauphin 2240* (CR, Dauphin 2005). **HEREDIA:** Barva cantón, between Laguna de Barva and Carrizal, 2,800 m, Jan 1889, *Pittier 6014* (G-00069439 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=115868&lang=en>, TYPE of *Chiloscyphus pittieri*, Stephani 1893c as *Chiloscyphus pittieri*; Grolle 1962a; Bonner 1963b as *Chiloscyphus pittieri*; Morales 1991; Dauphin 2005). **SAN JOSÉ:** Dota cantón, "Los Robles" (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, *Standley 43758* (JE, Herzog 1938 as *Lophocolea aberrans* var. *costaricensis*; Grolle 1962a; Fulford 1976; Geissler and Bischler 1985 as *Lophocolea aberrans* var. *costaricensis*; Morales 1991; Dauphin 2005); Dota cantón, El Empalme, *Little 5623, 5632, 5655* (FULF, Fulford 1976; Morales 1991; Dauphin 2005); Dota cantón, N of El Copey, above Los Lotes, 2,100–2,400 m, *Standley 42711*,

42781, 42800 (JE, Herzog 1938 as *Lophocolea aberrans* var. *costaricensis*; Grolle 1962a; Fulford 1976; Geissler and Bischler 1985 as *Lophocolea aberrans* var. *costaricensis*; Morales 1991; Dauphin 2005); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, Holz (Holz 2003); Dota cantón, Santa María, 1,500–1,800 m, Standley 41686, 41758a, 41835, 42248, 42933 (JE, Herzog 1938 as *Lophocolea aberrans* var. *costaricensis*; Grolle 1962a; Fulford 1976; Geissler and Bischler 1985 as *Lophocolea aberrans* var. *costaricensis*; Morales 1991; Dauphin 2005); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a).

PANAMA. S. loc. (Gradstein 1999a); S. loc., Dauphin et al. 1578 (GOET, Hentschel et al. 2006a, 2007b; Feldberg et al. 2010c; Patzak et al. 2016; Renner et al. 2017a). CHIRIQUÍ: Tierras Altas distrito, Parque Internacional La Amistad, Sendero El Retoño, 2,460 m, Gradstein 9762 (GOET, Stotler et al. 1998); Barú Volcano National Park (Rodríguez-Quiel et al. 2022). NASO TJËR DI COMARCA: Parque Internacional La Amistad, Cerro Fábrega, 3,150–3,353 m, Dauphin 1578 (GOET, CR, PMA, U, Stotler et al. 1998; Dauphin 2007).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Leptoscyphus cuneifolius (Hook.) Mitt., *Hooker's J. Bot. Kew Gard. Misc.* 3: 358, 1851 (Mitten 1851) subsp. *cuneifolius*. $\equiv$ *Jungermannia cuneifolia* Hook., *Brit. Jungermann.*: table 64, 1814 (Hooker 1814). Type: Ireland.

?HONDURAS. S. loc. (Fulford and Sharp 1990; Schäfer-Verwimp and Giancotti 1993). Note: We are not aware of any firsthand report from Honduras.

COSTA RICA. S. loc. (Gradstein 1999a; Dauphin 2005; Gradstein and Holz 2005); Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); Cordillera de Talamanca, Gradstein & Morales 9738 (USJ, Kappelle 1996). CARTAGO: El Guarco cantón, 3 de Junio, 2,600 m, Gradstein & Morales 9394 (U, USJ, Gradstein et al. 1994; Dauphin 2005). SAN JOSÉ: Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,200 m, Gradstein 9738, 9743 (U, USJ, Gradstein et al. 1994; Dauphin 2005).

PANAMA. S. loc. (Gradstein 1999a). †BOCAS DEL TORO: S. loc. (Schäfer-Verwimp 2014). Note: This must be referring to the “new” comarca Naso Tjër Di. NASO TJËR DI COMARCA: Cerro Fábrega, 3,335 m, 26 Mar 2004, De Gracia et al. 338 (GOET, Dauphin 2007). PANAMA: S. loc. (Batan et al. 2013). Note: We are not aware of any firsthand report from Panama district.

Also reported from Northern Europe, Macaronesia, South-eastern USA, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Leptoscyphus cuneifolius subsp. *fragilis* (J.B.Jack et Steph.) Grolle, *Nova Acta Leop.*, n.s., 25(161): 28, 1963 (Grolle 1962a).

$\equiv$ *Leioscyphus fragilis* J.B.Jack et Steph., *Hedwigia* 31(1): 20, 1892 (Jack and Stephani 1892). Type: Colombia.

PANAMA. CHIRIQUÍ: Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,600 m, 4 Apr 2006, Schäfer-Verwimp & Verwimp 30921/A (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, Schäfer-Verwimp & Verwimp 34554 p.p. (JE, Schäfer-Verwimp 2014).

Also reported from the Caribbean, Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands.

Leptoscyphus gibbosus (Taylor) Mitt., *Hooker's J. Bot. Kew Gard. Misc.* 3: 358, 1851 (Mitten 1851).

$\equiv$ *Chiloscyphus gibbosus* Taylor, *London J. Bot.* 5: 283, 1846 (Taylor 1846b).

Type: Martinique.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 223, 474, 480, 487 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

COSTA RICA. S. loc., Schäfer-Verwimp & Holz SV/H-0364 (JE, Patzak et al. 2016; Renner et al. 2017a; Bakalin et al. 2022a). CARTAGO: El Guarco cantón, 3 de Junio, 2,600 m, Morales & Gradstein 2395 (U, USJ, Gradstein et al. 1994; Kappelle 1996; Dauphin 2005); El Guarco cantón, 3 de Junio, 3 Jan 2000, Schäfer-Verwimp & Holz SV/H-0429, det. Schäfer-Verwimp 2000 (MO-5271205!, this publication). GUANACASTE: Tilarán cantón, Arenal, Haber 10286 (CR, Dauphin 2005).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, NW of camping site, 1,000–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, SW of camping site, from Finca Pittí to foothills of Cerro Fortuna, 1,000–1,270 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna, 1,000 m, Salazar Allen et al. 698 (PMA, Stotler et al. 1998); Gualaca distrito, Hornito, Fortuna, 1,000–1,200 m, Salazar Allen et al. 616a, 662 (PMA, Stotler et al. 1998); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, near southern edge of storage lake, 8°44.0'N, 82°14.5'W, 1,215 m, 30 Mar 2009, Schäfer-Verwimp & Verwimp 34485 (JE, Schäfer-Verwimp 2014). COCLÉ: Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8'N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, Schäfer-Verwimp & Verwimp 34226 (JE, Schäfer-Verwimp 2014). PANAMA: S. loc. (Schäfer-Verwimp 2014); Panamá distrito, Cerro Jefe, behind INTEL tower, Salazar Allen et al. 6773 (PMA, Stotler et al. 1998).

COCOS I. Boca Río Yglesias, 5°32'57"N, 87°03'36"W, 0 m, Dauphin 1141, det. G. Dauphin Apr 2021 (USJ-48203!, CR-4468400!, W-0207447! <https://w.jacq.org/W0207447>, Dauphin 1995, 1999, 2005).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Leptoscyphus gradsteinii Vanderp., Schäf.-Verw. et D.G.Long, *Taxon* 59(1): 182, 2010 (Vanderpoorten et al. 2010). Holotype: Costa Rica, San José, C. de la Muerte, Reserva 3 de Junio and surroundings, altitude 2,650–2,800 m, on trunk in *Sphagnum* bog, 25 Sep 1994, *Gradstein & Mues* 9694 (GOET-16862 [https://gwdu64.gwdg.de/pls/herbar/moos\\$moos.QueryViewByKey?P_ID=16862&Z_CHK=1361](https://gwdu64.gwdg.de/pls/herbar/moos$moos.QueryViewByKey?P_ID=16862&Z_CHK=1361)).

COSTA RICA. S. loc., *Gradstein* 9694 (GOET, Patzak et al. 2016; Renner et al. 2017a). CARTAGO: El Guarco cantón, Cerro de La Muerte, 3 de Junio and surroundings, 2,650–2,800 m, 25 Sep 1994, *Gradstein & Mues* 9694 (GOET, TYPE, Vanderpoorten et al. 2010; Söderström et al. 2012a).

Also reported from Western South America.

Leptoscyphus hexagonus (Nees) Grolle, *Nova Acta Leop.*, n.s., 25(161): 47, 1963 (Grolle 1962a).

≡*Chiloscyphus hexagonus* Nees, *Syn. Hepat.* 2: 177, 1845 (Gottsche et al. 1845b). Type: Peru.

COSTA RICA. *GUANACASTE: Liberia cantón, Guanacaste National Park, Sector Volcán Cacao, SE along continental divide for ~0.5 km (along boundary with Prov. Alajuela), 10°56'N, 85°27'W, 1,610–1,680 m, 16 Aug 2007, *Grayum* 12754, det. Dauphin May 2017 (MO-6360625!, **this publication**). SAN JOSÉ: Pérez Zeledón cantón, Cerro de La Muerte near the American Highway, 9°34.204'N, 83°45.220'W, 3,300 m, 28 Mar 2010, *van Melick* 214528 (JE, hb. van Melick, Ellis et al. 2019a).

Also reported from the Caribbean, Northern South America, Western South America.

Leptoscyphus intermedius Grolle, *Nova Acta Leop.*, n.s., 25(161): 32, 1963 (Grolle 1962a). Type: Guyana.

HONDURAS. S. loc. (Nöske et al. 2003; Gradstein and Uribe 2016; Gradstein 2021). FRANCISCO MORAZÁN: San Antonio de Oriente municipio, Cerro de Uyuca, *Standley* 4881 (F, Fulford 1976).

PANAMA. NASO TIJER DI COMARCA: Cerro Fábrega, *De Gracia* 228, 313, 357 (PMA, Dauphin 2007).

Also reported from the Caribbean, Northern South America, Western South America.

Leptoscyphus lambinonii Vanderp., Schäf.-Verw. et D.G.Long, *Taxon* 59(1): 179, 2010 (Vanderpoorten et al. 2010). Holotype: Costa Rica, Cartago, Orosi Valley, Tapanti National Park, primary rainforest, Sendero La Oropendola, epiphytic, ~600 m, 30 Dec 1999, *Schäfer-Verwimp and Holz* SV/H-0342 (JE, isotype: CR).

COSTA RICA. CARTAGO: Paraíso cantón, Tapantí National Park, Orosi Valley, Sendero “La Oropendola,” ~600 m, 30 Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0342 (JE, CR, TYPE, Vanderpoorten et al. 2010; Söderström et al. 2012a; Patzak et al. 2016; Renner et al. 2017a).

Not found outside Central America.

Leptoscyphus obcordatus (Spruce) Grolle, *Nova Acta Leop.*, n.s., 25(161): 33, 1963 (Grolle 1962a).

≡*Leioscyphus obcordatus* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 446, 1885 (Spruce 1885). Type: Ecuador.

COSTA RICA. S. loc. (Costa 2017; Costa et al. 2020). SAN JOSÉ: Pérez Zeledón cantón, Chirripó National Park, Fila Cementerio de La Máquina, 9°30'N, 83°30'W, 2,300 m, *Kappelle* 3528 (U, GOET, *Kappelle* 1996; Dauphin et al. 1998; Dauphin 2005).

*COCOS I. Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 21 Jan 1990, *Dauphin* 974 p.p., det. G. Dauphin Oct 2020 (CR!, **this publication**).

Also reported from Western South America, Brazil.

Leptoscyphus orbignianus (Nees et Mont.) L.Söderstr. et A.Hagborg, *Lindbergia* 46(e25018): 1, 2023 (Söderström and Hagborg 2023c).

≡*Lophocolea orbigniana* Nees et Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 5: 55, 1836 (Nees and Montagne 1836). Lectotype: Bolivia.

≡*Lophocolea trapezoides* Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 19: 251, 1843 (Montagne 1843), syn. fide Gradstein (2021). Type: Guadeloupe.

≡*Leptoscyphus trapezoides* (Mont.) L.Söderstr., *Phytotaxa* 112(1): 27, 2013 (Söderström et al. 2013b).

≡*Lophocolea breutelii* Gottsche, *Syn. Hepat.*: 154, 1845 (Gottsche et al. 1845b), syn. fide Fulford (1976). Type: St. Kitts.

≡*Chiloscyphus breutelii* (Gottsche) J.J.Engel et R.M.Schust., *Nova Hedwigia* 39: 412, 1985 (Engel and Schuster 1984).

≡*Lophocolea columbica* Gottsche, *Syn. Hepat.*: 155, 1845 (Gottsche et al. 1845b), syn. fide Engel and Schuster (1984). Type: Colombia.

≡*Lophocolea quadridentata* Spruce, *Mem. Torrey Bot. Club* 1(3): 137, 1890 (Spruce 1890), syn. fide Gradstein (2021). Type: Bolivia.

≡*Chiloscyphus quadridentatus* (Spruce) J.J.Engel et R.M.Schust., *Nova Hedwigia* 39: 422, 1985 (Engel and Schuster 1984).

≡*Leptoscyphus quadridentatus* (Spruce) Grolle ex Uribe et Gradst., *Bryophyt. Biblioth.* 53: 47, 1998 (Uribe and Gradstein 1998) nom. inval. (ICN2018 Art. 41.5; basionym not cited).

≡*Lophocolea effusidens* Steph., *Bull. Herb. Boissier*, sér. 2, 7(4): 301 (=Sp. *Hepat. [Stephani]* 3: 165), 1907 (Stephani 1907a), syn. fide Fulford (1976). Lectotype: Peru. Note: The synlectotype from Costa Rica is *Heteroscyphus marginatus* (Fulford 1976).

≡*Lophocolea breutelii* Gottsche var. *robusta* Herzog ex Fulford, *Mem. New York Bot. Gard.* 11(4): 435, 1976 (Fulford 1976), nom. inval. (ICN2018 Art. 36.1(c); publ. in syn.). Original material (Fulford 1976: 437): Costa Rica, Heredia, San Isidro, *Standley & Valerio* 51474 (JE-04010837 <https://je.jacq.org/JE04010837>, original material also in US-04675709 <http://n2t.net/ark:/65665/33a19c1a8-02ad-4d83-83b7-731f05dc6f02>).

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 35, 39, 61, 63, 132 (USCG, *Freire et al.* 2013 as *Chiloscyphus breutelii*); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al.* 2005 as *Lophocolea 'trapezoidea'* and *Leptoscyphus quadridentatus*).

COSTA RICA. S. loc. (Cole 1982, 1983, both as *Lophocolea 'trapezoidea'*; Morales 1991 as *Lophocolea quadridentata*;

Gradstein 1999a as *Lophocolea* ‘trapezoidea’; Dauphin 2005 as *Lophocolea trapezoides* and *Lophocolea quadridentata*; Cordillera de Talamanca (Holz and Gradstein 2005b as *Lophocolea* ‘trapezoidea’); Cordillera de Talamanca, Kappelle 626 (CR, Kappelle 1996 as *Lophocolea* ‘trapezoidea’). **ALAJUELA**: Poás National Park, Griffin & Araya 60 (USJ, FLAS, Morales 1991 as *Lophocolea trapezoides*; Dauphin 2005 as *Lophocolea trapezoides*); Poás Volcano, 31 Jul 1977, Griffin & Araya 71 (USJ, FLAS, Dauphin 2005 as *Lophocolea quadridentata*; Morales and Griffin 1983 as *Lophocolea quadridentata*; Morales 1991 as *Lophocolea quadridentata*); Poás Volcano, 31 Jul 1977, Griffin & Araya 86 (USJ, FLAS, Dauphin 2005 as *Lophocolea quadridentata*; Morales and Griffin 1983 as *Lophocolea quadridentata*; Morales 1991 as *Lophocolea quadridentata*). **CARTAGO**: Jiménez cantón, N de Pejibaye, Standley 46967 (JE, Fulford 1976 as *Lophocolea trapezoides*; Morales 1991 as *Lophocolea trapezoides*; Dauphin 2005 as *Lophocolea trapezoides*); Paraíso cantón, Orosi Valley, Tapantí National Park, Sendero “La Oropéndola”; Schäfer-Verwimp & Holz SV/H-0345 (JE, Patzak et al. 2016; Renner et al. 2017a); Paraíso cantón, Orosi, Tapantí National Park, Griffin et al. 167, 174, 180 (B-209918, Morales 1991 as *Lophocolea trapezoides*; Dauphin 2005 as *Lophocolea trapezoides*). **HEREDIA**: San Isidro cantón, Cerro de Las Lajas, Standley & Valerio 51474 (JE, B-06021, TYPE of *Lophocolea breutelii* var. *robusta*, Herzog 1938 as *Lophocolea breutelii*; Fulford 1976 as *Lophocolea trapezoides*; Morales 1991 as *Lophocolea trapezoides*; Dauphin 2005 as *Lophocolea trapezoides*). **LIMÓN**: Talamanca cantón, Parque Internacional La Amistad, cerro Kamúk, Quesada 1381 (CR, Dauphin 2005 as *Lophocolea trapezoides*). **PUNTARENAS**: S. loc. (Merwin et al. 2001 as *Lophocolea* ‘trapezoidea’); Coto Brus cantón, Fila Cruces, Dauphin 1746 (CR, Dauphin 2005 as *Lophocolea trapezoides*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a as *Lophocolea* ‘trapezoidea’); Puntarenas cantón, Brillante, 25 Jul 1966, James, W. (R, Reed and Robinson 1971 as *Lophocolea columbica*). **SAN JOSÉ**: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002 as *Lophocolea trapezoides*); Dota cantón, Los Quetzales National Park (Amengual et al. 2007 as *Lophocolea trapezoides*); Dota cantón, San Gerardo (Dauphin 2005 as *Lophocolea trapezoides*); Dota cantón, San Gerardo, Holz (Holz 2003 as *Lophocolea* ‘trapezoidea’); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), Schultes 12041 (FLAS, Morales 1991 as *Lophocolea trapezoides*; Dauphin 2005 as *Lophocolea trapezoides*).

PANAMA. **CHIRIQUÍ**: Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,900 m, 6 Apr 2006, Schäfer-Verwimp & Verwimp 30974 (JE, Schäfer-Verwimp 2014); Gualaca distrito, Fortuna Forest Reserve, Quebrada Mono, 1,100–1,300 m (Salazar Allen et al. 2021 as *Chiloscyphus quadridentatus*); Gualaca distrito, Fortuna Forest Reserve (Salazar Allen et al. 2021); Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m,

31 Mar 2009, Schäfer-Verwimp & Verwimp 34590 (JE, Schäfer-Verwimp 2014).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Leptoscyphus ovatus (Spruce) Grolle, *Nova Acta Leop.*, n.s., 25(161): 45, 1963 (Grolle 1962a).

≡ *Leioscyphus ovatus* Spruce, *J. Linn. Soc., Bot.* 30(210): 357, 1895 (Gepp 1895). Type: Dominica.

COSTA RICA. **ALAJUELA**: Poás Volcano, Griffin & Araya 43, 45, 59 (USJ, FLAS, Morales and Griffin 1983; Morales 1991).

PANAMA. S. loc. (Fulford 1987). **CHIRIQUÍ**: S. loc., D'Arcy 2 (MO, Fulford 1976; Stotler et al. 1998).

COCOS I. Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 15 Feb 1994, Dauphin 967, det. M. I. Morales (USJ, Dauphin 1995, 1999, 2005).

Also reported from the Caribbean, Northern South America, Brazil.

Leptoscyphus physocalyx (Hampe et Gottsche) Gottsche, *Bot. Zeitung (Berlin) Beil.* 16: 33, 1858 (Gottsche 1858).

≡ *Jungermannia physocalyx* Hampe et Gottsche, *Linnaea* 20(3): 326, 1847 (Hampe 1847). Type: Colombia.

COSTA RICA. S. loc. (Gradstein 1999a; Dauphin 2005; Gradstein and Holz 2005); Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b). **CARTAGO**: Paraíso cantón, Cerro Asunción, 3,325 m, Dauphin (USJ, Gradstein et al. 1994; Dauphin 2005).

PANAMA. **NASO TJËR DI COMARCA**: Cerro Fábrega, 26 Mar 2004, De Gracia 342 (PMA, Dauphin 2007).

Also reported from Northern South America, Western South America.

Leptoscyphus porphyrius (Nees) Grolle, *Österr. Bot. Z.* 117(1): 3, 1969 (Grolle 1969b) subsp. *porphyrius*.

≡ *Chiloscyphus porphyrius* Nees, *Syn. Hepat.* 2: 185, 1845 (Gottsche et al. 1845b). Type: Peru.

≡ *Jungermannia liebmaniana* Lindenb. et Gottsche, *Syn. Hepat.* 5: 668, 1847 (Gottsche et al. 1847), syn. fide Grolle (1969b). Type: Mexico.

≡ *Leptoscyphus liebmanianus* (Lindenb. et Gottsche) Mitt., *Hooker's J. Bot. Kew Gard. Misc.* 3: 358, 1851 (Mitten 1851).

GUATEMALA. S. loc. (Fulford and Sharp 1990). **ALTA VERAPAZ**: Cobán, Las Victorias National Park, 1,700 m, 2002 (Andersohn 2004). **SAN MARCOS**: S. loc., 8,700 ft (2,652 m), Sharp 5494 p.p. (TENN, Fulford 1976; Freire 2006; Pérez 2009). **ZACAPA**: S. loc., Steyermark 42819 (F, Fulford 1976; Freire 2006; Pérez 2009).

COSTA RICA. S. loc. (Fulford 1967 as *Leptoscyphus* ‘liebmannianus’; Fulford and Sharp 1990; Gradstein and Holz 2005; Schäfer-Verwimp and Pócs 2009; Schuster 2021 as *Leptoscyphus liebmannianus*); S. loc., Holz CR 99-1044 (JE, Hentschel et al. 2007b; Patzak et al. 2016); S. loc., Tonduz (Fulford 1976); Cordillera de Talamanca (Holz and Gradstein 2005b; Holz 2006); Cordillera de Talamanca, Davidse et al. 23948 (CR, Kappelle

1996). ALAJUELA: S. loc., 25 Jun 1968, *Canessa* (Morales and Griffin 1983); Poás Volcano, *Morales* 452 (USJ, Morales 1991; Dauphin 2005). PUNTARENAS: S. loc. (Merwin et al. 2001); Coto Brus cantón, Parque Internacional La Amistad, Pittier, *Dauphin* 1404, 1420 (CR, Dauphin 2005); Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, along South Line, 16 Mar 1969, *James, W.* 1969-11 (R, Reed and Robinson 1971 as *Leptoscyphus liebmannianus*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995); Puntarenas cantón, Brillante, 25 Jul 1966, *James, W.* (R, Reed and Robinson 1971 as *Leptoscyphus liebmannianus*). SAN JOSÉ: Acosta cantón, Cangrejal, Cerro Caragres, *Dauphin* 3383 (CR, Dauphin 2005); Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, *Holz* (Holz 2003); Dota cantón, Santa María, 1,500–1,800 m, *Standley* 41758a (Grolle 1962a as *Leptoscyphus liebmannianus*).

PANAMA. S. loc. (Gradstein 1999a). CHIRIQUÍ: Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,900–2,260 m, 6 Apr 2006, *Schäfer-Verwimp & Verwimp* 30998, 31024 (JE, Schäfer-Verwimp 2014); Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,260–2,600 m, 4 Apr 2006, *Schäfer-Verwimp & Verwimp* 30877, 30884, 30923 (JE, Schäfer-Verwimp 2014); Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,450 m, *Schäfer-Verwimp & Verwimp* 34384/B (JE, Schäfer-Verwimp 2014); Barú Volcano National Park (Rodríguez-Quiel et al. 2022).

*COCOS I. Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 21 Jan 1990, *Dauphin* 967 p.p., det. G. Dauphin Mar 2021 (USJ-47180!, this publication).

Also reported from Mexico, the Caribbean, Northern North America, Western South America, Brazil.

***Lethocolea* Mitt., Hooker, Handb. N. Zeal.
fl. 2: 751, 1867 (Hooker 1867).**

Lethocolea glossophylla (Spruce) Grolle, *Bot. Mag. (Tokyo)* 78(921): 83, 1965 (Grolle 1965a).

≡*Symphymitra glossophylla* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 503, 1885 (Spruce 1885).

COSTA RICA. S. loc. (Gradstein 1999a; Gradstein et al. 2001b; Dauphin 2005; Santos 2008; Schäfer-Verwimp and Pócs 2009; Schuster 2021); Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b). SAN JOSÉ: Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,200 m, *Gradstein* 9726 (USJ, Gradstein et al. 1994); Pérez Zeledón cantón, Chirripó

National Park, Valle de Los Conejos, 3,500 m, *Dauphin* 1250 (Gradstein et al. 1994; Dauphin 2005); Pérez Zeledón cantón, Chirripó National Park, Valle de los Conejos, *Kuhbier* 627, det. Grolle 1981 (B-225776!, Dauphin 2005); Pérez Zeledón cantón, Páramo Buena Vista, *Gradstein* 9726 (Dauphin 2005).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

***Lindigianthus* Kruijt et Gradst.,
Beih. Nova Hedwigia 80: 165, 1985
(Kruijt and Gradstein 1985).**

Lindigianthus cipaconeus (Gottsche) Kruijt et Gradst., *Beih. Nova Hedwigia* 80: 166, 1985 (Kruijt and Gradstein 1985). ≡*Lejeunea cipaconeae* Gottsche, *Ann. Sci. Nat. Bot.*, sér. 5, 1: 150, 1864 (Gottsche 1864). Type: Colombia.

COSTA RICA. S. loc. (Gradstein 1985b, 1987, 1999a, 2021; Gradstein et al. 2001b; Dauphin 2005; Gradstein and Holz 2005; Schäfer-Verwimp et al. 2013); Cordillera de Talamanca (Holz et al. 2001; Engel and Gradstein 2003; Holz and Gradstein 2005b; Holz 2006). SAN JOSÉ: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, *Holz* (Holz 2003); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a); Pérez Zeledón cantón, Chirripó National Park, Fila del Cementerio de la Maquina, *Chaverri et al.* 1018 (CR, U, Kruijt and Gradstein 1985; Gradstein 1994; Morales 1991; Kappelle 1996; Dauphin 2005).

Also reported from Northern South America, Western South America.

***Lophocolea* (Dumort.) Dumort., *Recueil Observ.*
Jungerm.: 17, 1835 (Dumortier 1835).**

Lophocolea aberrans Lindenb. et Gottsche, *Syn. Hepat.* 5: 696, 1847 (Gottsche et al. 1847).

HONDURAS. S. loc. (Fulford and Sharp 1990; Gradstein 2021). COMAYAGUA: Siguatepeque municipio, El Achote, *Yunker* 6641 (DPU, Fulford 1976); Siguatepeque, 1,080–1,400 m, *Standley* 56378 (JE, Herzog 1938; Fulford 1976).

COSTA RICA. S. loc. (Fulford and Sharp 1990). ALAJUELA: Poás National Park, 10°12'N, 84°14'W, Aug 1973, *Griffin et al.* (Griffin et al. 1974); Poás National Park, 20–25 Aug 1973, *Griffin et al.* 123, det. Dauphin Jun 2017 (MO-819385!, this publication).

?PANAMA. ?CHIRIQUÍ: Tierras Altas distrito, Parque Nacional Volcán Barú, Paso Ancho, 8°48'55.13"N, 82°34'33.50"W, 2,047 m, *Guerra Batista et al.* (UCH, Guerra et al. 2020 as *Lophocolea* cf. *aberrans*). Note: We are not aware of any positively identified specimen from Panama.

Also reported from Southern Africa, Southeastern Pacific, Mexico, Western South America, Brazil.

Lophocolea bidentata (L.) Dumort., *Recueil Observ. Jungerm.*: 17, 1835 (Dumortier 1835).

≡*Jungermannia bidentata* L., *Sp. Pl.* 1: 1132, 1753 (Linnaeus 1753). Type: Europe. Note: *Lophocolea bidentata* is often treated s. lat. (including also *Lophocolea coadunata*), and some of the reports may actually be referred to the latter.

GUATEMALA. S. loc. (Freire et al. 2012). **ALTA VERAPAZ:** S. loc., Pérez 243 (Pérez 2009); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006); Volcán Pacaya, Balázs B/78/23/C, det. Dauphin Jan 2017 (EGR, CR!, **this publication**). ***CHIMALTENANGO:** Road from Patzún to Paraíso Chichoy, 350 m W of Xeatzán Bajo, 14°40'31.2"N, 91°03'26.7"W, 8 Dec 2013, *Quedensley* 12987, det. Dauphin Sep 2017 (MO, W-0089074!, **this publication**). **HUEHUETENANGO:** S. loc., Pérez 1207 (USCG, Pérez 2009). **IZABAL:** Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007). **QUETZALTENANGO:** Slope above Quetzaltenango, Sharp 1972 (TENN, Pérez 2009). **QUICHÉ:** Nebaj, Sharp 2414 (TENN, Pérez 2009). **SACATEPÉQUEZ:** S. loc., Salvin (NY, Pérez 2009). **SAN MARCOS:** NW of San Sebastián, Steyermark 35624 (F, Pérez 2009). **SOLOLÁ:** Volcán Santa Clara, Steyermark 46897 p.p. (F, Pérez 2009). **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007).

***HONDURAS.** ***ATLÁNTIDA:** El Porvenir municipio, Pico Bonito National Park, along stream entering Río Bonito, 15°40'N, 86°51'W, 19 Apr 1996, Allen 17347, det. Whittemore 1996 (MO-4428683!, **this publication**). ***LEMPIRA:** Gracias municipio, Filo Seco, 13 km SW of Gracias, 14°32'N, 88°41'W, 14 May 1992, Allen 12139, det. Dauphin Jun 2017 (MO-3994175!, **this publication**); Gracias municipio, Montaña de Celaque, Río Naranjo, ~9 km SW of Gracias, 14°33'N, 88°40'W, 14 Nov 1991, Allen 11397, det. Dauphin Jun 2017 (MO-3967045!, **this publication**).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b). ***ALAJUELA:** San Ramón cantón, Monteverde Cloud Forest Reserve, Refugio El Alemán, 10°18'N, 84°46–47'W, 2 Apr 1992, Lyon 593, det. Dauphin Jun 2017 (MO-4423823!, **this publication**); San Ramón cantón, Monteverde Cloud Forest Reserve, Refugio El Alemán, 10°18'N, 84°46–47'W, 2 Apr 1992, Lyon 621, det. Dauphin Jun 2017 (MO-4423824!, **this publication**). ***CARTAGO:** La Unión cantón, Cerro de La Carpintera, Little 5562 (hb. Little, Morales 1991); Oreamuno cantón, Irazú Volcano, Little 5539, 5541, 5547 (FULF, Morales 1991); Prusia, 22 Aug 1993, Arias 1, det. Dauphin and Morales Oct 2016 (USJ!, **this publication**). ***PUNTARENAS:** Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, 5 Aug 1993, Timme 11426, det. Dauphin Jun 2017 (MO-6690115!, **this publication**); Monteverde, 18 Nov 1970, James 1970-33, det. Dauphin Jun 2017 (MO-6163148!, **this publication**). **SAN JOSÉ:** Aserrí cantón, Entre San José y Desamparados, Aserrí, Little 5515 p.p. (FULF, Morales 1991); Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W),

2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, El Empalme, Little 5610a (FULF, Morales 1991; Kappelle 1996); Dota cantón, San Gerardo (Dauphin 2005).

PANAMA. S. loc. (Gradstein 1999a). **CHIRIQUÍ:** Gualaca distrito, Quebrada Honda in Fortuna Forest Reserve (8°45'40"N, 82°14'22"W), 1,150 m, 15 Jul 2021, Rodríguez et al. 1102 (UCH, Ellis et al. 2022a); Tierras Altas distrito, Cerro Punta, Stern & Chambers 92 p.p. (YU, Stotler et al. 1998); Barú Volcano National Park (Rodríguez-Quiel et al. 2022). **COLÓN:** Colón distrito, Quebrada Ancha, Steyermark & Allen (MO, Stotler et al. 1998); Colón distrito, Quebrada Bonita, Steyermark & Allen 17189, 17190 (MO, Stotler et al. 1998); Colón distrito, Quebrada Bonita, 27 Dec 1934, Steyermark 17190, 17202, det. Dauphin Jun 2017 (MO-5280982!, **this publication**). **PANAMA WEST:** Capira distrito, Altos de Campana National Park, Sendero de Interpretación, Salazar Allen et al. 6773 (PMA, Stotler et al. 1998). **PANAMA:** Panamá distrito, Quebrada Culebra, Steyermark 17218 p.p. (MO, Stotler et al. 1998).

COCOS I. Mirador a Bahía Wafer, 5°32'57"N, 87°03'56"W, 200 m, 13 Jun 1994, Dauphin 1210 (CR, USJ, MO, Dauphin 1995, 1999, both as *Lophocolea* cf. *bidentata*, 2005).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa, Macaronesia, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Middle Atlantic Ocean, Western Indian Ocean, Siberia, Russian Far East, Caucasus, Western Asia, Arabian Peninsula, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasias, Australia, New Zealand, Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands.

Lophocolea coadunata (Sw.) Mont., *Voy. Amér. Mérid., Bot.* 7(2): 76, 1839 (Montagne 1839b).

≡*Jungermannia coadunata* Sw., *Fl. Ind. Occid.* 3: 1850, 1806 (Swartz 1806). Type: Jamaica.

GUATEMALA. **ALTA VERAPAZ:** Cobán, Standley 70467 (F, Fulford 1976; Freire 2006). **BAJA VERAPAZ:** Jicaro, Sharp 2689 (TENN, Fulford 1976; Freire 2006). **IZABAL:** Along Río Frío, Steyermark 41553 (F, Fulford 1976; Freire 2006). **QUETZALTENANGO:** En colina arriba de Quetzaltenango, Sharp 2024b (TENN, Freire 2006); Mujaliá, between San Martín and Colombia, 1,800 m, 2 Jan 1941, Standley 85696 (F, Fulford 1976; Freire 2006); Palestina de Iso Altod municipio, mountains SE of Palestina, Standley 84217 (F, Fulford 1976; Freire 2006); Quetzaltenango municipio, Volcán Santa María, Standley 34076, 34089, 83407A, 83435 (F, Fulford 1976; Freire 2006); Quetzaltenango municipio, Volcán Santa María, Steyermark 34076, 34089 (F, Freire 2006); San Carlos Sija municipio, Cerro de Sija, Sharp 5044 (TENN, Fulford 1976; Freire 2006); slope above Quetzaltenango, Sharp 1972, 1999a, 1999b, 2008, 2024b

(TENN, Fulford 1976); Zunil municipio, Volcán Zunil, *Standley* 34600, 85849 p.p. (F, Fulford 1976; Freire 2006). QUICHÉ: Between Chajul and Cotzal, *Sharp* 5293 p.p. (TENN, Fulford 1976; Freire 2006); between Nebaj and Río Tzichel, *Sharp* 5314 (TENN, Fulford 1976; Freire 2006); Nebaj, *Sharp* 2414, 5325a, 5325b (TENN, Fulford 1976; Freire 2006). SAN MARCOS: NW of San Sebastián, *Steyermark* 35624 (F, Fulford 1976; Freire 2006). SOLOLÁ: Volcán Santa Clara, *Steyermark* 46897 p.p. (F, Fulford 1976; Freire 2006).

HONDURAS. ATLÁNTIDA: Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 55669 (JE, Fulford 1976). COMAYAGUA: Siguatepeque, *Standley* 6823 p.p. (JE, Fulford 1976); Siguatepeque, *Yuncker* 6527 p.p. (JE, Fulford 1976).

EL SALVADOR. AHUACHAPÁN: Near Ahuachapán, *Standley* 4588 (F, Fulford 1976).

COSTA RICA. CARTAGO: La Unión cantón, Cerro de La Carpintera, *Little* 5562 (hb. Little, Fulford 1976; Dauphin 2005); Oreamuno cantón, Irazú Volcano, *Little* 5539, 5541, 5547 (FULF, Fulford 1976; Dauphin 2005). PUNTARENAS: Buenos Aires cantón, Cerro Frantzus, *Quesada* 1177 (CR, Dauphin 2005); Coto Brus cantón, Fila Cruces, *Dauphin* 1800 (CR, Dauphin 2005); Coto Brus cantón, Parque Internacional La Amistad, Pittier, *Dauphin* 1344, 1351 (CR, Dauphin 2005). SAN JOSÉ: Aserrí cantón, Entre San José y Desamparados, Aserrí, *Little* 5515 p.p. (FULF, Fulford 1976; Dauphin 2005); Dota cantón, El Empalme, *Little* 5610a (FULF, Fulford 1976; Dauphin 2005).

PANAMA. CHIRIQUÍ: Tierras Altas distrito, Cerro Punta, *Stern & Chambers* 92 p.p. (YU, Fulford 1976). COLÓN: Colón distrito, Quebrada Bonita, *Steyermark & Allen* 17189 p.p., 17190 (MO, Fulford 1976).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa, Macaronesia, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Middle Atlantic Ocean, Western Indian Ocean, Siberia, Russian Far East, Caucasus, Western Asia, China, Eastern Asia, Indian Subcontinent, Malesia, Australia, New Zealand(?), Northeastern Pacific?, Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands.

Lophocolea fragmentissima R.M.Schust., *Phytologia* 39(4): 245, 1978 (Schuster 1978a). Type: Venezuela.

≡ *Campanocolea fragmentissima* (R.M.Schust.) R.M.Schust., *J. Hattori Bot. Lab.* 82: 253, 1997 (Schuster 1997).

COSTA RICA. S. loc. (León et al. 1998 as *Campanocolea fragmentissima*; Schäfer-Verwimp and Pócs 2009 as *Campanocolea fragmentissima*; Gradstein and Uribe 2016; Gradstein 2021; Gradstein and Pócs 2021; Schuster 2021 as *Campanocolea fragmentissima*); Cordillera de Talamanca (Engel and Gradstein 2003 as *Campanocolea fragmentissima*). SAN JOSÉ: Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 2,600–3,000 m (Gradstein et al. 2001b as *Campanocolea*

fragmentissima); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,200 m, *Gradstein* 9743 (U, USJ, *Gradstein et al.* 1994; Dauphin 2005 as *Campanocolea fragmentissima*).

PANAMA. S. loc. (Schäfer-Verwimp and Pócs 2009 as *Campanocolea fragmentissima*). NASO TJÉR DI COMARCA: Cerro Fábrega, Guerrero 146 (PMA, Dauphin 2007 as *Campanocolea fragmentissima*).

Also reported from the Caribbean, Northern South America, Western South America.

Lophocolea fragrans (Moris et De Not.) Gottsche, Lindenb. et Nees subsp. *cocosana* G.Dauphin, *Gradst. et M.I.Morales, Nova Hedwigia* 106(1/2): 28, 2018 (Dauphin et al. 2018). Holotype: Costa Rica, Puntarenas, Isla de Cocos, mirador a Bahía Wafer, 200 m, 1994, sobre tronco de *Sacoglottis holdridgei* Cuatr., 13 Jun 1994, *Dauphin* 1210 (CR, isotype USJ). Paratype, Costa Rica, Puntarenas, Isla de Cocos, entre Bahía Chatham y Wafer, alrededores de la torre de telecomunicaciones del ICE, 5°32'49"N, 87°32'58"W, 240 m, Jun 2016, *Sánchez* 2690, 2708 (CR-4468303).

COCOS I. Entre Bahía Chatham y Wafer, alrededores de la torre de telecomunicaciones del ICE, 5°32'49"N, 87°32'58"W, 240 m, 1 Jan 2016, *Sanchez* 2690, 2708 (CR, Dauphin et al. 2018); Mirador a Bahía Wafer, 5°32'57"N, 87°03'56"W, 200 m, 13 Jun 1994, *Dauphin* 1210 (CR, USJ, MO, Dauphin et al. 2018; Söderström et al. 2020).

Not found outside Central America.

Lophocolea liebmanni Gottsche, *Mexik. Leverm.*: 113, 1863 (Gottsche 1863). Type: Mexico.

= *Lophocolea liebmanni* Gottsche var. *bisbifida* Herzog ex Standl., *Field Mus. Nat. Hist., Bot. Ser.* 10: 62, 1931 (Standley 1931), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Fulford (1976). Original material (Fulford 1976: 427): Honduras, Lancetilla Valley, near Tela, on log, 20–600 m, 6 Dec 1927–20 Mar 1928, *Standley* 54836, det Herzog Mar 1929 (JE-04010827 but no *Lophocolea liebmanni* is in the packet, which was also noted by M. Fulford although she synonymized it with that species. Her synonymization must thus be questioned).

HONDURAS. S. loc. (Fulford 1987; Fulford and Sharp 1990). ATLÁNTIDA: El Porvenir municipio, Pico Bonito National Park, along stream entering Río Bonito, 15°40'N, 86°51'W, 25 Apr 1996, *Allen* 17608 p.p., det. Dauphin Jun 2017 (MO-6699931!, this publication); Tela municipio, Lancetilla Valley (Geissler and Bischler 1985 as *Lophocolea liebmanni* var. *bisbifida*); Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 54836b (Fulford 1936; Herzog 1938); Tela municipio, Lancetilla Valley, *Standley* (Standley 1931 also as *Lophocolea liebmanni* var. *bisbifida*).

COSTA RICA. PUNTARENAS: Osa cantón, Rincón, trail to Cerro Chocuaco, 250 m, *Gradstein & Dauphin* 9330 (U, USJ, *Gradstein et al.* 1994; Dauphin 2005); Osa cantón, Rincón, trail to Cerro Chocuaco, 250 m, *Gradstein & Dauphin* 9338 (Dauphin 2005).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, NE of camping site, 900–1,200 m (Salazar Allen et al.

2021); Gualaca distrito, Hornito, Fortuna, 1,000 m, *Salazar Allen et al.* 582 p.p. (PMA, Stotler et al. 1998). PANAMA WEST: La Chorrera distrito, Barro Colorado Island, *Gradstein & Salazar Allen* 15134 (Dauphin et al. 2022).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Lophocolea muricata (Lehm.) Nees, *Syn. Hepat.* 2: 169, 1845 (Gottsche et al. 1845b).

≡ *Jungermannia muricata* Lehm., *Linnaea* 4(3): 363, 1829 (Lehmann 1829).

Type: South Africa.

≡ *Chiloscyphus muricatus* (Lehm.) J.J.Engel et R.M.Schust., *Nova Hedwigia* 39: 419, 1985 (Engel and Schuster 1984).

GUATEMALA. S. loc. (Mahú 1981). **ALTA VERAPAZ:** Tukurú municipio, Chelehmá, 15°22'32"N, 90°05'05"W, 2,300–2,500 m, Pérez 360 (USCG, Pérez 2009); Tukurú municipio, Reserva Privada Chelehmá (Pérez 2006). **BAJA VERAPAZ:** Puhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). **EL PROGRESO:** San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007). **QUETZALTENANGO:** S. loc., Standley 84963 (F, Pérez 2009); San Martín, Standley 84965 (F, Fulford 1976; Freire 2006). **QUICHÉ:** S. loc., Pérez 2325 (USCG, Pérez 2009). **SAN MARCOS:** S. loc., Sharp 5496c (TENN, Fulford 1976; Freire 2006; Pérez 2009). **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007).

HONDURAS. S. loc. (Schuster 1980d, 2021 as *Chiloscyphus muricatus*; Miller et al. 1983; Enroth 1991). Note: We are not aware of any firsthand report from Honduras.

***EL SALVADOR. *SONSONATE:** Izalco municipio, near top of Cerro Verde, ~2,030 m, 30 Jul 1977, Croat 42225 p.p., det. Dauphin 2017 (MO-6699908! <http://tropicos.org/specimen/100988669>, this publication).

COSTA RICA. Cordillera de Talamanca (Holz and Gradstein 2005b; Holz 2006). **PUNTARENAS:** S. loc. (Merwin et al. 2001); Coto Brus cantón, Las Cruces, Jardín Botánico Wilson, Dauphin 2032 (CR, Dauphin 2005); Coto Brus cantón, Parque Internacional La Amistad, Pittier, Dauphin 1348 (CR, Dauphin 2005); Monteverde (Morales 1991); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde, 10–17 Mar 1965, James, W. & James, M. 50b (R, Reed and Robinson 1971; Dauphin 2005). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, Holz (Holz 2003); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a).

PANAMA. S. loc. (Mitten 1854b; Schiffner 1898a; Jovet-Ast 1960; Miller et al. 1983; Stotler et al. 1998). **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021); Gualaca distrito,

Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,630 m, Schäfer-Verwimp & Verwimp 34409/A, 34417/B (JE, Schäfer-Verwimp 2014 as *Chiloscyphus muricatus*); Volcán Barú, 7,500 ft (2,286 m), Salazar Allen et al. 8422 (PMA, Stotler et al. 1998); Barú Volcano National Park (Rodríguez-Quiel et al. 2022). **COCLÉ:** Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 700–1,000 m, 31 Mar 2006, Schäfer-Verwimp & Verwimp 30773 p.p. (JE, Schäfer-Verwimp 2014 as *Chiloscyphus muricatus*).

Also reported from Northern Europe, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuaia, Australia, New Zealand, Southwestern Pacific, Southeastern Pacific, Northeastern Pacific, Subarctic America?, Southwestern USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Lophocolea tenerrima Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 439, 1885 (Spruce 1885). Type: Ecuador.

≡ *Lophocolea erosa* Gradst., *Mem. New York Bot. Gard.* 84: 67, 1999 (Gradstein 1999a), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. in. Dauphin et al. (2018) [non *L. erosa* (J.J.Engel) L.Söderstr. (Söderström et al. 2013b)].

COSTA RICA. S. loc. (Gradstein 1999a as *Lophocolea erosa*, 2021; Gradstein and Pócs 2021). **CARTAGO:** Paraíso cantón, Orosi, base del Cerro Asunción, 9°34'54.22"N, 83°45'50.42"W, 3,350 m, 30 Sep 2016, Dauphin et al. 4605 (CR, USJ, PC, Dauphin et al. 2018). **SAN JOSÉ:** Pérez Zeledón cantón, Cerro de La Muerte, along the Pan-American Highway, 3,200 m, 29 Sep 1994, Gradstein 9744 (U, USJ, Dauphin et al. 2018).

Also reported from Northern South America, Western South America.

Lophocolea tricuspidata Herzog, *Rev. Bryol. Lichénol.* 11(1): 17, 1939 (Herzog 1938). Lectotype (Söderström and Hentschel 2023: 13): Costa Rica, Cerro de Las Vueltas, 2,700–3,000 m, Standley 43723/C (JE-04001777 <https://je.jacq.org/JE04001777>).

≡ *Chiloscyphus tricuspidatus* (Herzog) J.J.Engel et R.M.Schust., *Nova Hedwigia* 39: 424, 1985 (Engel and Schuster 1984).

COSTA RICA. S. loc. (Fulford 1976; Engel and Schuster 1984 as *Chiloscyphus tricuspidatus*). **SAN JOSÉ:** Dota cantón, Cerro de Las Vueltas, Standley 43723 (US, Morales 1991; Kappelle 1996); Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, Standley 43723c, det. Grolle (JE-04001777 <https://je.jacq.org/JE04001777>, TYPE, Geissler and Bischler 1985; Dauphin 2005 as *Chiloscyphus tricuspidatus*).

Not found outside Central America.

Lopholejeunea (Spruce) Steph., Bot. Gaz. 15(11): 285, 1890 (Stephani 1890d).

Lopholejeunea eulopha (Taylor) Schiffn., *Hepat. (Engl.-Prantl):* 129, 1893 (Schiffner 1893a).

≡*Lejeunea eulopha* Taylor, *London J. Bot.* 5: 391, 1846 (Taylor 1846a). Type: Pacific Islands.

=*Lopholejeunea cocosensis* L. Clark, *Proc. Calif. Acad. Sci.*, ser. 4, 27(18): 605, 1953 (Clark 1953a), syn. fide Gradstein et al. (1994). Holotype: Costa Rica, Cocos I., Wafer Bay, *Howell 231* (CAS-372427, isotypes MO-2146986, UBC-B211388, WTU).

COSTA RICA. LIMÓN: Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking 91-141* (hb. Lücking, Lücking 1995); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (Lücking 1997).

COCOS I. S. loc. (Fosberg and Klawe 1966 as *Lopholejeunea cocosensis*; Gradstein 1994; Gradstein et al. 1994; Dauphin 1995; Lücking 1995); Cascada Yglesias, 10 m, 15 Feb 1994, *Dauphin 1139* (USJ, Dauphin 1995, 1999, 2005); Cascada Yglesias, 5°32'57"N, 87°03'56"W, 10 m, *Dauphin 1136*, det. G. Dauphin Mar 2021 (USJ-47450!, CR-4468322!, this publication); Cascada Yglesias, 5°32'57"N, 87°03'56"W, 10 m, *Dauphin 1139*, det. G. Dauphin Mar 2021 (USJ-471644!, CR-4468307!, W!, this publication); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 21 Jan 1990, *Dauphin 978*, det. G. Dauphin Apr 2021 (USJ-47536!, CR-4468412!, W!, this publication); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 15 Feb 1994, *Dauphin 978* (Dauphin 1995, 1999, 2005); Wafer Bay, 28 Jun 1932, *Howell 229 p.p.* (CAS, Clark 1953a as *Lopholejeunea cocosensis*); Wafer Bay, 28 Jun 1932, *Howell 231* (CAS-372427, MO, UBC, WTU, TYPE of *Lopholejeunea cocosensis*, Clark 1953a as *Lopholejeunea cocosensis*; Geissler and Bischler 1985 as *Lopholejeunea cocosensis*; Dauphin 2005; Zhu and Gradstein 2005); Wafer Bay, 28 Jun 1932, *Walton Clark 221 p.p.* (CAS, Clark 1953a as *Lopholejeunea cocosensis*).

Also reported from West-Central Tropical Africa, East Tropical Africa, Western Indian Ocean, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasias, Australia, New Zealand, Southwestern Pacific, Southeastern Pacific, Northwestern Pacific, the Caribbean, Northern South America, Western South America, Brazil.

Lopholejeunea nigricans (Lindenb.) Schiffn., *Consp. Hepat. Arch. Ind.*: 293, 1898 (Schiffner 1898a).

≡*Lejeunea nigricans* Lindenb., *Syn. Hepat.* 3: 316, 1845 (Gottsche et al. 1845a). Type: Java.

=*Lejeunea muelleriana* Gottsche, *Mexik. Leverm.* 184, 1863 (Gottsche 1863), syn. fide Gradstein (1994). Type: Mexico.

≡*Lopholejeunea muelleriana* (Gottsche) Schiffn., *Bot. Jahrb. Syst.* 23(5): 599, 1897 (Schiffner 1897).

COSTA RICA. S. loc. (Bastos 2004). *CARTAGO: Oreamuno cantón, Irazú Volcán National Park, *Dauphin et al.* 3550 (CR!, this publication). LIMÓN: Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, *Lücking 92-229* (USJ, Gradstein et al. 1994; Lücking 1995; Dauphin 2005); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking 92-129, 92-130, 92-195, 92-360, 92-519, 92-568, 92-584* (hb. Lücking, Lücking 1995); Pococí

cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (Lücking 1997); Pococí cantón, Tortuguero, N side of Tortuguero National Park, S of town of Tortuguero, 10°30'N, 83°30'W, 17 Jan 1984, *Edelstein 49*, det. Dauphin May 2017 (MO-5263905!, this publication). PUNTARENAS: Buenos Aires cantón, Valle del Silencia, *Dauphin 1329* (GOET, Zhu and Gradstein 2005); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009); Osa cantón, Rincón, Boscota trail to Cerro Chocuaco, 250 m, *Gradstein & Dauphin 9331* (U, USJ, Gradstein et al. 1994; Dauphin 2005). *SAN JOSÉ: Moravia cantón, La Palma, *Maxon & Harvey*, det. Dauphin Jun 2017 (MO-6168118!, this publication).

PANAMA. S. loc. (Lücking 1995; Bastos 2004). CHIRIQUÍ: S. loc. (Schäfer-Verwimp 2014); Boquete distrito, Finca La Fortuna, 1,500–1,600 m, *Salazar Allen 773* (PMA, Stotler et al. 1998); Gualaca distrito, Fortuna Forest Reserve (Salazar Allen et al. 2021). COCLÉ: La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Río Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López 665, 671, 672, 681, 682* (PMA, Sierra et al. 2019a). DARIÉN: S. loc. (Schäfer-Verwimp 2014); Cerro Pirre (Stotler et al. 1998); Cerro Pirre, 1,000 m, *Salazar Allen & Gradstein 9407, 9421, 9454 p.p.* (PMA, Gradstein 1994; Stotler et al. 1998); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992 as *Lopholejeunea muelleriana*). PANAMA WEST: Capira distrito, Altos de Campana National Park, Sendero de Interpretación, *Salazar Allen & Gradstein 9454* (PMA, U, Gradstein 1994; Stotler et al. 1998); Capira distrito, Parque Nacional Altos de Campana, *Salazar Allen et al.* 9421 (U, Zhu and Gradstein 2005). PANAMA: S. loc. (Schäfer-Verwimp 2014); Panamá distrito, Cerro Jefe, *Salazar Allen & Gradstein 9407* (PMA, U, Stotler et al. 1998). VERAGUAS: Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, *Schäfer-Verwimp & Verwimp 30836* (JE, Schäfer-Verwimp 2014).

COCOS I. S. loc. (Dauphin 1995, 1999); Chatham Bay, 28 Jun 1932, *Howell 225 p.p.* (CAS, Clark 1953a as *Lopholejeunea muelleriana*); Wafer Bay, 28 Jun 1932, *Howell 226 p.p.*, 241 (CAS, Clark 1953a as *Lopholejeunea muelleriana*; Gradstein 1994).

Also reported from West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, Arabian Peninsula, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasias, Australia, New Zealand, Southwestern Pacific, Southeastern Pacific, Northwestern Pacific, Northeastern Pacific, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Lopholejeunea subfusca (Nees) Schiffn., *Bot. Jahrb. Syst.* 23(5): 593, 1897 (Schiffner 1897) var *subfusca*.

≡*Jungermannia subfusca* Nees, *Enum. Pl. Crypt. Javae*: 36, 1830 (Nees 1830). Type: Java.

=*Phragmicoma sagrana* Mont., *Hist. Phys. Cuba, Bot., Pl. Cell.*: 464, 1842 (Montagne 1842b), syn. fide Verdoorn (1934a). Type: Cuba.

=*Lopholejeunea sagrana* (Mont.) Steph., *Hedwigia* 30(5): 202, 1891 (Stephani 1891a).

GUATEMALA. ALTA VERAPAZ: Cobán, Las Victorias National Park, 1,100–1,300 m, 2002 (Andersohn 2004). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as *Lopholejeunea* cf. *subfusca*) Note: We are not aware of any positively identified specimen from Baja Verapaz.

BELIZE. S. loc. (Fulford 1938 as *Lopholejeunea sagrana*; Frye and Clark 1947 as *Lopholejeunea 'sagraeana'*; Mizutani 1961; Kamimura 1974; Whittemore and Allen 1996; Bapna and Kachroo 2000b).

HONDURAS. S. loc. (Miller et al. 1983 as *Lopholejeunea sagrana*; Bastos 2004). **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, 20–600 m, Standley 55347, 55349, 55353, 55515, 55559 (US, Herzog 1951 as *Lopholejeunea 'Sagraeana'*; Gradstein 1994); Tela municipio, Lancetilla Valley, Standley (Standley 1931 as *Lopholejeunea sagrana*).

COSTA RICA. S. loc. (Schäfer-Verwimp and Pócs 2009). **PUNTARENAS:** S. loc. (Merwin et al. 2001); Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, Gradstein et al. (U, Sillett et al. 1995); Monteverde, Sillett 8-3, 8-4, 8-6, 8-7, 42585, 42587, 42588 (U, Gradstein et al. 1994); Osa cantón, Osa Peninsula, Rincón, Centro Boscosa, 150 m, Oct 1993, Gradstein (Gradstein 1999b); Osa cantón, Rincón, Boscosa trail to Cerro Chocuaco, 250 m, Gradstein & Dauphin 9331 (U, USJ, Gradstein et al. 1994; Dauphin 2005); Osa cantón, Rincón, Puerto Escondido, 10 m, Gradstein & Dauphin 9374 (U, USJ, Gradstein et al. 1994; Dauphin 2005).

PANAMA. S. loc., Steyermark & Allen 16946 (MO, Stotler et al. 1998); Canal Zone (Schäfer-Verwimp 2014). **BOCAS DEL TORO:** Bocas del Toro distrito, Salt Creek (9°17'39.7"N, 82°06'11.2"W) on Isla Bastimento, Aug 2017 (Salazar Allen et al. 2022). **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (Salazar Allen et al. 2021); Barú Volcano National Park (Rodríguez-Quiel et al. 2022). **COCLÉ:** Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, Schäfer-Verwimp & Verwimp 34176/A (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, Golden Frog Inn and near surroundings, 8°36.6'N, 80°06.6'W, 640–650 m, 7 Apr 2006, Schäfer-Verwimp & Verwimp 31055, 31061 (JE, Schäfer-Verwimp 2014). **DARIÉN:** S. loc. (Schäfer-Verwimp 2014); Cerro Pirre (Stotler et al. 1998); Cerro Pirre, along trail to Rancho Mojado, 400–500 m, 4–8 Jun 1991, Gradstein & Salazar Allen (PMA, U, Gradstein and Salazar Allen 1992); Cerro Pirre, El Real from Pirre 1 to Pirre 2, Salazar Allen & Gradstein 9207 (PMA, Stotler et al. 1998); Cerro Pirre, Trail El Real–Pirre, along Río Pirre, ~50 m, 4–8 Jun 1991, Gradstein & Salazar Allen (PMA, U, Gradstein and Salazar Allen 1992). **PANAMA WEST:** Capira distrito, Altos de Campana

National Park, Sendero de Interpretación, Salazar Allen & Gradstein 9454 (PMA, U, Zhu and Gradstein 2005); La Chorrera distrito, Barro Colorado Island (Stotler et al. 1998); La Chorrera distrito, Barro Colorado Island, Shattuck (Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Zatek & Shattuck (Haynes 1933 as *Lopholejeunea 'Sagraeana'*).

COCOS I. Boca Río Genio, 5°32'57"N, 87°03'56"W, 0–5 m, Dauphin 948, det. G. Dauphin Mar 2021 (USJ-47207!, CR-4468308!, W!, this publication); Río Genio, 5°32'57"N, 87°03'56"W, 0–10 m, Dauphin 926, det. G. Dauphin Mar 2021 (USJ-47185!, CR-4468306!, W!, this publication); Río Genio, 5°32'57"N, 87°03'56"W, 130 m, Dauphin, det. G. Dauphin Mar 2021 (USJ-47193!, CR-4468310!, this publication); Río Genio, 5°32'57"N, 87°03'56"W, 10–20 m, 15 Feb 1994, Dauphin (USJ, Dauphin 1995, 1999, 2005).

Also reported from West Tropical Africa, West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasias, Australia, Southwestern Pacific, Southeastern Pacific, Northwestern Pacific, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

***Lophonardia* R.M.Schust., *Phytologia* 39(4): 244, 1978 (Schuster 1978a).**

Lophonardia jamesonii (Mont.) L.Söderstr. et Váňa, *Phytotaxa* 81(1): 19, 2013 (Söderström et al. 2013c).

=*Jungermannia jamesonii* Mont., *Syll. Gen. Sp. Crypt.*: 60, 1856 (Montagne 1856b). Type: Ecuador.

=*Andrewsianthus jamesonii* (Mont.) Váňa, *Acta Bot. Hung.* 29(1/4): 147, 1983 (Gradstein et al. 1983).

=*Lophozia jamesonii* (Mont.) R.M.Schust., *Beih. Nova Hedwigia* 119: 279, 202 (Schuster 2002).

=*Lophozia kilimanjarica* S.W.Arnell, *Ark. Bot.*, ser. 2, 3(16): 539, 1956 (Arnell 1956c), syn. fide Gradstein et al. (1983). Type: Tanzania.

=*Andrewsianthus kilimanjaricus* (S.W.Arnell) Grolle et Váňa, *J. Hattori Bot. Lab.* 48: 228, 1980 (Váňa 1980).

COSTA RICA. S. loc. (Váňa and Watling 2004c as *Lophozia jamesonii*; Gradstein and Holz 2005 as *Andrewsianthus jamesonii*; Gradstein 2021); Cordillera de Talamanca (Holz 2003 as *Andrewsianthus jamesonii*; Holz and Gradstein 2005b as *Andrewsianthus jamesonii*). **ALAJUELA:** Poás Volcano, 2,520 m, 31 Jul 1977, Griffin & Araya 58, 61, 64, det. Váňa (USJ, FLAS, PRC, Váňa 1980 as *Andrewsianthus kilimanjaricus*; Morales and Griffin 1983 as *Andrewsianthus kilimanjaricus*; Morales 1991 as *Andrewsianthus jamesonii*; Dauphin 2005 as *Andrewsianthus jamesonii*).

PANAMA. S. loc. (Schuster 2002 as *Lophozia* cf. *jamesonii*; Váňa and Watling 2004c as *Lophozia jamesonii*). **CHIRIQUÍ:** Boquete distrito, on top of Volcán Barú, 1,800–3,400 m, Allen 9077, det. Whittemore 1990 (MO-3678098!, Stotler et al. 1998 as *Andrewsianthus jamesonii*).

Also reported from West-Central Tropical Africa, East Tropical Africa, Mexico, Northern South America, Western South America.

Lophonardia laxifolia (Mont.) L.Söderstr. et Vána, *Phytotaxa* 81(1): 20, 2013 (Söderström et al. 2013c).

≡*Sarcocyphos laxifolius* Mont., *Ann. Sci. Nat. Bot.*, sér. 3, 4: 346, 1845 (Montagne 1845). Type: Chile.

≡*Lophozia laxifolia* (Mont.) Grolle, *J. Jap. Bot.* 39(6): 173, 1964 (Grolle 1964c).

?GUATEMALA. S. loc. (Ellis et al. 2014b). Note: We are not aware of any firsthand report from Guatemala.

COSTA RICA. S. loc. (León et al. 1998 as *Lophozia laxifolia*; Gradstein 1999a as *Lophozia laxifolia*; Gradstein and Holz 2005 as *Lophozia laxifolia*; Ellis et al. 2014b); Cordillera de Talamanca (Holz 2003 as *Lophozia laxifolia*; Holz and Gradstein 2005b as *Lophozia laxifolia*). CARTAGO: Talamanca cantón, Chirripó National Park, Lago Dikevi, 3,600 m, *Dauphin & Valerio* 1250 (Gradstein et al. 1994 as *Lophozia laxifolia*; Dauphin 2005 as *Lophozia laxifolia*). SAN JOSÉ: Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 2,950 m, *Gradstein* 9678, 9731 (U, USJ, Gradstein et al. 1994 as *Lophozia laxifolia*; Dauphin 2005 as *Lophozia laxifolia*).

Also reported from Southern Africa, Mexico, Northern South America, Western South America, Southern South America, Subantarctic Islands.

***Lophozia* (Dumort.) Dumort., *Recueil Observ. Jungerm.*: 17, 1835 (Dumortier 1835).**

Lophozia guttulata (Lindb. et Arnell) A.Evans, *Proc. Wash. Acad. Sci.* 2: 302, 1900 (Evans 1900b).

≡*Jungermannia guttulata* Lindb. et Arnell, *Kongl. Svenska Vetensk.-Akad. Handl.*, n.s., 23(5): 51, 1889 (Lindberg and Arnell 1889). Type: Siberia.

=*Lophozia longiflora* auct., non Nees, *Naturgesch. Eur. Leberm.* 2: 95, 1836 (Nees 1836).

GUATEMALA. S. loc. (Gradstein and Vána 1994 as *Lophozia longiflora*; Paton 1999 as *Lophozia longiflora*; Gradstein et al. 2001b as *Lophozia longiflora*; Schäfer-Verwimp and Pócs 2009 as *Lophozia longiflora*). HUEHUETENANGO: San Mateo Ixtatán municipio, above San Mateo, 9,700 ft, 3 Jan 1946, *Sharp* 4949 (TENN, Gradstein and Vána 1987 as *Lophozia longiflora*). QUETZALTENANGO: San Carlos Sija municipio, Getenagre near Sija, 9,500 ft (2,896 m), 1 Jan 1945, *Sharp* 1133 (TENN, Gradstein and Vána 1987 as *Lophozia longiflora*).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, Macaronesia, Siberia, Russian Far East, Middle Asia, Caucasus, Western Asia, China, Eastern Asia, Malesia, Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, South-Central USA, Southeastern USA, Mexico, the Caribbean, Subantarctic Islands, Antarctic Continent.

***Lunularia* Adans., *Fam. Pl. (Adanson)* 2: 15, 1765 (Adanson 1763).**

Lunularia cruciata (L.) Dumort. ex Lindb., *Not. Sällsk. Fauna Fl. Fenn. Förh.* 9: 298, 1868 (Lindberg 1866).

≡*Marchantia cruciata* L., *Sp. Pl.* 1: 1137, 1753 (Linnaeus 1753). Type: Europe.

*GUATEMALA. *SACATEPÉQUEZ: San Lucas Sacatepéquez municipio, Caserío El Manzanillo, carretera hacia el Caserío Chicamen y ruta al municipio de Mixco, 14°37'46.9"N 90°38'07.7"W, 2,000 m, 1 Jan 2021, Pérez & García 6384, det. Pérez 2021 (USCG-48201!, this publication).

COSTA RICA. S. loc. (Bischler-Causse et al. 2005). PUNTARENAS: S. loc., 1,095 m, *Dauphin* 1815, 1817 (CR, Dauphin 2005); Coto Brus cantón, Finca Las Cruces, San Vito de Java, Jardín Botánico Wilson, *Morales* 751 p.p. (Morales 1991; Dauphin 2005).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa, Macaronesia, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Middle Atlantic Ocean, Western Indian Ocean, Middle Asia, Caucasus, Western Asia, Arabian Peninsula, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Australia, New Zealand, Northeastern Pacific, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, South-Central USA, Southeastern USA, Mexico, the Caribbean, Western South America, Brazil, Southern South America, Subantarctic Islands.

***Luteolejeunea* Piippo, *Acta Bot. Fenn.* 132: 56, 1986 (Piippo 1986).**

Luteolejeunea herzogii (Buchloh) Piippo, *Acta Bot. Fenn.* 132: 57, 1986 (Piippo 1986).

≡*Stictolejeunea herzogii* Buchloh, *Nova Hedwigia* 3(4): 515, 1961 (Buchloh 1961). Type: Peru.

≡*Lepidolejeunea herzogii* (Buchloh) Grolle et Gradst., *Beih. Nova Hedwigia* 80: 217, 1985 (Gradstein 1985a).

COSTA RICA. S. loc. (Gradstein et al. 2001b); S. loc., *Schäfer-Verwimp & Holz* SV/H-0294/B (GOET, JE, Wilson et al. 2007; Heinrichs et al. 2012c, 2014a, 2014b, 2014c; Czumay et al. 2013; Dong et al. 2013; Ye et al. 2013; Schäfer-Verwimp et al. 2014; Bechteler et al. 2016a, 2016c; Scheben et al. 2016; Zhu et al. 2017, 2018a, 2018b, 2019; Sierra et al. 2018b, Ye and Zhu 2018; Zhu and Shu 2018; Ye and Wei 2021; Shu et al. 2022). ALAJUELA: Upala cantón, Rincón de La Vieja National Park, Sector Santa María, "Los Naranjos" near Provision rivulet, 10°46'20"N, 85°17'15"W, 920 m, *Dauphin* 2393 (CR, Dauphin et al. 1998; Dauphin 2005).

PANAMA. S. loc. (Dauphin et al. 1998; Linares and Uribe 2002). DARIÉN: Cerro Pirre (Stotler et al. 1998); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein*

& Salazar Allen (PMA, U, Gradstein and Salazar Allen 1992); Cerro Pirre, from camping site of Rancho Mojado, 1,150 m, Salazar Allen & Gradstein 9251 (PMA, Stotler et al. 1998). PANAMA: Panamá distrito, La Eneida, Cerro Jefe region, 750 m, Maas & Dressler 691 (JE, U, Gradstein 1985a as *Stictolejeunea herzogii*; Piippo 1986; Stotler et al. 1998).

Also reported from Western South America.

Macrocolura R.M.Schust., J. Hattori Bot.

Lab. 75: 233, 1994 (Schuster 1994).

Macrocolura sagittistipula (Spruce) R.M.Schust., J. Hattori Bot. Lab. 75: 233, 1994 (Schuster 1994).

=*Lejeunea sagittistipula* Spruce, Trans. & Proc. Bot. Soc. Edinburgh 15(1): 304, 1884 (Spruce 1884). Type: Venezuela.

=*Colura sagittistipula* (Spruce) Steph., Sp. Hepat. (Stephani) 5: 933, 1916 (Stephani 1916a).

=*Lejeunea clavigera* Gottsche ex Schiffn., Leberm., Forschungs. Gazelle 4(4): 36, 1890 (Schiffner 1890), syn. fide Grolle and Zhu (2002). Type: Cuba.

=*Colura clavigera* (Gottsche ex Schiffn.) Jovet-Ast, Rev. Bryol. Lichénol. 42: 922, 1976 (Jovet-Ast 1976).

=*Colura lyrata* Steph., Symb. Antill. 2: 471, 1901 (Stephani 1901b), syn. fide Grolle and Zhu (2002). Type: Guadeloupe.

=*Macrocolura lyrata* (Steph.) R.M.Schust., J. Hattori Bot. Lab. 75: 233, 1994 (Schuster 1994).

COSTA RICA. S. loc. (Cole 1982, 1983, both as *Colura clavigera*). CARTAGO: Paraíso cantón, Orosi, Tapantí National Park, Sendero La Oropéndola (Dauphin 2005); Paraíso cantón, Tapantí National Park, im Orosi-Tal, Sendero La Oropéndola, ~600 m, Schäfer-Verwimp & Holz SV/H-0329 (JE, Grolle and Zhu 2002); Paraíso cantón, Tapantí National Park, Orosi Valley, Sendero “La Oropéndola,” 600 m, 30 Dec 1999, Holz CR 99-1349, SV/H-0345 (CR, GOET, JE, hb. Schäfer-Verwimp, Holz et al. 2001 as *Colura lyrata*).

PANAMA. COCLÉ: Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, Schäfer-Verwimp & Verwimp 34159/B, 34164/b (JE, Schäfer-Verwimp 2014). PANAMA: S. loc. (Schäfer-Verwimp 2014); Panamá distrito, Altos de Cerro Azul, Sendero El Cantar, Stotler & Crandall-Stotler 3486 (ABSH, PMA, Stotler et al. 1998 as *Macrocolura lyrata*);

COCOS I. Boca Río Yglesias, 5°32'57"N, 87°03'56"W, 0 m, 15 Feb 1994, Dauphin 1142 (USJ-47200, CR-4468399!, Dauphin 1995, 1999, both as *Colura clavigera*, 2005).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Marchantia L., Sp. Pl. 1: 1137, 1753 (Linnaeus 1753).

Marchantia berteriana Lehm. et Lindenb., Nov. Stirp. Pug. 6: 21, 1834 (Lehmann 1834). Type: Juan Fernández.

COSTA RICA. S. loc. (Bischler-Causse 1989, 1993; Gradstein 1999a; Perold 1999; Bednarek-Ochyra et al. 2000; Grolle

2002; Dauphin 2005; Gradstein and Holz 2005; Váňa and Gremmen 2005; Santos 2008; Váňa and Engel 2013; Ochyra et al. 2014; Váňa et al. 2014c); Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); Pan-American Highway, 3,100 m, 1976, Meléndez (PC, Bischler 1984; Bischler-Causse et al. 2005). ALAJUELA: Poás National Park, 2,600 m, Kupper 843 (JE, Bischler 1984; Morales 1991; Dauphin 2005); Poás Volcano, Potrero del Alto, 2,463 m, Pittier 6021 (G, Bischler 1984; Morales 1991; Bischler-Causse et al. 2005; Dauphin 2005); Poás, 1979, Jovet-Ast (PC, Bischler 1984; Morales 1991; Dauphin 2005). CARTAGO: Oreamuno cantón, Irazú Volcán, 2,843 m, Pittier 12 (G, Bischler 1984; Bischler-Causse et al. 2005). SAN JOSÉ: Cerro Muerte, Schulthes 12032 (FH, Bischler-Causse et al. 2005); Pan-American Highway sur, 3,100 m, Meléndez 1976 (PC, Morales 1991; Kappelle 1996; Dauphin 2005).

Also reported from South Tropical Africa, Southern Africa, Middle Atlantic Ocean, Malesia, Papuasias, Australia, New Zealand, Southwestern Pacific, Southeastern Pacific, Mexico(?), Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands, Antarctic Continent.

Marchantia chenopoda L., Sp. Pl. 1: 1137, 1753 (Linnaeus 1753). Type: Martinique.

=*Marchantia pittieri* Steph. ex Bonner, Candollea 14: 109, 1953 (Bonner 1953a), syn. fide Bischler (1984). Lectotype (Bischler 1984: 73 as “holotype”): Costa Rica: San Francisco de dos Rios, Aug 1891, Pittier 15563, ex hb. J. Cardot (G-00120622 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=165667&lang=en>).

GUATEMALA. S. loc. (Svihla 1942; Hässel 1962; Vianna 1970; Freire et al. 2012); S. loc., Donnell Smith (Underwood 1895); S. loc., Friedrichsthal 1110, 93 (UC, W, G, Bischler 1984); S. loc., Godman & Sabin (NY, Evans 1917a); S. loc., Godman & Salomon (BM, Bischler 1984); S. loc., Kunze 93 (BM, Bischler 1984); S. loc., Standley 66901 (NY, Pérez 2009); S. loc., 1,839–1,841 m, Friedrichsthal, det. Bischler 1962 (W-201707326!, this publication). ALTA VERAPAZ: S. loc., Standley 69496 (NY, Pérez 2009); Cobán municipio, Finca San Pedro, 4,300 ft (1,310 m), Svihla 45-619, 45-621, 45-622, 45-624, 45-631, 45-632 (hb. Fulford, Bischler 1984); Cobán, 1,350 m, Türckheim 6074 (NY, Evans 1917a; Bischler 1984); Senahú municipio, Finca Sepacuité, 4 Mar 1902, Cook & Griggs 83, 141, 394 (US, Y, Evans 1917a); Tactic municipio, E of Tactic, 1,300 m, Steyermark 44011 (hb. Fulford, Bischler 1984; Bischler-Causse et al. 2005); trail from Pangós to Sepacuité, Jan 1908, Maxon & Hay 3111 (US, Y, Evans 1917a). BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 20, 65, 74, 123, 135, 159, 247, 255, 381, 401, 403, 404, 407, 442, 447, 457, 486, 495, 510 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire 2006; Freire et al. 2005). QUETZALTENANGO: S. loc., Pagán 68012 (NY, Pérez 2009); Las Mercedes, Rodríguez 8 (PC, Bischler 1984); Zunil municipio, road to Fuentes Georginas, 4 km S of Zunil, NW slopes of Pico

Zunil, 14°45'04.0"N, 91°28'35.8"W, 27 Jan 2006, *Quedensley* 3841, det. Dauphin Sep 2017 (MO, W-0089076!, **this publication**); Zunil municipio, road to Fuentes Georginas, 4 km S of Zunil, NW slopes of Pico Zunil, 14°45'15.6"N, 91°28'58.4"W, 12 Dec 2004, *Quedensley* 1411, det. Dauphin Sep 2017 (MO, W-0089075!, **this publication**). **SACATEPÉQUEZ**: Chicacao municipio, Suchiate, Finca El Naranjo, *Svihla* 45-659, 45-665 (hb. Fulford, **Bischler 1984**). **SAN MARCOS**: S. loc., *Standley* 68841 (NY, Pérez 2009). **SANTA ROSA**: S. loc., 2,500 ft (762 m), *Heyde & Lux* 6293 (BM, G, **Bischler 1984**); S. loc., Sep 1894, *Heyde & Lux* 6293 (NY, Evans 1917a). **SOLOLÁ**: Santiago de Atitlan municipio, across lake Atitlan from Panujachel, *Svihla* 45-689 (hb. Fulford, **Bischler 1984**; **Bischler-Causse et al. 2005**; Pérez 2009). **SUCHITEPÉQUEZ**: S facing slopes of volcan Sta Clara, 1½–2 mi (2.4–3.2 km) W of Finca El Naranjo, 1,250 m, *Steyermark* 46820, 46821, 46791 (hb. Fulford, **Bischler 1984**; **Bischler-Causse et al. 2005**; Pérez 2009); San Pablo Jacopilas municipio, Chocoma, *Morton* 4099 (JE, **Bischler 1984**); San Pedrito, *Rodriguez* 19 (PC, **Bischler 1984**); SW, lower slopes of Volcán Zunil, vicinity of finca Asturias, NE of Pueblo Nuevo, 1,200–1,300 m, *Steyermark* 3531, 9 (hb. Fulford, **Bischler 1984**).

HONDURAS. COMAYAGUA: S. loc., 600 m, *Standley & Chacon* 5695 (hb. Fulford, **Bischler 1984**); Siguatopeque, *Yuncker et al.* 6410, 6411A, 6415, 6467, 6486, 6508, 6509, 6510, 6511, 6539, 6636 (hb. Fulford, UT, **Bischler 1984**; **Bischler-Causse et al. 2005**). **EL PARAÍSO**: El Paraíso municipio, El Zamorano, 780–900 m, *Standley* 2335 (hb. Fulford, **Bischler 1984**; **Bischler-Causse et al. 2005**).

EL SALVADOR. CHALATENANGO: San Ignacio municipio, E slope of Los Esesmites (Cerro el Pital), 2,130–2,160 m, *Tucker* 1010 (G, PC, UC, **Bischler 1984**; **Bischler-Causse et al. 2005**). **SAN SALVADOR**: S. loc. (*Standley and Calderón* 1925); S. loc., *Standley* 22684 (FH, **Bischler-Causse et al. 2005**).

NICARAGUA. MANAGUA: Managua municipio, Casa Colorada, S of Managua, 850 m, *Maxon et al.* 7427 (JE, **Bischler 1984**); Managua municipio, S of Managua, *Maxon et al.* 7427 (JE, **Bischler-Causse et al. 2005**); Ticuantepe municipio, Las Nubes, S of Managua, 800–900 m, *Maxon et al.* 7485 (JE, **Bischler 1984**). ***NUEVA SEGOVIA**: San Fernando municipio, 7.6 km N of Ocotal-Jalapa highway, road toward Finca Las Brisas, 13°43'29"N, 86°22'15"W, 21 Dec 2012, *Stevens & Montiel* 33711, det. Brinda and Dauphin Jun 2017 (MO-6626251!, **this publication**). **RIVAS**: Volcán Ometepe, 1893, *Shimeck* (hb. Fulford, **Bischler 1984**; **Bischler-Causse et al. 2005**).

COSTA RICA. S. loc. (**Bischler 1984**; Cole 1984; Hässel 1962; Vianna 1970); S. loc., *Hoffman* 768 (G, **Bischler 1984**); S. loc., *Rémy* 1836 (PC, **Bischler 1984**); Rio Paruara, 60 m, *Kupper* 433 (JE, **Bischler 1984**). **ALAJUELA**: S. loc., 1,000 m, 1979, *Jovet-Ast* (PC, **Bischler 1984**); Alajuela cantón, Poás Volcán, E slope, *Griffin & Eakin* 88 (FLAS, **Morales 1991**; **Dauphin 2005**); Alajuela cantón, Poás Volcán, E slope, 6,000 ft (1,829 m), 25 Jul 1940, *Haupt* (**Haupt 1942**; **Morales 1991**); Atenas, 16 Sep 1979, *Meléndez* (PC, **Bischler 1984**); Cuesta de La Vieja, camino a San Carlos, *Cook & Doyle* 111 (US, Y, Evans 1917a;

Morales 1991; **Dauphin 2005**); Poás Volcano, 2 Aug 1940, *Haupt* (**Dauphin 2005**); Poás Volcano, 1,400 m, 1979, *Jovet-Ast* (PC, **Bischler 1984**; **Bischler-Causse et al. 2005**); Poás Volcano, Potrero del Alto, 2,463 m, *Pittier* 6021 (G, **Morales 1991**; **Dauphin 2005**); Zarcero cantón, Laguna de Alfaro Ruiz, *Rodriguez* 289 (UC, **Bischler 1984**). **CARTAGO**: Jiménez cantón, Juan Viñas (*Haupt* 1942); Jiménez cantón, Juan Viñas, *Cook & Doyle* 301 (US, Y, Evans 1917a; **Morales 1991**); Jiménez cantón, Juan Viñas, 1,100 m, 1979, *Jovet-Ast* (PC, **Bischler 1984**); La Unión cantón, Carpintero, Mt S of Cartago, *Stork* 1379 (UC, **Bischler 1984**); Oreamuno cantón, Irazú Volcán, Atlantic side, 8 Jul 1941, *Svihla* 41-466, 41-468, 41-478 (*Svihla* 1942; **Dauphin 2005**); Oreamuno cantón, Rio Reventado, 1979, *Jovet-Ast* (PC, **Bischler 1984**); Rio Macho, Planta del Rio Macho, 1979, *Jovet-Ast* (PC, **Bischler 1984**); Rio Turrialba (*Haupt* 1942); Río Turrialba, Mar 1896, *Smith* (NY, Evans 1917a; **Morales 1991**; **Dauphin 2005**); Turrialba cantón, Angostura, *Polakowsky* (*Polakowsky* 1879); Turrialba cantón, Angostura, Nov 1875, *Polakowsky* 452 (*Polakowsky* 1877; **Bischler 1984**; **Morales 1991**); Turrialba cantón, Pavones, 700 m, 1979, *Meléndez* (PC, **Bischler 1984**); Turrialba cantón, Santa Cruz, 9 km NW of Turrialba, *Maas* 778 (U, **Bischler-Causse et al. 2005**); Turrialba cantón, Tucurrique, La Angostura, *Kuntze* 2102 (NY, Evans 1917a; **Morales 1991**; **Dauphin 2005**); Turrialba, 2,000 ft (610 m), *DeWolf* 182 (BM, **Bischler 1984**; **Bischler-Causse et al. 2005**); Turrialba, *Volk* 6/708 (JE, hb. Volk, **Bischler 1984**). **HEREDIA**: San Isidro cantón, Cerro de Las Lajas, 1,750 m, 1979, *Meléndez* (PC, **Bischler 1984**). **LIMÓN**: Limón cantón, Bananito, *Stork* 1211 (UC, **Bischler 1984**; **Bischler-Causse et al. 2005**). **PUNTARENAS**: Monteverde (**Morales 1991**); Monteverde, *James, M.* 2 (**Dauphin 2005**); Monteverde, 9 Jan 1965, *James, M.* 2, 7, 23, 24, 25, 26 (R, *Reed and Robinson* 1971; **Dauphin 2005**). **SAN JOSÉ**: S. loc. (BM, **Bischler 1984**); S. loc., *Haupt* (**Dauphin 2005**); S. loc., *Sarg* (G, **Bischler 1984**); S. loc., Jul 1875, *Polakowsky* 298 (W, *Polakowsky* 1877; **Bischler 1984**; **Morales 1991**; **Dauphin 2005**); S. loc., 12 Aug 1979, *Jovet-Ast* (PC, **Bischler 1984**); Alajuelita (*Haupt* 1942); Alajuelita cantón, La Verbena, Aug 1894, *Tonduz* 15562 (NY, Y, G, hb. Cardot, Evans 1917a; *Bonner* 1953a as *Marchantia pittieri*; **Bischler 1984**; **Morales 1991**; **Dauphin 2005**); Aserrí cantón, mountains S of village 5.5 (9 km) mi S of San José, 6,000 ft (1,829 m), 23 Jul 1940, *Haupt* (**Haupt 1942**; **Morales 1991**; **Dauphin 2005**); Cerro La Cruz, 2,000 m, 1976, *Meléndez* (PC, **Bischler 1984**); Curridabat, 1,400 m, *Pittier* 9, 6035 (G, **Bischler 1984**; **Bischler-Causse et al. 2005**); Escazú cantón, Escazú, mountains 0.5 mi SW of village, 5,000–6,000 ft (1,524–1,829 m), 18 Jul 1940, *Haupt* (**Haupt 1942**; **Morales 1991**); La Unión cantón, San Ramón de Tres Ríos, 1,600 m, 1976–1979, *Meléndez* (PC, **Bischler 1984**); La Unión cantón, San Ramón de Tres Ríos, Pizote, 1,900 m, *Meléndez* (PC, **Bischler 1984**); La Unión cantón, San Ramón de Tres Ríos, Rio Tiribi, 1,800 m, *Kuhbier* 1006 (JE, **Bischler 1984**); Moravia cantón, La Palma, 1,500–1,700 m, *Maxon & Harvey* 7922 (JE, **Bischler 1984**); Moravia cantón, La Palma, *Pittier* 6018, 6024 (BM, G, *Stephani* 1893c; **Bischler 1984**; **Morales**

1991; Dauphin 2005); Moravia cantón, La Palma, 1,530 m, *Sarg* (G, Bischler 1984); Moravia cantón, La Palma, *Stork* 1923 (UC, Bischler 1984); Moravia cantón, La Palma, *Valerio* 23 (JE, Bischler 1984); Moravia cantón, La Palma, 1895, *Sarg & Roell* (JE, Bischler 1984); Moravia cantón, La Palma, May 1906, *Maxon* 489 (US, Y, Evans 1917a; Morales 1991; Dauphin 2005); San Francisco dos Rios, May 1991, *Pittier* 15563 (hb. Cardot, G, Bonner 1953a as *Marchantia pittieri*; Bischler 1984 as *Marchantia pittieri*); San José cantón, Barrio Mexico, 14 Aug 1979, *Jovet-Ast* (PC, Bischler 1984); San José, *Haupt* (Morales 1991); San José, *Pittier* 6004, 6049 (BM, G, Stephani 1893c; Bischler 1984; Morales 1991; Dauphin 2005); San José-Gugos, 1,000 m, 1979, *Jovet-Ast* (PC, Bischler 1984); Santa Ana cantón, El Rodeo, 26 Aug 1979, *Jovet-Ast* (PC, Bischler 1984); Vásquez de Coronado cantón, Camino a Cascajal de Coronado, *Jiménez* 24, 28 (CR, Morales 1991); Vásquez de Coronado cantón, San Isidro del General, NW de la ville, 1,100 m, 1979, *Jovet-Ast* (PC, Bischler 1984); Vásquez de Coronado cantón, San Isidro, 13 Jul 1941, *Svihla* 41-494, 41-497, 41-501, 41-505 (*Svihla* 1942; Morales 1991; Dauphin 2005); Vásquez de Coronado, 1,345 m, 1976, *Meléndez* (PC, Bischler 1984); vicinity of San José and La Palma, *Pittier* (*Haupt* 1942); W of Alto de la Palma, toward Cerro Zurquí, 1,500 m, *Horich* 59043 (UC, Bischler 1984).

PANAMA. S. loc. (Haynes et al. 1923; Haupt 1942; Hässel 1962; Vianna 1970; Stotler et al. 1998); S. loc., *Seemann* (BM, NY, Bischler 1984). **BOCAS DEL TORO:** Changuinola distrito, camping site of Changuinola 1, *Salazar Allen* 1693a (PMA, Stotler et al. 1998); Continental Division at guard post, *Valdespino* 868, 870a (PMA, Stotler et al. 1998; Bischler-Causse et al. 2005); SW of camping site, Técnicos Forestales, above Quebrada Chica, *Salazar Allen* 1873 (PMA, Stotler et al. 1998). **CHIRIQUÍ:** S. loc. (NY, Bischler 1984); Boquete distrito, Bajo Chorro, *Salazar Allen* 1184, 1185, 1189 (NY, PMA, Bischler 1984; Bischler-Causse et al. 2005); Boquete, 3 Sep 1940, *Svihla* 40-404, 40-418, 40-433 (hb. Fulford, *Svihla* 1942; Bischler 1984; Stotler et al. 1998); Boquete, 3 Sep 1940, *Svihla* 40-439, 40-445 (*Svihla* 1942; Bischler 1984; Stotler et al. 1998); Gualaca distrito, Fortuna (Stotler et al. 1998); Gualaca distrito, Fortuna Dam, *Hammel* 2109, 2110 (MO, Stotler et al. 1998); Gualaca distrito, Fortuna Forest Reserve, NW of camping site, 1,000–1,200 m (*Salazar Allen* et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Alemán, 1,200–1,400 m (*Salazar Allen* et al. 2021); Gualaca distrito, Fortuna, Hornito, along Quebrada Arena, on soil on banks of creek, *Spörle* 1.16 (PMA, *Spörle* 1990; Stotler et al. 1998); Tierras Altas distrito, Volcán, 2,193 m, *Forrest UCONN* 2676 (E, Xiang et al. 2016). **COCLÉ:** Antón distrito, El Valle de Antón, *Castillo* 131 (PMA, Stotler et al. 1998); Antón distrito, El Valle de Antón, La Mesa, *Salazar Allen & Beliz* 1377 (NY, Bischler 1984); Antón distrito, El Valle de Antón, La Mesa, *Salazar Allen* 1377 (PMA, Stotler et al. 1998). **DARIÉN:** S. loc. (*Svihla* 1942); S. loc., *Williams* 1083 (NY, U, Stotler et al. 1998); S. loc., *Williams* 1084 (NY, U, Stotler et al. 1998); S. loc., Mar 1908, *Williams* 1803, 1804 (NY, Y, Evans 1917a); Tres Bocas, *Kirkbride & Duke* 1368 (MO, Stotler et al. 1998). **PANAMA:**

Panamá distrito, Cerro Azul, on road to Lago Goofy, *Valdespino & Spörle* 752 (PMA, Stotler et al. 1998; Bischler-Causse et al. 2005); Panamá distrito, Taboga, *Seemann* (NY, Evans 1917a; Stotler et al. 1998).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands(?).

Marchantia inflexa Nees et Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 9: 43, 1838 (Montagne 1838). Type: Martinique.

≡ *Marchantia papillata* subsp. *inflexa* (Nees et Mont.) R.M.Schuster, *Hepat. Anthocer. N. Amer.* 6: 354, 1992 (Schuster 1992c).

= *Marchantia domingensis* auct., sensu, for example, A. Evans, *Trans. Connecticut Acad. Arts* 21(3): 269, 1917 (Evans 1917a), non Lehm. et Lindenb. 1834. Note: All reports of *Marchantia domingensis* (except the type from Santo Domingo) belong to *Marchantia inflexa* (Bischler 1984).

GUATEMALA. S. loc. (Bischler 1984; Schuster 1992c as *Marchantia papillata* subsp. *inflexa*); S. loc., *Watson* (*Underwood* 1895 as *Marchantia linearis*); **ALTA VERAPAZ:** Black River, *Watson* 295b (H, NY, Evans 1917a as *Marchantia domingensis*; Bischler 1984; Bischler-Causse et al. 2005); Cobán municipio, Finca San Pedro, *Svihla* 45-618, 45-623 (hb. Fulford, Bischler 1984); Cobán, 1,310 m, 1892, *Türkheim* 4960 (NY, FH, Bischler-Causse et al. 2005; Pérez 2009); Senahú municipio, Finca Sepacuité, 4 Mar 1902, *Cook & Griggs* 82, 255, 403 (US, Y, Evans 1917a as *Marchantia domingensis*). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 64, 116, 160, 232, 288, 299, 421, 433 (USCG, *Freire et al.* 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al.* 2005). **EL PETÉN:** Along Río Cancuen between El Cambio and mouth of Río Machaquilá, 75 m, *Steyermark* 45912 (hb. Fulford, Bischler 1984). **IZABAL:** Along Río Frio, 50–75 m, *Steyermark* 41621 (hb. Fulford, Bischler 1984). **QUETZALTENANGO:** San Carlos Sija municipio, Getena area N of Sija, 7,600 ft (2,316 m), *Sharp* 2092 (hb. Fulford, Bischler 1984).

EL SALVADOR. **AHUACHAPÁN:** S. loc., 700–1,100 m, *Standley & Padilla* 2539 (hb. Fulford, Bischler 1984; Bischler-Causse et al. 2005). **SAN VICENTE:** S. loc. (*Standley and Calderón* 1925 as *Marchantia domingensis*); S. loc., *Standley* 21753 (FH, Bischler-Causse et al. 2005).

NICARAGUA. **GRANADA:** Granada municipio, environs de Grenade, 40 m, *Levy* 1310 (PC, Bischler 1984; Bischler-Causse et al. 2005).

COSTA RICA. **GUANACASTE:** Cañas cantón, Finca Pacífica, 7 km NE of Cafas, *Delgadillo* 2778 (MEXU, Bischler-Causse et al. 2005). **HEREDIA:** Pont du Río Guácimo a Coradonga, 1901, *Tonduz* (G, Bischler 1984; Bischler-Causse et al. 2005); Sarapiquí, 1976, *Meléndez* (PC, Bischler 1984; Morales 1991; Dauphin 2005). **LIMÓN:** Entre el puente del Río Guácimo y Covadonga, *Tonduz* 1901 (G, Morales 1991); Guácimo, *Tonduz* 1901 (Dauphin 2005). **PUNTARENAS:** Entre San José y Quepos, 500 m, 1979, *Jovet-Ast* (PC, Bischler 1984); entre San José

y Quepos, 500 m, *Jovet-Ast* 1979 (PC, Morales 1991; Dauphin 2005). SAN JOSÉ: S. loc., *Schultes* 12062 (FH, Bischler-Causse et al. 2005).

PANAMA. S. loc. (Bischler 1984; Stotler et al. 1998). COCLÉ: Antón distrito, Club Campestre at El Valle, *Welch* 19949 (hb. Fulford, Bischler 1984; Bischler-Causse et al. 2005). PANAMA: Panamá distrito, Rio Chagres, 14 Dec 1967, *Lewis et al.* 3528 (MO, Stotler et al. 1998).

Also reported from North-Central USA, South-Central USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America.

Marchantia paleacea Bertol., *Opusc. Sci.* 1: 242, 1817 (Bertoloni 1817). Type: Italy.

=*Marchantia domingensis* Lehm. et Lindenb., *Nov. Stirp. Pug.* 6: 22, 1834 (Lehmann 1834), syn. fide Bischler (1984). Type: Dominican Republic. Note: All reports of *Marchantia domingensis* (except the type from Santo Domingo) belong to *Marchantia inflexa* (Bischler 1984).

GUATEMALA. S. loc. (Haynes et al. 1923; McAllister et al. 1932; Frye and Clark 1937; Svihla 1940; Jovet-Ast 1960; Hattori 1966, 1968a; Miller et al. 1983; Bapna and Kachroo 2000b; Alam and Srivastava 2009); S. loc., *Friedrichstahl* (UC, W, Bischler 1984); S. loc., *Türckheim* 5819 (G, Bischler 1984); Insorio, *Rodriguez* 13, 16 (PC, Bischler 1984). ALTA VERAPAZ: Cobán (Schuster 1992c); Cobán, 1,350 m, *Türckheim* (NY, BM, Pérez 2009); Cobán, 1,310 m, 1892, *Türckheim* 4960 (NY, FH, Evans 1917a; Bischler-Causse et al. 2005). *CHIMALTENANGO: S. loc., 25 Nov 1938, *Standley* 57904, det. Pagán (NY!, this publication). GUATEMALA: San Pedro Sacatepéquez, 1,440 m, 3 Mar 1921, *Rojas*, det. A. W. Evans (AGUAT, Freire 2006); San Raymundo, *Standley* 63025 (FH, Bischler-Causse et al. 2005; Pérez 2009). HUEHUETENANGO: San Juan Ixcay municipio, above San Juan Ixcay, Sierra de los Cuchumatanes, 2,400 m, *Steyermark* 50003 (hb. Fulford, Bischler 1984). SACATEPÉQUEZ: Antigua Guatemala municipio, 55 km N of Antigua, 2,360 m, *Volk* 6/714 (JE, hb. Volk, Bischler 1984; Bischler-Causse et al. 2005); NW Antigua, *Standley* 64635, 64644 (FH, NY, Bischler-Causse et al. 2005; Pérez 2009). SOLOLÁ: Nahualá, *Champagne* 2/03, 7 (PC, Bischler-Causse et al. 2005); Panchel municipio, 2 km NE of Panajachel, 1,700 m, *Richards & Williams* 3035 (UT, Bischler 1984).

HONDURAS. S. loc. (Schuster 1992c). COMAYAGUA: El Rosario municipio, El Banco, *Rodriguez* 2574 (BM, UC, Bischler 1984; Bischler-Causse et al. 2005). *SANTA BÁRBARA: Base of E slope of Mount Santa Bárbara, ~7 km N of El Mochito, 14°55'N, 88°07'W, 24 Nov 1991, *Allen* 11692, det. Whittemore 1992 (MO-3965015!, this publication).

COSTA RICA. S. loc. (Bischler-Causse 1989; Cole 1984); Cordillera de Talamanca, route internationale, 1,800 m, 1979, *Jovet-Ast* (PC, Bischler 1984; Bischler-Causse et al. 2005). ALAJUELA: Poás Volcano, 1979, *Jovet-Ast* (PC, Bischler 1984; Morales 1991; Dauphin 2005); San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 3 Nov 2010, *Norris* 110369 (UC, Norris et al. 2017); Zarcero cantón, Laguna de Alfaro Ruiz,

Rodrigues 289 (UC, Bischler 1984; Morales 1991; Bischler-Causse et al. 2005; Dauphin 2005). CARTAGO: Oreamuno cantón, Rio Reventado, 1979, *Jovet-Ast* (PC, Bischler 1984; Morales 1991; Dauphin 2005); Paraíso cantón, Río Macho, represa Tapantí, 1979, *Jovet-Ast* (PC, Bischler 1984; Morales 1991; Dauphin 2005). HEREDIA: Barva cantón, San Rafael, San José de la Montana, 1,650 m, 1976, *Meléndez* (PC, Bischler 1984; Morales 1991; Dauphin 2005). SAN JOSÉ: S. loc., *Standley* 41248 (FH, Bischler-Causse et al. 2005); S. loc., *Schultes* 12062 (FH, Bischler-Causse et al. 2005); Cerro La Cruz, 2,000 m, *Meléndez* (PC, Bischler 1984); Herrau, *Pittier* 8 (G, Bischler 1984); La Unión cantón, San Ramón de Tres Ríos, 1,600 m, 1976–1979, *Meléndez* (PC, Bischler 1984; Morales 1991; Dauphin 2005); La Unión cantón, San Ramón de Tres Ríos, Pizote, 1,900 m, *Meléndez* (PC, Bischler 1984); Santa Ana, 1979, *Meléndez* (PC, Bischler 1984; Morales 1991; Dauphin 2005); Sierra de Talamanca, 2,200 m, 1979, *Jovet-Ast* (PC, Bischler 1984; Morales 1991; Dauphin 2005).

Also reported from Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa, Macaronesia, Northeast Tropical Africa, Southern Africa, Western Indian Ocean, Siberia, Russian Far East, Middle Asia, Caucasus, Western Asia, Arabian Peninsula, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasias, New Zealand, North-Central USA, Southwestern USA, South-Central USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil(?), Southern South America(?).

Marchantia papillata Raddi, *Critt. Brasil.*: 20, 1822 (Raddi 1822) subsp. *papillata*. Type: Brazil.

GUATEMALA. S. loc. (Svihla 1941). BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

Also reported from the Western South America, Brazil, Southern South America, Subantarctic Islands.

Marchantia plicata Nees et Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 9: 43, 1838 (Montagne 1838). Type: Bolivia.

GUATEMALA. QUICHÉ: 6 km N Quiché, 2,870 m, *Volk* 6/715 (JE, hb. Volk, Bischler 1984; Bischler-Causse et al. 2005; Pérez 2009). SAN MARCOS: Tajumulco municipio, NW slopes of Volcán Tajumulco, 2,300–2,800 m, *Steyermark* 36894 (hb. Fulford, Bischler 1984; Bischler-Causse et al. 2005; Pérez 2009).

COSTA RICA. S. loc. (Gradstein 1999a; Dauphin 2005; Gradstein and Holz 2005); S. loc., 1976, *Meléndez* (PC, Bischler 1984; Morales 1991); Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b). HEREDIA: Barva cantón, Volcán Barva, 2,400 m, *Valerio* 24 (JE, Bischler 1984; Bischler-Causse et al. 2005; Dauphin 2005; Morales 1991).

PANAMA. CHIRIQUÍ: Tierras Altas distrito, Nueva Suiza, *D'Arcy* 5315 (MO, Stotler et al. 1998).

Also reported from Mexico, Northern South America, Western South America, Southern South America.

Marchantia polymorpha L., *Sp. Pl.* 1: 1137, 1753 (Linnaeus 1753), s. lat. Type: Europe.

≡ *Marchantia polymorpha* A *communis* Nees, *Naturgesch. Eur. Leberm.* 4: 65, 1838 (Nees 1838a). Type: Europe.

= *Marchantia latifolia* Gray, *Nat. Arr. Brit. Pl.* 1: 682, 1821 (Gray 1821). Type: Italy.

Note: Bischler-Causse et al. (2005: 229) have several reports of *Marchantia polymorpha* for Guatemala. The species was not reported from Costa Rica by Bischler (1984) or by Bischler-Causse et al. (2005). It is difficult to judge what subspecies the reports belong to. The only report of a subspecies is the mention by Damsholt (2002) as *Marchantia latifolia* (=subsp. *ruderalis*).

GUATEMALA. HUEHUETENANGO: San Rafael Petzal, region of Chimal, S Cuchumatanes, 3,300 m, *Standley* 81104 (UC, Bischler 1984). **QUETZALTENANGO:** Zunil municipio, Fuentes Georginas, Volcán Zunil, *Standley* 67420 (FH, NY, Bischler-Causse et al. 2005; Pérez 2009); Zunil municipio, road from Aldea Chuimucubal, NW slopes of Pico Zunil, 14°45'56.35"N, 91°28'14.69"W, 14 Jan 2006, *Quedensley* 4028, det. Dauphin Sep 2017 (MO, W-0089077!, this publication). **SACATEPÉQUEZ:** Finca Carmona, SE of Antigua, *Standley* 63692 (FH, Bischler-Causse et al. 2005; Pérez 2009). **SAN MARCOS:** Puente de Nauatl, 22 Feb 1939, *Standley* 66231, det. Pagán (NY, Pérez 2009). **SOLOLÁ:** Cumbre Alaska, carretera a Quetzaltenango, 3,000 m, *Véliz* (BIGU, Freire 2006 as *Marchantia* cf. *polymorpha*). Note: We are not aware of any positively identified specimen from Sololá.

EL SALVADOR. CHALATENANGO: San Ignacio municipio, E slope of Los Esesmiles (Cerro el Pital), 2,130–2,160 m, *Tucker* 1019 (G, PC, UC, Bischler 1984; Bischler-Causse et al. 2005).

COSTA RICA. S. loc. (Bischler 1984; Damsholt 2002 as *Marchantia latifolia*); S. loc., *Pittier* (Stephani 1899d as *Marchantia polymorpha communis*). **ALAJUELA:** S. loc., 1891–1896, *Durand & Pittier* (Morales and Griffin 1983); Poás (Svihla 1942 as *Marchantia polymorpha communis*; Schuster 1992c); Poás Volcano, *Pittier* 602 (Evans 1917a); Poás Volcano, 2 Aug 1940, *Haupt* (Dauphin 2005); Poás Volcano, 1942, *Haupt* (Morales and Griffin 1983); Poás Volcano, Potrero del Alto, *Haupt* (Morales 1991); Poás Volcano, Potrero del Alto, 2,463 m, *Pittier* 6021 (G, Stephani 1893c; Morales 1991; Dauphin 2005); Poás Volcano, Potrero del Alto, *Pittier* (Haupt 1942 as *Marchantia polymorpha communis*). **CARTAGO:** Oreamuno cantón, Irazú Volcán, Atlantic side, 8 Jul 1941, *Svihla* 41-465, 41-469, 41-475 (Svihla 1942; Morales 1991; Dauphin 2005). **HEREDIA:** Barva cantón, Barva Volcano, W slope, 4,500 ft (1,372 m), 2 Aug 1940, *Haupt* (Haupt 1942; Morales 1991; Dauphin 2005).

PANAMA. S. loc. (Stotler et al. 1998). **CHIRIQUÍ:** Boquete distrito, Alto Quiel, Finca de la Fortuna, *Salazar Allen* 775 (PMA, Bischler-Causse et al. 2005); Boquete distrito, Finca Lérica, Palo Alto, 1,700–1,800 m, *Salazar Allen* 798 (PMA, Stotler et al. 1998); Gualaca distrito, Fortuna Forest Reserve (*Salazar Allen* et al. 2021); Tierras Altas distrito, Cerro Punta, Alto de Pineda, 8,000–8,400 ft (2,438–2,560 m), *Salazar Allen* 1108, 1124 (PMA, Stotler et al. 1998; Bischler-Causse et al. 2005); Tierras

Altas distrito, Cerro Punta, Las Cumbres, 1,500 m, *Salazar Allen* 1034, 1045 (PMA, Stotler et al. 1998); Tierras Altas distrito, El Aguacatal, *Salazar Allen* 1178 (PMA, NY, Bischler 1984; Stotler et al. 1998; Bischler-Causse et al. 2005); Tierras Altas distrito, Las Nubes, *Mori & Bolten* 7264 (MO, Stotler et al. 1998); Tierras Altas distrito, Volcán, above Chorro, *Salazar Allen & Béliz* 1224 (PMA, Stotler et al. 1998).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa, Macaronesia, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa(?), Southern Africa, Western Indian Ocean, Siberia, Russian Far East, Middle Asia, Caucasus, Western Asia, China, Mongolia, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuaia, Australia, New Zealand, Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, South-Central USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands, Antarctic Continent(?).

***Marchesinia* Gray, *Nat. Arr. Brit. Pl.* 1: 689, 1821 (Gray 1821).**

Marchesinia bongardiana (Lehm. et Lindenb.) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 405, 1877 (Trevisan 1877).

≡ *Lejeunea bongardiana* Lehm. et Lindenb., *Pugillus* 7: 18, 1838 (Lehmann 1838). Type: Brazil.

PANAMA. PANAMA WEST: La Chorrera distrito, Barro Colorado Island, 2003, *Dauphin* 3212 (CR, PMA, Dauphin et al. 2022).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Marchesinia brachiata (Sw.) Schiffn., *Hepat. (Engl.-Prantl)*: 128, 1893 (Schiffner 1893a) var. *brachiata*.

≡ *Jungermannia brachiata* Sw., *Prodr. (Swartz)*: 144, 1788 (Swartz 1788). Type: Jamaica.

= *Phragmicoma guilleminiana* Mont., *Ann. Sci. Nat., Bot.*, ser. 2, 16: 128, 1841 (Montagne 1841), syn. fide Gradstein (1994). Type: Brazil.

= *Marchesinia saccata* Steph., *Sp. Hepat.* 5: 151, 1912 (Stephani 1912a), syn. fide Gradstein (1994). Lectotype (Gradstein 1994: 106 as "holotype"): Costa Rica, Cartago "Alajuela," Rio Naranjo [=Juan Viñas], 1893, *Tonduz*, hb. Boissier 3091 (G-00067584 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=119253&lang=en>, isoelectotypes G-00067585, G-00064939).

≡ *Marchesinia brachiata* (Sw.) Schiffn. var. *saccata* (Steph.) Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 137, 1951 (Herzog 1951).

= *Marchesinia denticulata* Steph., *Sp. Hepat.* 5: 153, 1912 (Stephani 1912a), syn. fide Gradstein (1994). Lectotype (Gradstein 1994: 106 as "holotype") if not holotype: Panamá, Chiriquí, *Hélión* (G-00069527 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=119281&lang=en>).

=*Marchesinia trollii* Herzog, *Ann. Bryol.* 5: 137, 1932 (Verdoorn 1932), syn. fide Gradstein (1994). Lectotype (Gradstein 1994: 106 as “holotype”): Panama. Peninsula Azuero, Cerro Canajagua, *Troll s.n.*, Verdoorn (ed.), Hep. Sel. Crit. 156 (JE-04001746 <https://je.jacq.org/JE04001746>, isoelectotypes JE-04001747 <https://je.jacq.org/JE04001747>, JE-04001748 <https://je.jacq.org/JE04001748>, B, BR, FH, G, JE, M NY, S, U, US, YU).

=*Marchesinia brachiata* (Sw.) Schiffn. f. *dentata* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 137, 1951 (Herzog 1951), nom. inval. (ICN2018 2018 Art. 38.1(a); no description). Original material: Costa Rica, La Palma, Province of San José, altitude about 1,600 m, 17 March 1924, *Standley* 38050 (US-04660155 <http://n2t.net/ark:/65665/337905fb6-d0d7-4f91-9b29-7ea051ccf6ef>).

=*Marchesinia brachiata* (Sw.) Schiffn. f. *intermedia* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 137, 1951 (Herzog 1951), nom. inval. (ICN2018 2018 Art. 38.1(a); no description). Original material: Costa Rica, Viento Fresco, Provincia de Alajuela, altitude 1,600–1,900 m, 13 Feb 1926, *Standley & Torres* 47975 (US-04660154 <http://n2t.net/ark:/65665/3fc928d6d-8aac-4c27-92bf-b3a0628f51e6>).

=*Marchesinia longirostris* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 138, 1951 (Herzog 1951), syn. fide Gradstein (1994). Lectotype (Gradstein 1994: 106 as “holotype”): Costa Rica, Guanacaste: Tilarán, *Standley* 44309 (JE-04001750 <https://je.jacq.org/JE04001750>, isoelectotypes B-300025480 <https://herbarium.bgbm.org/object/B300025480>, US-02482525 <http://n2t.net/ark:/65665/3cda41101-edf0-4967-b917-5202c208db43>).

=*Marchesinia longirostris* Herzog var. *rivularis* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 138, 1951 (Herzog 1951), syn. fide Gradstein (1994). Lectotype (Gradstein 1994: 106 as “holotype”): Costa Rica, Cartago: Río Reventado, 1,460–1,650 m, 26 Feb 1926, *Standley* 49561 (JE-04001751 <https://je.jacq.org/JE04001751>, isoelectotypes B-300025481 <https://herbarium.bgbm.org/object/B300025481>, US-00070855 <http://n2t.net/ark:/65665/3b03522e2-efa7-4473-bccc-7c4c122ebd95>).

=*Marchesinia minor* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 137, 1951 (Herzog 1951), syn. fide Gradstein (1994). Lectotype (Gradstein 1994: 106 as “holotype”): Costa Rica, Guanacaste: Tilarán, *Standley* 44393 (JE-04001752 <https://je.jacq.org/JE04001752>, isoelectotype US-02482550 <http://n2t.net/ark:/65665/39f497ced-0544-45b2-a053-1a360d8947aa>).

GUATEMALA. S. loc. (Bastos 2004). ALTA VERAPAZ: Cobán, Las Victorias National Park, 1,100–1,300 m, 2002 (Andersohn 2004); Senahú municipio, Finca Mocca, 1920, *Johnson* 120 (YU, Gradstein 1994; Freire 2006; Pérez 2009). BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 23, 128 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). QUICHÉ: S. loc., Pérez 2204 (USCG, Pérez 2009).

EL SALVADOR. S. loc. (Bastos 2004); S. loc., Büttner 1889 (G, Gradstein 1994).

*NICARAGUA. *ATLÁNTICO NORTE: Siuna municipio, road from Siuna to El Dos, 13°46'N, 84°47'W, 12 Dec 1980, *Stevens* 18719-B, det. Dauphin May 2017 (MO-5228169! <http://tropicos.org/specimen/90103080>, this publication). *CHONTALES: Cuapa municipio, Cerro Oluma, 12°18'00"N, 85°23'43"W, 21 Jan

2010, *Stevens & Duarte* 29130, det. Dauphin May 2017 (MO-6169535! <http://tropicos.org/specimen/100254621>, this publication); San Pedro Lóvago municipio, 7.7 km N of Santo Tomás, road to San Pedro Lóvago, 12°07'04"N, 85°08'07"W, 17 May 2010, *Stevens & Montiel* 30592, det. Dauphin May 2017 (MO-6234092!, this publication).

COSTA RICA. S. loc. (Stephani 1912a as *Marchesinia saccata*; Cole 1982, 1983; Geissler and Bischler 1985 as *Marchesinia saccata*; Fulford and Sharp 1990 as *Marchesinia longirostris* var. *rivularis*; Bastos 2004); S. loc., 5,000–8,000 ft (1,524–2,438 m), Oersted 1169 (Müller 1851 as *Phragmicoma guilleminiana*); S. loc., Oersted (YU, G, S, Hampe 1851b as *Phragmicoma guilleminiana*; Polakowsky 1879 as *Phragmicoma guilleminiana*). ALAJUELA: Alajuela cantón, Viento Fresco, 1,600–1,900 m, *Standley* 47975 (Herzog 1951 as *Marchesinia brachiata* f. *intermedia*; Geissler and Bischler 1985 as *Marchesinia brachiata* f. *intermedia*; Morales 1991; Dauphin 2005). CARTAGO: Jiménez cantón, Juan Viñas (Río Naranjo), 1893, *Tonduz*, hb. Boissier 3091 (G-00067584 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=119253&lang=en>, TYPE of *Marchesinia saccata*); Jiménez cantón, Río Naranjo, *Tonduz* 15575, 15683 (G, Gradstein 1994); Oreamuno cantón, Río Reventado, *Standley* 49651 (Morales 1991 as *Marchesinia longirostris*); Oreamuno cantón, Río Reventado, N of Cartago, 1,460–1,650 m, *Standley* 49561 (JE-04001751 <https://je.jacq.org/JE04001751>, B, US, TYPE of *Marchesinia longirostris* var. *rivularis*, Herzog 1951 as *Marchesinia longirostris* var. *rivularis*; Geissler and Bischler 1985 as *Marchesinia longirostris* var. *rivularis*); Turrialba cantón, Guayabo national monument, about 40 km E San Jose near Turrialba, SE slope of Turrialba volcano, 9°59'N, 83°43'W, 1,400 m, May 1992, *Lücking* 92-150 (G, Geissler 1997). GUANACASTE: La Cruz cantón, Guanacaste National Park, Cerros Santa Elena, 10°53'24"N, 85°50'55"W, 650–700 m, 27 Aug 2003, *Dauphin et al.* 3353 (CR, Dauphin 2005; Dauphin and Grayum 2005); Liberia cantón, Guanacaste National Park, Sector Volcán Cacao, 10°55'43"N, 85°28'10"W, *Dauphin* 2457 (CR, Dauphin 2005); Tilarán, 500–600 m, *Standley* 44309 (JE-04001750 <https://je.jacq.org/JE04001750>, B, US, TYPE of *Marchesinia longirostris*, Herzog 1951 as *Marchesinia longirostris*; Geissler and Bischler 1985 as *Marchesinia longirostris*; Morales 1991 as *Marchesinia longirostris*); Tilarán, 500–600 m, *Standley* 44393 (JE-04001752, TYPE of *Marchesinia minor*, Herzog 1951 as *Marchesinia minor*; Geissler and Bischler 1985 as *Marchesinia minor*; Morales 1991 as *Marchesinia minor*). HEREDIA: San Isidro cantón, Yerba Buena, 2,000 m, *Standley* 49065, 49721, 50019 (YU, Herzog 1951 as *Marchesinia brachiata* var. *saccata*; Morales 1991; Gradstein 1994; Dauphin 2005). PUNTARENAS: S. loc. (Merwin et al. 2001); Coto Brus cantón, Fila Cruces, *Dauphin* 2044 (CR, Dauphin 2005); Coto Brus cantón, Parque Internacional La Amistad, Pittier, 1,700 m, *Dauphin* 1416 (GOET, CR, Dauphin 2005); Coto Brus, *Sipman* 11936 (U, Gradstein 1994); Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, *Gradstein et al.* (U, Sillett et al.

1995); Monteverde, 1962, *James* (US, Gradstein 1994). SAN JOSÉ: Moravia cantón, Cerro Zurquí, 2,000–2,500 m, *Standley* 48100, 48101, 48181 (Herzog 1951 as *Marchesinia brachiata* var. *saccata*; Morales 1991; Dauphin 2005); Moravia cantón, La Palma, *Maxon* 474 (NY, YU, Gradstein 1994); Moravia cantón, La Palma, *Standley* 28050 (B, Gradstein 1994); Moravia cantón, La Palma, 1,600 m, *Standley* 38050 (Herzog 1951 as *Marchesinia brachiata* f. *dentata*; Geissler and Bischler 1985 as *Marchesinia brachiata* f. *dentata*; Morales 1991; Dauphin 2005); Moravia cantón, La Palma, *Wercklé* 1910 (FI, PC, YU, Gradstein 1994).

PANAMA. S. loc. (Verdoorn 1932 as *Marchesinia denticulata*; Fulford and Sharp 1990 as *Marchesinia trollii*; Bastos 2004); Canal Zone (Schäfer-Verwimp 2014). CHIRIQUÍ: S. loc. (Stephani 1912a as *Marchesinia denticulata*; Geissler and Bischler 1985 as *Marchesinia denticulata*; Stotler et al. 1998); Gualaca distrito, Fortuna Forest Reserve, foothills of Cerro Pinola, 1,280–2,000 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Alemán, 1,200–1,400 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, SW of camping site, from Finca Pittí to foothills of Cerro Fortuna, 1,000–1,270 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna, 1,000–1,200 m, *Salazar Allen et al.* 685 (PMA, Stotler et al. 1998); Tierras Altas distrito, El Volcán, road to Rio Sereno, near Santa Clara, 8°49.8'N, 82°44.0'W, 1,200 m, 2 Apr 2009, *Schäfer-Verwimp & Verwimp* 34174 (JE, Schäfer-Verwimp 2014). COCLÉ: Antón distrito, El Valle de Antón, along road to Mato Ahogado, 8°37.05'N, 82°06.60'W, 670 m, 4 Apr 2009, *Schäfer-Verwimp & Verwimp* 34750 (JE, Schäfer-Verwimp 2014). LOS SANTOS: S. loc. (Schäfer-Verwimp 2014); Las Tablas distrito, Cerro Canajagua, Halbinsel Azuero, ~950 m, *Troll Hep. Sel. Crit.* 156 (JE-04001746, TYPE of *Marchesinia trollii*, Verdoorn 1932 as *Marchesinia trollii*; Geissler and Bischler 1985 as *Marchesinia trollii*; Stotler et al. 1998); Las Tablas distrito, Península de Azuero, Cerro Canajagua, *Troll* 10527 (CANM, Ireland and Ley 1984 as *Marchesinia trollii*). **PANAMA WEST**: La Chorrera distrito, Barro Colorado Island, *Standley* 40789 (F, YU, Gradstein 1994; Stotler et al. 1998; Dauphin et al. 2022). **PANAMA**: S. loc. (Schäfer-Verwimp 2014); Panamá distrito, Summit Garden, *Salazar Allen & Gradstein* 9496 (PMA, Gradstein 1994; Stotler et al. 1998).

Also reported from West Tropical Africa, East Tropical Africa, Middle Atlantic Ocean, Northeastern Pacific, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Marchesinia brachiata var. *robusta* (Mitt.) Gradst. et Uribe, *Mem. New York Bot. Gard.* 121: 573, 2021 (Gradstein 2021).

≡ *Lejeunea robusta* Mitt., *Hooker's J. Bot. Kew Gard. Misc.* 3: 359, 1851 (Mitten 1851). Type: Ecuador.

≡ *Marchesinia robusta* (Mitt.) Schiffn., *Hepat. (Engl.-Prantl)*: 128, 1893 (Schiffner 1893a).

≡ *Homalolejeunea robusta* (Mitt.) Spruce ex Bonner, *Index Hepat.* 6: 637, 1966 (Bonner 1966), nom. inval. (ICN2018 Art. 41.3; basionym not cited).

≡ *Marchesinia quadridens* Steph., *Spec. Hepat.* 5: 152, 1912 (Stephani 1912a), nom. illeg. (ICN2018 2018 Art. 52.1; earlier name included). Type: Ecuador.

***NICARAGUA.** ***MATAGALPA**: Matagalpa municipio, along Hwy 3 ~1 km NW of La Fundadora entrance, 13°01'N, 85°56'W, 1,450–1,520 m, 24 May 1981, *Stevens & Heinrich* 20365, det. Dauphin May 2017 (MO-5228165! <https://tropicos.org/specimen/90103081>, this publication).

COSTA RICA. S. loc. (Stephani 1912a as *Marchesinia quadridens*; Bonner 1966 as *Homalolejeunea robusta*; Gradstein et al. 2001b as *Marchesinia robusta*; Schäfer-Verwimp 2014 as *Marchesinia robusta*; Gradstein 2021); Cordillera de Talamanca (Holz 2003 as *Marchesinia robusta*; Holz and Gradstein 2005b as *Marchesinia robusta*); Cordillera de Talamanca, *Kappelle* 3543 (U, Kappelle 1996 as *Marchesinia robusta*). **CARTAGO**: El Guarco cantón, La Cangreja, *Mata* 34 (USJ, Dauphin 2005 as *Marchesinia robusta*). **PUNTARENAS**: S. loc. (Merwin et al. 2001 as *Marchesinia robusta*); S. loc., 1,550 m, *Gradstein* 9598 (GOET, Heinrichs et al. 2009 as *Marchesinia robusta*); Coto Brus cantón, Parque Internacional La Amistad, Pittier, 1,700 m, *Dauphin* 1416 (GOET, CR, Heinrichs et al. 2009 as *Marchesinia robusta*); Coto Brus, *Sipman* 11936 (U, Gradstein 1994 as *Marchesinia robusta*; Gradstein et al. 1994 as *Marchesinia robusta*; Dauphin 2005 as *Marchesinia robusta*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a as *Marchesinia robusta*); Monteverde, 1,550 m, *Gradstein & Solano* 9525, 9555 (U, Gradstein et al. 1994 as *Marchesinia robusta*; Dauphin 2005 as *Marchesinia robusta*). SAN JOSÉ: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002 as *Marchesinia robusta*); Dota cantón, Los Quetzales National Park (Amengual et al. 2007 as *Marchesinia robusta*); Dota cantón, San Gerardo (Dauphin 2005 as *Marchesinia robusta*); Dota cantón, San Gerardo, Los Robles, 2,300 m, 30 Jan 2000, *Holz* CR 00-373 (GOET, Holz et al. 2001 as *Marchesinia robusta*; Dauphin 2005 as *Marchesinia robusta*; Heinrichs et al. 2009 as *Marchesinia robusta*); Dota cantón, San Gerardo, Río Savegre Valley between holiday camp Chacón and waterfall, 2,000 m, 17 Mar 1999, *Holz* CR 99-255 (CR, GOET, Holz et al. 2001 as *Marchesinia robusta*; Dauphin 2005 as *Marchesinia robusta*); Moravia cantón, La Palma, *Standley* 28050 (B, Gradstein 1994 as *Marchesinia robusta*); Pérez Zeledón cantón, Río Savegre, 28 Sep 1999, *Heinrichs et al.* 4347, det. Dauphin and Brinda Jun 2017 (MO-5282910! <https://tropicos.org/specimen/90143705>, this publication); Pérez Zeledón cantón, Rivas, San Gerardo, 1,400–1,500 m, 27 Dec 1999, *Holz & Schäfer-Verwimp* CR 99-1284, *Schäfer-Verwimp & Holz* SV/H-0221 (CR, GOET, hb. Schäfer-Verwimp, Holz et al. 2001 as *Marchesinia robusta*; Dauphin 2005 as *Marchesinia robusta*).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021 as *Marchesinia robusta*); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande,

8°39'N, 82°12'W, 1,670 m, *Schäfer-Verwimp & Verwimp* 34437 (JE, Schäfer-Verwimp 2014 as *Marchesinia robusta*); Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, *Schäfer-Verwimp & Verwimp* 34557 (JE, Schäfer-Verwimp 2014 as *Marchesinia robusta*). **COCLÉ**: Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, *Schäfer-Verwimp & Verwimp* 34173 (JE, Schäfer-Verwimp 2014 as *Marchesinia robusta*).

Also reported from Northern South America, Western South America.

***Marsupella* Dumort., *Commentat. Bot.*
(Dumortier): 114, 1822 (Dumortier 1822).**

Marsupella emarginata (Ehrh.) Dumort., *Recueil Observ. Jungerm.*: 24, 1835 (Dumortier 1835).

≡*Jungermannia emarginata* Ehrh., *Hannover. Mag.* 22(8): 141, 1784 (Ehrhart 1784). Type: Germany.

COSTA RICA. SAN JOSÉ: Acosta cantón, Cangrejal, Cerro Caragres, *Dauphin* 3387 (CR, Dauphin 2005); Pérez Zeledón cantón, Páramo Buena Vista, *Schäfer-Verwimp & Holz SV/H-0144 p.p.*, det. Vána (CR, Dauphin 2005).

PANAMA. NASO TJÉR DI COMARCA: Parque Internacional La Amistad, Cerro Fábrega, 3,150–3,353 m, *Dauphin* 1550 (PMA, Dauphin 2007).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa, Macaronesia, West-Central Tropical Africa, East Tropical Africa, Western Indian Ocean(?), Siberia, Russian Far East, Caucasus, Western Asia, China, Mongolia, Eastern Asia, Indian Subcontinent, Malesia, New Zealand, Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, Southeastern USA, Mexico, Western South America, Southern South America.

***Mesoptychia* (Lindb.) A. Evans, *Ottawa Naturalist* 17(1): 15, 1903 (Evans 1903b).**

Mesoptychia turbinata (Raddi) L.Söderstr. et Vána, *Phytotaxa* 65: 55, 2012 (Vána et al. 2012b).

≡*Jungermannia turbinata* Raddi, *Jungermanniogr. Etrusca*: 18, 1818 (Raddi 1818b). Type: Italy.

≡*Lophozia turbinata* (Raddi) Steph., *Bull. Herb. Boissier*, ser. 2, 1(2): 128, 1901 (Stephani 1901c).

≡*Leiocolea turbinata* (Raddi) H.Buch, *Ann. Bryol.* 10: 4, 1937 (Buch et al. 1937).

GUATEMALA. S. loc. (Paton 1999 as *Leiocolea turbinata*; Vána 1999 as *Lophozia turbinata*; Duncan and Slack 2015). **QUICHÉ**: Trail to Sacapula above Nebaj, 7 Nov 1945, *Sharp* 2470 (TENN, Gradstein and Vána 1987 as *Lophozia turbinata*).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa, Macaronesia, Caucasus, Western Asia, China, Southeastern USA(?).

***Metalejeunea* Grolle, *Bryophyt. Biblioth.* 48: 17, 1995 (Grolle 1995).**

Metalejeunea cucullata (Reinw., Blume et Nees) Grolle, *Bryophyt. Biblioth.* 48: 100, 1995 (Grolle 1995).

≡*Jungermannia cucullata* Reinw., Blume et Nees, *Nova Acta Phys.-Med. Acad. Caes. Leop.-Carol. Nat. Cur.* 12(1): 227, 1825 (Reinwardt et al. 1824a). Type: Java.

≡*Microlejeunea monoica* Bischl., *Nova Hedwigia* 5(1/2): 383, 1963 (Bischler et al. 1963), syn. fide Grolle (1995). Type: Guadeloupe.

GUATEMALA. ALTA VERAPAZ: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008); Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, 2,300–2,500 m, Pérez 295 (USCG, Pérez 2009); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). **BAJA VERAPAZ**: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 156, 157 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as *Microlejeunea monoica*). **IZABAL**: Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007). **SAN MARCOS**: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008). **ZACAPA**: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007).

***BELIZE. *TOLEDO**: Punta Gorda, Oct 1932, *White* 71 p.p., det. Dauphin Jun 2017 (MO-6699926! <https://tropicos.org/specimen/100986299>, this publication).

COSTA RICA. SAN JOSÉ: Dota cantón, San Gerardo, trail along Rio Savegre, 1,900 m, 25 Dec 1999, *Schäfer-Verwimp & Holz SV/H-0110/A* (Lüth and Schäfer-Verwimp 2004; Dauphin 2005).

PANAMA. CHIRIQUÍ: Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,600 m, 4 Apr 2006, *Schäfer-Verwimp & Verwimp* 30912 p.p. (JE, Schäfer-Verwimp 2014).

***COCOS I. Río Genio**, 5°32'57"N, 87°03'36"W, 0–10 m, *Dauphin* 940, det. G. Dauphin Apr 2021 (USJ-47238!, CR-4468436!, W-0207454! <https://w.jacq.org/W0207454>, this publication).

Also reported from West-Central Tropical Africa, Southern Africa(?), Western Indian Ocean, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasias, Australia, New Zealand, Southwestern Pacific, Southeastern Pacific, Northwestern Pacific, Northeastern Pacific, Northeastern USA(?), Mexico, the Caribbean, Northern South America, Western South America, Brazil.

***Metzgeria* Raddi, *Jungermanniogr. Etrusca*: 34, 1818 (Raddi 1818b).**

Metzgeria acuminata Steph., *Bull. Herb. Boissier* 7(12): 934 (282), 1899 (Stephani 1899b). Type: Brazil.

GUATEMALA. ALTA VERAPAZ: Tucurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, 2,230 m, Pérez 348 (USCG, Pérez 2009); Tucurú municipio, Reserva Privada Chelemhá (Pérez 2006).

COSTA RICA. ALAJUELA: Poás Volcano, 10°10'N, 84°12'W, 2,100 m, 24 Mar 1973, Engel 8900 (F, Costa 2008).

Also reported from Mexico, Northern South America, Western South America, Brazil.

Metzgeria adscendens Steph. ex K.I. Goebel, *Flora* 77: 427, 1893 (Goebel 1893b). Type: Guyana.

GUATEMALA. S. loc. (Santos 2008). **QUETZALTE-NANGO:** Las Nubes, San Martín, Chile Verde, 2,250 m, 27 Jan 1941, Standley 85181 (F, Costa 2008).

Also reported from Northern South America, Brazil.

Metzgeria agnewiae Kuwah., *Bryologist* 76(4): 569, 1973 (Kuwahara 1973). Type: Kenya.

GUATEMALA. SAN MARCOS: Road between San Marcos and San Rafael Pie de la Cuesta, 2,500–2,700 m, 6 Feb 1941, Standley 86494 (F, Costa 2008); road between San Marcos and Serchil, 2,700–3,150 m, 20 Jan 1941, Standley 85389 (F, Costa 2008).

HONDURAS. FRANCISCO MORAZÁN: San Antonio de Oriente municipio, Cerro de Uyuca, 1,600 m, Mar 1947, Standley 4897 (F, Costa 2008).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b). **SAN JOSÉ:** Dota cantón, San Gerardo, 2,850 m, 10 May 2000, Holz CR VA-9 (RB, Costa 2008); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a).

Also reported from West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, Southern Africa, Mexico, Northern South America, Western South America, Brazil, Southern South America.

Metzgeria albinea Spruce, *Bull. Soc. Bot. France (Congr. Bot.)* 36: cci, 1890 (Spruce 1889) var. *albinea*. Type: Brazil.

GUATEMALA. ALTA VERAPAZ: Cobán, 1,350 m, 1907, *Türkheim*, hb. Levier 5826 (G, FI, So 2002); Cobán, 1,350 m, 1908, *Türkheim* 6070 (NY, Costa 2008); Panzós municipio, Cahabón and/or Senahú, 2012, Pérez & López-Medina, det. M. Pérez (Pérez and López-Medina 2012); Tucurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, Pérez 173 (USCG, Pérez 2009); Tucurú municipio, Reserva Privada Chelemhá (Pérez 2006). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). **EL PROGRESO:** S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008). **HUEHUETENANGO:** S. loc., Pérez 1209 (USCG, Pérez 2009). **SUCHITEPÉQUEZ:** Zunil municipio, Finca Montecristo, Santa María de Jesús, 1,200–1,300 m, 31 Jan 1940, Steyermark 35241 (F, Costa 2008). **ZACAPA:** Río Hondo, Caserio Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007).

BELIZE. CAYO: S. loc., Dec 1993, Allen 15088 (BRH, MO, Whittemore and Allen 1996). **TOLEDO:** S. loc., Dec 1993, Allen

15315 (BRH, MO, Whittemore and Allen 1996); S. loc., Dec 1993, Allen 15364 (BRH, MO, Whittemore and Allen 1996).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b). **ALAJUELA:** San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 5 Jul 2007, Norris 110044b (UC, Norris et al. 2017); San Ramón cantón, La Balsa, 10°11'N, 84°30'W, Stevens 14265, det. Whittemore (CR, Dauphin 2005). **CARTAGO:** Paraíso cantón, Río Grande de Orosi, SSE of Tapantí, 9°46'N, 83°47'W, 1,400 m, 13 Mar 1973, Engel 8321 (F, Costa 2008). **PUNTARENAS:** S. loc. (Merwin et al. 2001); Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, Gradstein et al. (U, Sillett et al. 1995); Monteverde, 1,550 m, Gradstein & Solano 9508 (U, USJ, Gradstein et al. 1994; Dauphin 2005). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, 2,400 m, 27 Feb 1999, Holz CR 99-060 (RB, Costa 2008).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, Institute of Hydraulic Resources and Electricity's plant nursery, 1,100 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quijada del Diablo, 1,200–1,600 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna, quadrat 1–4 of J. Cavalier, 1,200 m, 24 Apr 1998, Valdespino et al. 802 (PMA, Stotler et al. 1998; Costa 2008); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°41.4'N, 82°13.7'W, 1,280 m, 30 Mar 2009, Schäfer-Verwimp & Verwimp 34457, 34473 (JE, Schäfer-Verwimp 2014). **COCLÉ:** Antón distrito, El Valle de Antón, Alto de La Mesa, 8°38.3'N, 82°07.6'W, 850–870 m, 3 Apr 2009, Schäfer-Verwimp & Verwimp 34728 (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, Schäfer-Verwimp & Verwimp 34144 (JE, Schäfer-Verwimp 2014); La Pintada distrito, Cerro El Tigro, 8°37'33"N, 80°41'18"W, 1,150 m, 28 Sep 2001, Salazar Allen & Villarreal 19154 (Costa 2008). **DARIÉN:** S. loc. (Schäfer-Verwimp 2014); Cerro Pirre, 1,200–1,300 m, 6 Jun 1991, Salazar Allen & Gradstein 9287 (PMA, Stotler et al. 1998; Costa 2008); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, Gradstein & Salazar Allen (PMA, U, Gradstein and Salazar Allen 1992);

Also reported from West Tropical Africa, West-Central Tropical Africa, East Tropical Africa, Southern Africa, Western Indian Ocean, Northeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Metzgeria albinea var. *angusta* (Steph.) D.P. Costa et Gradst., *Bryologist* 103(4): 757, 2001 (Costa and Gradstein 2000).

≡ *Metzgeria angusta* Steph., *Bull. Herb. Boissier* 7(12): 944 (*Sp. Hepat. [Stephani]* 1: 292), 1899 (Stephani 1899b). Lectotype: Brazil.

‡GUATEMALA. S. loc., *Levier* (BM, **Stephani 1899b** as *Metzgeria angusta*; **Hell 1969** as *Metzgeria angusta*; **Engel 1978** as *Metzgeria angusta*; **Geissler and Bischler 1985** as *Metzgeria angusta*; **Kuwahara 1986** as *Metzgeria angusta*; **Schuster 1992a** as *Metzgeria angusta*; **Oliveira-e-Silva and Yano 2000** as *Metzgeria angusta*). Note: All reports are probably based on **Stephani (1899b)**, but according to **Costa (2008)**, the material probably belongs to *Metzgeria sandei* (see also **Costa and Gradstein 2000**).

PANAMA. COCLÉ: La Pintada distrito, El Copé, 8°37'N, 80°35'W, 1,000 m, Aug 1979, *Meijer 250* (PMA, **Dauphin et al. 2006**; **Costa 2008**).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Metzgeria attenuata Steph., *Biblioth. Bot.* 87(2): 177, 1916 (**Stephani 1916b**). Type: Bolivia.

COSTA RICA. S. loc. (**Schäfer-Verwimp and Van Melick 2016**). CARTAGO: La Unión cantón, Carpintera, 1,500–1,850 m, Feb 1924, *Standley 35661* (JE, **Costa 2008**).

PANAMA. S. loc. (**Schäfer-Verwimp and Van Melick 2016**). BOCAS DEL TORO: S. loc. (**Schäfer-Verwimp 2014**). Note: We are not aware of any firsthand report from Bocas del Toro. CHIRIQUÍ: S. loc., 2,462 m, 15 Mar 1996, *Costa et al. 3022a* (RB, **Costa 2008**); Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,450 m, 4 Apr 2006, *Schäfer-Verwimp & Verwimp 30892* (JE, **Schäfer-Verwimp 2014**); Gualaca distrito, Fortuna Forest Reserve (**Salazar Allen et al. 2021**); Gualaca distrito, Fortuna, Río Hornitos, 1,100–1,300 m, 16 Mar 1996, *Costa et al. 3052a* (RB, **Costa 2008**); Tierra Altas distrito, Parque Internacional La Amistad, 2,462 m, 15 Mar 1996, *Costa et al. 3030a* (RB, **Costa 2008**). COCLÉ: Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8'N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp 34195/A* (JE, **Schäfer-Verwimp 2014**).

Also reported from West-Central Tropical Africa, East Tropical Africa, Malesia, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Metzgeria aurantiaca Steph., *Bull. Herb. Boissier* 7(12): 938 (*Sp. Hepat. [Stephani]* 1: 286), 1899 (**Stephani 1899b**). Type: Brazil.

COSTA RICA. S. loc. (G-10293, **Kuwahara 1986**; **Gradstein et al. 1994**; **Gradstein and Holz 2005**); Cordillera de Talamanca (**Holz 2003**; **Holz and Gradstein 2005b**). ALAJUELA: San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 23 Apr 2007, *Norris 111002* (UC, **Norris et al. 2017**). PUNTARENAS: S. loc. (**Merwin et al. 2001**); Monteverde, <1,500 m (**Dauphin 2005**); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, *Gradstein et al.* (U, **Sillett et al. 1995**); Monteverde, *Sillett 42583* (**Dauphin 2005**); Monteverde, 1,500 m, *Sillett 8-2* (U, **Gradstein et al. 1994**). SAN

JOSÉ: Dota cantón, San Gerardo, 3,000 m, 5 Apr 1999, *Holz CR 99-225* (RB, **Costa 2008**).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Metzgeria ciliata Raddi, *Critt. Brasil.*: 17, 1822 (**Raddi 1822**). Type: Brazil.

=*Metzgeria furcata* β *decipiens* C.Massal., *Nuovo Giorn. Bot. Ital.* 17(3): 256, 1885 (**Massalongo 1885**), syn. fide **Grolle (2002)**. Type: Tierra del Fuego.

=*Metzgeria decipiens* (C.Massal.) **Schiffn.**, *Forschungs. Gazelle* 4: 43, 1889 (**Schiffner 1890**).

GUATEMALA. ALTA VERAPAZ: Túcú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, 2,300–2,500 m, **Pérez 288** (USCG, **Pérez 2009** as *Metzgeria 'decipines'*); Túcú municipio, Reserva Privada Chelemhá (**Pérez 2006** as *Metzgeria 'decipines'*). BAJA VERAPAZ: S. loc., 2007, **Pérez**, det. **Pérez** (USCG, **Barillas de Klee et al. 2008** as *Metzgeria decipiens*); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 82, 309, 490, 500 (USCG, **Freire et al. 2013** as *Metzgeria decipiens*); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (**Freire et al. 2005** as *Metzgeria decipiens*). EL PROGRESO: San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, **Ramírez** (USCG, **BIGU, Ramírez 2007** as *Metzgeria 'decipines'*). IZABAL: Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, **Ramírez** (USCG, **BIGU, Ramírez 2007** as *Metzgeria 'decipines'*). QUETZALTENANGO: S. loc., 2007, **Pérez**, det. **Pérez** (USCG, **Barillas de Klee et al. 2008** as *Metzgeria decipiens*); Zunil municipio, Aguas Amargas, 2,450 m, 14 Jan 1941, *Standley 83345* (F, **Costa 2008**). SUCHITEPÉQUEZ: Zunil municipio, Finca Montecristo, Santa María de Jesús, 1,200–1,300 m, 31 Jan 1940, *Steyermark 35235* (F, **Costa 2008**).

COSTA RICA. S. loc. (**Kuwahara 1984** as *Metzgeria decipiens*); S. loc., *Pittier 6099* (BR-1969-285-225, **Kuwahara 1983, 1986**, both as *Metzgeria decipiens*); S. loc., *Pittier* (**Gradstein et al. 1994** as *Metzgeria decipiens*; **Dauphin 2005** as *Metzgeria decipiens*); Cordillera de Talamanca, *Kappelle 3518* (U, **Kappelle 1996** as *Metzgeria decipiens*). ALAJUELA: Poás Volcano, 10°10'N, 84°12'W, 2,100 m, 24 Mar 1973, *Engel 8982* (F, **Costa 2008**); San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 5 Jul 2007, *Norris 110145j* (UC, **Norris et al. 2017** as *Metzgeria decipiens*). CARTAGO: Inter-American Highway between Empalme and Cerro La Asunción, 9°36'N, 83°46'W, 3,120 m, 26 Mar 1973, *Engel 9144* (F, **Costa 2008**). HEREDIA: San Isidro cantón, Cerro de Caricias, N of San Isidro, 2,000–2,400 m, 11 Mar 1926, *Standley 52236* (JE, **Costa 2008**). LIMÓN: Pococí cantón, Braulio Carrillo National Park, Quebrada González, 10°12'N, 83°55'W, 460–480 m, Jun 1992, *Lücking* (RB, **Costa 2008**). PUNTARENAS: S. loc. (**Merwin et al. 2001** as *Metzgeria decipiens*); Monteverde, <1,500 m (**Dauphin 2005** as *Metzgeria decipiens*); Monteverde cantón, Monteverde Cloud Forest

Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a as *Metzgeria decipiens*); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995 as *Metzgeria decipiens*); Monteverde, 1,550 m, *Gradstein & Solano* 9509, 9420 (U, USJ, *Gradstein et al.* 1994 as *Metzgeria decipiens*; *Dauphin* 2005 as *Metzgeria decipiens*); Monteverde, 1,550 m, 9 Nov 1993, *Gradstein* 9420 (U, Costa 2008). SAN JOSÉ: Dota cantón, San Gerardo, 9°35'40"N, 83°44'30"W, 3,000 m, Aug 1992, *Van Dunné* (*Van Dunné and Kappelle* 1998 as *Metzgeria decipiens*).

PANAMA. †BOCAS DEL TORO: S. loc. (Schäfer-Verwimp 2014). Note: This certainly refers to the report from the “new” comarca Naso Tjër Di. CHIRIQUÍ: Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,950 m, 6 Apr 2006, *Schäfer-Verwimp & Verwimp* 31008 (JE, Schäfer-Verwimp 2014); Gualaca distrito, Fortuna Forest Reserve, Quijada del Diablo, 1,200–1,600 m (*Salazar Allen et al.* 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°41.4'N, 82°13.7'W, 1,280 m, 30 Mar 2009, *Schäfer-Verwimp & Verwimp* 34465/B, 34468 (JE, Schäfer-Verwimp 2014); Tierra Altas distrito, Parque Internacional La Amistad, 15 Mar 1996, *Costa et al.* 3026a (RB, Costa 2008); Tierras Altas distrito, Parque Internacional La Amistad, Las Nubes, sendero Panamá Verde, 8°53'37.4"N, 82°38'52.5"W, 2,218 m, Sep 2015–Jul 2016, *Guerra-Batista et al.* (*Guerra-Batista et al.* 2020); Tier-ras Altas distrito, Parque Nacional Volcán Barú, Paso Ancho, 8°48'55.13"N, 82°34'33.50"W, 2,047 m, *Guerra Batista et al.* (UCH, *Guerra et al.* 2020). COCLÉ: Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4'–8'N, 80°06.9'–7.0'W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34189, 34246 (JE, Schäfer-Verwimp 2014). DARIÉN: S. loc. (Schäfer-Verwimp 2014); Chepigana distrito, top of Cerro Sapo, 1,090 m, 1 Feb 1978, *Hammel* 1252 (PMA, *Stotler et al.* 1998 as *Metzgeria decipiens*; Costa 2008); frontera Darién-Colombia, 1,270–1,520 m, 19 Apr 1980, *Dillon et al.* 1897 (PMA, Costa 2008). NASO TJËR DI COMARCA: Cerro Fábrega, *Guerrero* 150 (PMA, *Dauphin* 2007 as *Metzgeria decipiens*). NGÄBE-BUGLÉ COMARCA: Kankintú distrito, Cerro Colorado, 1,600–1,700 m, *Folsom et al.* 4747 (PMA, Costa 2008). PANAMA WEST: San Carlos distrito, Cerro Pelado, 8°38'53"N, 80°04'42"W, 1,080 m, 28 Jul 2001, *Salazar Allen & Villarreal* 18699 (PMA, Costa 2008). PANAMA: S. loc. (Schäfer-Verwimp 2014); Panamá distrito, Cerro Jefe, road behind INTEL tower, 900 m, *Salazar Allen & Gradstein* 9374 (PMA, *Stotler et al.* 1998 as *Metzgeria decipiens*).

Also reported from West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, Caucasus, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasias, Australia, New Zealand, Southwestern Pacific, Southeastern Pacific, Northeastern Pacific, Mexico, the Caribbean, Northern South America, Western South

America, Brazil, Southern South America, Subantarctic Islands, Antarctic Continent.

Metzgeria claviflora Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 556, 1885 (Spruce 1885). Type: Ecuador.

=*Metzgeria gigantea* Steph., *Biblioth. Bot.* 87: 177, 1916 (Stephani 1916b), syn. fide Costa (2008). Type: Bolivia.

HONDURAS. S. loc. (Lüth and Schäfer-Verwimp 2004). Note: We are not aware of any firsthand report from Honduras.

NICARAGUA. S. loc. (Schäfer-Verwimp et al. 2013; *Gradstein* 2021). ATLÁNTICO SUR: Bluefields municipio, SE Cerro San Isidro, 65 m, 9 Mar 1966, *Proctor et al.* 27059 (F, *Kuwahara* 1986; Costa 2008).

COSTA RICA. S. loc. (*Gradstein* 1999a as *Metzgeria gigantea*; *Dauphin* 2005 as *Metzgeria gigantea*; *Gradstein and Holz* 2005 as *Metzgeria gigantea*); Cordillera de Talamanca (*Holz* 2003 as *Metzgeria gigantea*; *Holz and Gradstein* 2005b as *Metzgeria gigantea*). ALAJUELA: San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 5 Jul 2007, *Norris* 110546 (UC, *Norris et al.* 2017). SAN JOSÉ: Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,000–3,300 m, 19 Sep 1994, *Gradstein & Dauphin* 9669 (U, Costa 2008); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,000 m, 4 Jan 2000, *Kluge* 142 (RB, Costa 2008).

Also reported from the Caribbean, Northern South America, Western South America.

Metzgeria conjugata Lindb., *Acta Soc. Sci. Fenn.* 10: 495, 1875 (Lindberg 1875). Type: Ireland.

COSTA RICA. PUNTARENAS: Monteverde (Morales 1991); Monteverde, Oct 1963, *James*, W. 7 (R, *Reed and Robinson* 1971); Monteverde, 4,300 ft (1,310 m), Feb 1969, *James*, W. 1969-15 (R, *Reed and Robinson* 1971). SAN JOSÉ: Moravia cantón, Alto de La Palma, *Morales* 365 (FLAS, *Morales* 1991).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve (*Salazar Allen et al.* 2021). COCLÉ: La Pintada distrito, Corregimiento El Copé, Parque Nacional G. D. Omar Torrijos H., Sendero Cuerpo de Paz, junto al Río El Guabal, 8°40'06"N, 80°35'27"W, 722 m, 31 Jul 2012, *Sierra* 6 (PMA, *Dauphin et al.* 2015); La Pintada distrito, Corregimiento El Copé, Parque Nacional G. D. Omar Torrijos H., Sendero La Rana Dorada, 8°40'06"N, 80°35'26"W, 696–710 m, 1 Aug 2012, *Dauphin & Salazar Allen* 4535, *Dauphin & Gudiño* 4447, 4459, 4482 (PMA, *Dauphin et al.* 2015).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa(?), Macaronesia, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, Siberia, Russian Far East, Caucasus, Western Asia, China, Eastern Asia(?), Australia(?), Southwestern Pacific(?), Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, South-Central USA(?), Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Metzgeria consanguinea Schiffn., *Nova Acta Acad. Caes. Leop.-Carol. German. Nat. Cur.* 60(2): 271, 1893 (Schiffner 1893a). Type: Java.

GUATEMALA. ALTA VERAPAZ: Tucurú municipio, Reserva Privada Chelemhá (Pérez 2006).

COSTA RICA. CARTAGO: Inter-American Highway between Empalme and Cerro La Asunción, 9°40'N, 84°51'W, 2,680 m, 26 Mar 1973, *Engel 9186* (F, Costa 2008); Pan-American Highway, 2,690 m, 22 Jun 1983, *Chaverri & López 1520* (U, Costa 2008); Paraíso cantón, Cerro Asunción 9°36'N, 84°46'W, 3,130 m, 15 Mar 1973, *Engel 8446* (F, Costa 2008); Paraíso cantón, Orosi, N of dam site on Rio Grande de Orosi, SSE of Tapantí 9°42'N, 83°47'W, 1,590 m, 25 Mar 1973, *Engel 9092* (F, Costa 2008); road from Cartago to Cerro de la Muerte, 2,600 m, 26 Feb 1999, *Gradstein & Holz CR 99-0074* (RB, Costa 2008).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Macaronesia, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuaia, Australia, New Zealand, Southwestern Pacific, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Metzgeria crassipilis (Lindb.) A. Evans, *Rhodora* 11(130): 188, 1909 (Evans 1909).

≡ *Metzgeria furcata* * *crassipilis* Lindb., *Acta Soc. Fauna Fl. Fenn.* 1(2): 42, 1877 (Lindberg 1877). Type: USA.

PANAMA. S. loc. (Schäfer-Verwimp and Van Melick 2016). VERAGUAS: Santa Fe distrito, base of Cerro Tute, 8°30'N, 81°06'W, 710–890 m, 26 Mar 2009, *Schäfer-Verwimp & Verwimp 34272* (JE, Schäfer-Verwimp 2014).

Also reported from West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Western Indian Ocean, China, Eastern Asia, Indian Subcontinent, Malesia, Papuaia, Australia, New Zealand, Eastern Canada, Northeastern USA, Southeastern USA, Mexico, the Caribbean, Western South America.

Metzgeria cylindra Kuwah., *Bryologist* 81(3): 405, 1978 (Kuwahara 1978a). Type: Peru.

COSTA RICA. S. loc. (Benítez and Gradstein 2011; Schäfer-Verwimp et al. 2013; Gradstein and Uribe 2016). CARTAGO: Paraíso cantón, Cerro Asunción, 9°34'N, 83°45'W, 3,300 m, 15 Mar 1973, *Engel 8496* (F, Costa 2008).

Also reported from Western South America.

Metzgeria dichotoma (Sw.) Nees, *Syn. Hepat.* 4: 504, 1846 (Gottsche et al. 1846).

≡ *Jungermannia dichotoma* Sw., *Prodr.* (Swartz): 145, 1788 (Swartz 1788). Type: Jamaica.

GUATEMALA. ALTA VERAPAZ: Tucurú municipio, Reserva Privada Chelemhá (Pérez 2006).

COSTA RICA. SAN JOSÉ: Acosta cantón, Cangrejal, Cerro Caragres, 2,500 m, *Dauphin 3408, 3409* (CR, Dauphin 2005);

Dota cantón, San Gerardo, 2,850 m, May 2000, *Holz CR VA-7, CR VA-8* (RB, Costa 2008).

Also reported from Mexico, the Caribbean, Western South America, Brazil.

Metzgeria dorsipara (Herzog) Kuwah., *J. Hattori Bot. Lab.* 40: 269, 1976 (Kuwahara 1976).

≡ *Metzgeria violacea* var. *dorsipara* Herzog, *Svensk Bot. Tidskr.* 51(1): 187, 1957 (Herzog 1957b). Type: Ecuador.

COSTA RICA. S. loc. (Gradstein 2021). CARTAGO: Paraíso cantón, Cerro Asunción, 9°36'N, 84°46'W, 3,130 m, 15 Mar 1973, *Engel 8466* (F, Costa 2008). SAN JOSÉ: Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,400 m, 26 Dec 1999, *Holz & Schäfer-Verwimp CR 99-1191* (RB, Costa 2008).

PANAMA. COCLÉ: La Pintada distrito, Cerro El Tigreiro, 8°37'33"N, 80°41'18"W, 1,250 m, 27 Sep 2001, *Salazar Allen & Villarreal 18983* (PMA, Dauphin et al. 2006 as *Metzgeria* aff. *dorsipara*; Costa 2008).

Also reported from Western South America.

Metzgeria fruticola Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 554, 1885 (Spruce 1885). Type: Ecuador.

GUATEMALA. QUETZALTENANGO: Mujaliá, between San Martín and Colomba, 1,800 m, 2 Jan 1941, *Standley 85696* (F, Costa 2008); San Martín Sacatepéquez municipio, Pocito, San Martín, Chile Verde, 2,200 m, 27 Jan 1941, *Standley 84915* (F, Costa 2008).

COSTA RICA. CARTAGO: Inter-American Highway between Empalme and Cerro La Asunción, 9°46'N, 84°47'W, 1,400 m, 13 Mar 1973, *Engel 8304* (F, Costa 2008); Paraíso cantón, Rio Grande de Orosi, N side of dam site, SSE of Tapantí, 9°42'N, 83°47'W, 1,400 m, 13 Mar 1973, *Engel 8311* (F, Costa 2008); Paraíso cantón, Río Grande de Orosi, SSE of Tapantí, 2,680 m, 26 Mar 1973, *Engel 9202* (F, Costa 2008). SAN JOSÉ: Dota cantón, San Gerardo, 1,950 m, 24 Dec 1999, *Holz & Schäfer-Verwimp CR 99-1080* (RB, Costa 2008); Moravia cantón, La Palma, Río de La Hondura, 10°03'N, 83°59'W, 1,575 m, 23 Mar 1973, *Engel 8880* (F, Costa 2008); Vásquez de Coronado cantón, Las Nubes, 1,500–1,900 m, 20–22 Mar 1924, *Standley 38493* (JE, Costa 2008).

PANAMA. S. loc. (Schäfer-Verwimp 2014). CHIRIQUÍ: Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,880 m, 6 Apr 2006, *Schäfer-Verwimp & Verwimp 30986* (JE, Schäfer-Verwimp 2014); Tierra Altas distrito, Parque Internacional La Amistad, 15 Mar 1996, *Costa et al. 3032a* (RB, Costa 2008).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Metzgeria furcata (L.) Corda, *Gen. hepat.*: 654, 1829 (Corda 1829).

≡ *Jungermannia furcata* L., *Sp. Pl.* 1: 1136, 1753 (Linnaeus 1753). Type: Europe.

= *Metzgeria immovans* Steph., *Spec. Hepat.* 6: 52, 1917 (Stephani 1917b), syn. fide So (2002). Type: New Caledonia.

GUATEMALA. ?**ALTA VERAPAZ:** S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008 as *Metzgeria* cf. *furcata*); Tucurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Metzgeria* cf. *furcata*). Note: We are not aware of any positively identified specimen from Alta Verapaz.

QUETZALTENANGO: Quetzaltenango municipio, Volcán Santa María, 2–4 mi S of Santa María de Jesús, 1,400–1,500 m, 17 Jan 1940, *Steyermark* 34314 (F, Costa 2008).

COSTA RICA. S. loc., 5,000–8,000 ft (1,524–2,438 m), *Oersted* 1169 (YU, G, S, Hampe 1851b; Müller 1851). **ALAJUELA:** S. loc., *Polakowsky* 120d (Polakowsky 1877); S. loc., *Polakowsky* (Polakowsky 1879).

PANAMA. S. loc. (Mitten 1854b; Stotler et al. 1998). **CHIRIQUÍ:** Tierra Altas distrito, Parque Internacional La Amistad, 15 Mar 1996, *Costa et al.* 3028a (RB, Costa 2008); Tieras Altas distrito, Parque Nacional Volcán Barú, Paso Ancho, 8°48'55.13"N, 82°34'33.50"W, 2,047 m, *Guerra Batista et al.* (UCH, Guerra et al. 2020). **COCLÉ:** La Pintada distrito, Cerro El Tigreiro, 8°37'33"N, 80°41'18"W, 1,250 m, 21 Sep 2001, *Salazar Allen & Villarreal* 19152 (PMA, Dauphin et al. 2006 as *Metzgeria innovans*; Costa 2008).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa, Macaronesia, West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, Siberia, Russian Far East, Caucasus, Western Asia, Arabian Peninsula, China, Mongolia, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasia, Australia, New Zealand, Southwestern Pacific, Southeastern Pacific, Northwestern Pacific, Northeastern Pacific, Western Canada(?), Northwestern USA(?), North-Central USA(?), Southwestern USA(?), South-Central USA(?), Mexico(?), the Caribbean, Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands(?), Antarctic Continent. Note: The distribution of this taxon is heavily confounded by past synonymizations of taxa partly proven to be independent species now.

Metzgeria herminieri Schiffn., *Österr. Bot. Z.* 61(7/8): 261, 1911 (Schiffner 1911). Type: Guadeloupe.

GUATEMALA. **CHIUQUIMULA:** Concepción de las Minas municipio, Cerro Brujo, 1,700–2,000 m, 2 Nov 1939, *Steyermark* 31031 (F, Costa 2008). **HUEHUETENANGO:** Sierra de los Cuchumatanes, La Pradera, 3,300 m, 31 Dec 1940, *Standley* 81814 (F, Costa 2008).

COSTA RICA. S. loc. (Dauphin 2005). **CARTAGO:** Inter-American Highway between Empalme and Cerro La Asunción, 9°46'N, 84°47'W, 2,680 m, 26 Mar 1973, *Engel* 9201 (F, Costa 2008). **HEREDIA:** San Isidro cantón, Cerro Caricias, 2,000–2,400 m, 11 Mar 1926, *Standley & Valerio* 52280 (JE, Costa 2008). **LIMÓN:** Pococí cantón, Guápiles, 300–500 m, 12–13 Mar 1924, *Standley* 37203 (MICH, Kuwahara 1980, 1986); Pococí cantón, Río Toro Amarillo, Guápiles, 300 m, 9 Aug 1963, *Ponce de León* 1033a (F, Costa 2008). **SAN JOSÉ:** Dota cantón, San Gerardo, 2,850 m, 22 May 1999, *Holz* CR VA-19, CR VA-20 (RB,

Costa 2008); Moravia cantón, La Palma, Río de La Hondura, 10°03'N, 83°59'W, 1,575 m, 23 Mar 1973, *Engel* 8859 (F, Costa 2008). **PANAMA.** **VERAGUAS:** Santa Fe distrito, Piedra Alto, 8°30–31'N, 81°07–08'W, 800–850 m, 27 Mar 2009, *Schäfer-Verwimp & Verwimp* 34309 (JE, Schäfer-Verwimp 2014).

Also reported from Mexico, the Caribbean, Western South America, Brazil.

Metzgeria inflata Steph., *Bull. Herb. Boissier* 7(12): 936 (*Sp. Hepat. [Stephani]* 1: 284), 1899 (Stephani 1899b). Type: Venezuela.

PANAMA. S. loc. (Gradstein and Uribe 2016; Gradstein 2021). **COCLÉ:** Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8'N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34258 (JE, Schäfer-Verwimp 2014); La Pintada distrito, Cerro El Tigreiro, 8°37'33"N, 80°41'18"W, 1,300 m, 25–26 Sep 2001, *Salazar Allen & Villarreal* 18868, 18923 (PMA, Dauphin et al. 2006; Costa 2008). **PANAMA WEST:** San Carlos distrito, Cerro Pelado, 8°38'53"N, 80°04'42"W, 1,060 m, 26 Feb 2001, *Salazar Allen & Villarreal* 18319, 18320, 18321, 18810 (PMA, Dauphin et al. 2006; Costa 2008). ?**PANAMA:** S. loc. (Schäfer-Verwimp 2014) Note: We are not aware of any firsthand report from Panama Province and think it refers to Panama West.

Also reported from Malesia, the Caribbean, Northern South America, Western South America.

Metzgeria lechleri Steph., *Bull. Herb. Boissier* 7(12): 942 (*Sp. Hepat. [Stephani]* 1: 290), 1899 (Stephani 1899b). Type: Chile.

PANAMA. **CHIRIQUÍ:** Tierra Altas distrito, Parque Internacional La Amistad, 15 Mar 1996, *Costa et al.* 3029a (RB, Costa 2008).

Also reported from Indian Subcontinent, Mexico, the Caribbean, Western South America, Brazil, Southern South America.

Metzgeria leptoneura Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 555, 1885 (Spruce 1885) var. *leptoneura*. Type: Peru.

=*Metzgeria hamata* auct. (sensu Lindb.), non Lindb., *Acta Soc. Fauna Fl. Fenn.* 12(2): 25, 1877 (Lindberg 1877), nom. illeg. (ICN2018 Art. 52.1; earlier name included [*Metzgeria procera*]), syn. fide Engel (1978).

=*Metzgeria australis* Steph., *Hedwigia* 28(2): 267, 1889 (Stephani 1889), syn. fide Evans (1923a). Type: Australia.

=*Metzgeria thomeensis* Steph., *Hedwigia* 30(6): 271, 1891 (Stephani 1891b), syn. fide Kuwahara (1984). Type: São Tomé.

=*Metzgeria sandei* Schiffn., *Denkschr. Kaiserl. Akad. Wiss., Math.-Naturwiss. Kl.* 67: 181, 1898 (Schiffner 1898b), syn. fide So (2003). Type: Java.

=*Metzgeria papulosa* Steph., *Bull. Herb. Boissier* 7(12): 946 (*Sp. Hepat. [Stephani]* 1: 294, 1899 (Stephani 1899b), syn. fide Piippo (1991). Lectotype: Hawaii.

=*Metzgeria tuerckheimii* Steph., *Sp. Hepat.* 6: 61, 1917 (Stephani 1917b), syn. with *Metzgeria sandei* in Kuwahara (1969). Lectotype (Kuwahara 1969: 364 as “holotype”) or possibly holotype: Guatemala, Alta Verapaz, prope Cobán, 1,350 m, Oct 1907, *Türckheim* 5504 (G-00112626 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=142886&base=img&lang=en>).

GUATEMALA. S. loc. (Stephani 1917b as *Metzgeria 'türckheimii'*; Reimers 1926 as *Metzgeria hamata*; Winkler 1967 as *Metzgeria hamata*; Kuwahara 1969, 1976, 1982 as *Metzgeria sandei*, 1984 as *Metzgeria australis*, 1986 as *Metzgeria sandei*, *Metzgeria thomeensis*, and *Metzgeria tuerckheimii*; Schuster 1992a as *Metzgeria sandei*; Costa and Gradstein 2000 as *Metzgeria sandei*); S. loc., Cook & Griggs 74 (MICH, Kuwahara 1986; Pérez 2009); S. loc., *Türckheim*, hb. Levier 5823 (G, NY, Geissler and Bischler 1985 as *Metzgeria tuerckheimii*). **ALTA VERAPAZ:** Cobán, 1,350 m, *Türckheim* 5504 (G-13404, Kuwahara 1986 as *Metzgeria sandei*; Pérez 2009 as *Metzgeria sandei*); Cobán, 1,350 m, Aug 1907, *Türckheim* 13404 (G, Costa 2008); Cobán, 1,350 m, Oct 1907, *Türckheim* 5507 (G-00112626 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=142886&base=img&lang=en>, TYPE of *Metzgeria tuerckheimii*); Cobán, 1,600 m, 1908, *Türckheim* 5070 (NY, Kuwahara 1976 as *Metzgeria thomeensis*, 1986 as *Metzgeria australis*; Pérez 2009 as *Metzgeria australis*); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 24, 57, 233, 235, 243 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). **EL PROGRESO:** San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007). **HUEHUETE-NANGO:** Barillas municipio, San José Maxbal, Laguna Maxbal, 15°56'23"N, 91°18'19"W, Pérez 1407 (USCG, Pérez 2009). **QUETZALTENANGO:** Santo Tomás, 2,500–3,700 m, 21 Jan 1940, Steyermark 34702 (F, Costa 2008); Zunil municipio, Volcán Zunil, 2,500–3,000 m, 24 Jan 1940, Steyermark 34915 (F, Costa 2008). **QUICHÉ:** S. loc., Pérez 2359 (USCG, Pérez 2009). **SAN MARCOS:** Tajumulco municipio, slopes of Tajumulco, between Las Canoas and top ridge, 3,300–3,900 m, 16 Nov 1940, Steyermark 35826 (F, Costa 2008).

EL SALVADOR. S. loc. (Kuwahara 1986 as *Metzgeria hamata*). **SANTA ANA:** Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, Winkler B/1/c/2 (Winkler 1967 as *Metzgeria hamata*).

COSTA RICA. S. loc. (Reimers 1926 as *Metzgeria hamata*; Winkler 1967 as *Metzgeria hamata*; Kuwahara 1978b as *Metzgeria thomeensis*, 1984 as *Metzgeria australis*, 1986 as *Metzgeria thomeensis*; Cole 1984 as *Metzgeria hamata*; Gradstein et al. 1994 as *Metzgeria australis* and *Metzgeria papulosa*; Gradstein and Holz 2005; Schäfer-Verwimp and Pócs 2009 as *Metzgeria australis*); S. loc., Pittier 6099 (BR-1969-285-171, Kuwahara 1986); S. loc., Pittier (Stephani 1899b as *Metzgeria hamata*); Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); Cordillera de Talamanca, Kappelle 3967b (U, Kappelle 1996). **ALAJUELA:** S. loc., Polakowsky 120d (Dauphin 2005; Morales 1991); San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 5 Jul 2007, Norris 110031 (UC, Norris et al. 2017); San Ramón cantón, Nectandra Cloud Forest (UC, Norris et al. 2017 as *Metzgeria australis*); San Ramón cantón, Río San Pedro,

23 Jul 1932, Brenes 30 (NY, Kuwahara 1986 as *Metzgeria papulosa*; Dauphin 2005 as *Metzgeria papulosa*); San Ramón, 3,200–3,350 ft (975–1,021 m), 28 Jul 1967, Bowers 390-C (F, Costa 2008). **CARTAGO:** El Guarco cantón, La Esperanza, 1.5 km N Pan-American Highway (km 61.5), 2,640 m, 4 Dec 1985, Kappelle 230 (U, Costa 2008); La Unión cantón, Cerro de La Carpintera, 1,500–1,850 m, Feb 1924, Standley 34428, 34448 (JE, Costa 2008); Paraíso cantón, Cerro Asunción, 9°36'N, 84°46'W, 3,130 m, 15 Mar 1973, Engel 8426 (Costa 2008); Paraíso cantón, Orosi, Tapantí National Park, Sendero Arboles Caídos, Anton 295 (CR, Dauphin 2005); Paraíso cantón, Río Grande de Orosi, Tapantí, 9°43'N, 83°47'W, 1,500 m, 25 Mar 1973, Engel 9131 (F, Costa 2008); Turrialba cantón, Santa Cruz (Kuwahara 1986 as *Metzgeria australis*; Dauphin 2005 as *Metzgeria australis*); Turrialba cantón, Villa Mills, CATIE Station Siberia, Sendero Ecologico, 2,700 m, 28 Feb 1999, Holz CR 00-495, CR 00-505 (RB, Costa 2008). **GUANACASTE:** S. loc. (Morales 1991 as *Metzgeria thomeensis*); Santa Cruz (Kuwahara 1976 as *Metzgeria thomeensis*; Dauphin 2005 as *Metzgeria thomeensis*). **HEREDIA:** Barva cantón, Braulio Carrillo National Park, Sector Volcán Barva, 2,650–2,900 m, 16 Sep 1994, Gradstein & Dauphin 9658 (U, Costa 2008); San Isidro cantón, Cerro Caricias, 2,000–2,400 m, 7 Mar 1926, Standley & Valerio 51592 (JE, Costa 2008); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, Standley 50500 (Nieva and Schiavone 2002 as *Metzgeria sandei*); Sarapiquí cantón, Salto La Paz, Woodruff (FLAS, Morales 1991; Dauphin 2005). **LIMÓN:** Pococí cantón, Bosque cercano al Río Toro Amarillo, 5.5 km SO de Guápiles, Jiménez 1033, det. Ponce de León (CR, Morales 1991; Dauphin 2005). **PUNTARENAS:** S. loc. (Merwin et al. 2001); Monteverde, <1,500 m (Dauphin 2005; Morales 1991); Monteverde cantón, Checo Trail near Adorno clearing, 4,300 ft (1,310 m), Feb 1969, James, W. (R, Reed and Robinson 1971 as *Metzgeria hamata*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde cantón, Reserva Biologica Monteverde, 1,550 m, 9–11 Nov 1993, Gradstein & Dauphin 9432, 9508, 9520, 9522, 9588 (U, Costa 2008); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, Gradstein et al. (U, Sillett et al. 1995); Monteverde, James, W. (Dauphin 2005); Monteverde, 4,300 ft (1,310 m), Feb 1969, James, W. 1969-19b (T, Reed and Robinson 1971 as *Metzgeria hamata*; Dauphin 2005). **SAN JOSÉ:** Aserrí cantón, Cerro Daser (Azulillo), 9°51'N, 84°07'W, 2,050–2,150 m, 19 Mar 1973, Engel 8769 (F, Costa 2008); Braulio Carrillo National Park, Sep 1999, Costa (RB, Costa 2008); Cartago to Cerro de la Muerte, 2,600 m, 23 May 1999, Holz CR 99-441 (RB, Costa 2008); Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, Copey, Schäfer-Verwimp 80 (CR, Dauphin 2005); Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, 2,900 m, 14 Mar 2000,

Holz CR 00-651, CR 00-656 (RB, Costa 2008); Général (Tonduz 1896 as *Metzgeria hamata*); Moravia cantón, La Palma, Morales 364 (FLAS, Morales 1991; Dauphin 2005); Moravia cantón, La Palma, 1,600 m, 3 Feb 1926, Standley 33012, 33130, 33140 (JE, Costa 2008); Pérez Zeledón cantón, El General forest, Pittier 6059 (Stephani 1893c as *Metzgeria hamata*; Morales 1991; Dauphin 2005); Pérez Zeledón cantón, Páramo Buena Vista, Dauphin 2270 (CR, Dauphin 2005).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna (Stotler et al. 1998); Gualaca distrito, Fortuna Forest Reserve, Cerro Hornito, 1,670–2,300 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna, Quebrada Bonita, 1,000 m, 10 Nov 1987, Spörle 1.31 (PMA, U, Spörle 1990; Stotler et al. 1998; Costa 2008); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,660 m, Schäfer-Verwimp & Verwimp 34426 (JE, Schäfer-Verwimp 2014); Tierra Altas distrito, Parque Internacional La Amistad, 16 Mar 1996, Costa et al. 3033a (RB, Costa 2008); Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, Schäfer-Verwimp & Verwimp 34536 (JE, Schäfer-Verwimp 2014). COCLÉ: Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8'N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, Schäfer-Verwimp & Verwimp 34241 (JE, Schäfer-Verwimp 2014); Cerro El Tigreiro, 8°37'33"N, 80°41'18"W, 1,300 m, 26 Sep 2001, Salazar Allen & Villarreal 18919, 18920 (PMA, Costa 2008). DARIÉN: S. loc. (Schäfer-Verwimp 2014); Chepigana distrito, Cerro Sapo, 2,500 m, 1 Feb 1978, Hammel 1250 (U, Costa 2008). PANAMA WEST: Capiro distrito, Parque Nacional Altos de Campana National Park, 850 m, 17 Feb 1989, Salazar Allen 6559 (PMA, Costa 2008). PANAMA: S. loc. (Schäfer-Verwimp 2014); Chepo distrito, Rancho Chorro, Cañazas Mountains, 400–700 m, 3 Dec 1977, Folsom et al. 6703 (U, Costa 2008).

Also reported from Northern Europe, Southwestern Europe, Macaronesia, West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, China, Eastern Asia, Indian Subcontinent, Malesia, Papuasias, Australia, New Zealand, Southwestern Pacific, Northwestern Pacific, Subarctic America, Western Canada, Northeastern USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands.

Metzgeria liebmanniana Lindenb. et Gottsche, *Syn. Hepat.* 4: 505, 1846 (Gottsche et al. 1846). Type: México.

GUATEMALA. TOTONICAPÁN: Road between San Francisco El Alto and Momostenango, 2,220–3,000 m, 19 Jan 1941, Standley 84096 (F, Costa 2008 as *Metzgeria 'liebmanniana'*).

HONDURAS. INTIBUCÁ: La Esperanza, 1,500–1,600 m, 12–31 Jan 1950, Standley 25282 (F, Costa 2008 as *Metzgeria 'liebmanniana'*).

COSTA RICA. S. loc. (Kuwahara 1986 as *Metzgeria 'liebmanniana'*; Dauphin 2005; Gradstein and Holz 2005 as *Metzgeria 'liebmanniana'*); S. loc., Pittier (Stephani 1899b as *Metzgeria 'liebmanniana'*); Cordillera de Talamanca (Holz and Gradstein 2005b as *Metzgeria 'liebmanniana'*; Holz 2006). CARTAGO: Paraíso cantón, Orosi, Tapantí National Park, Griffin et al. 105, 114, 117 (FLAS, Morales 1991 as *Metzgeria 'liebmanniana'*; Dauphin 2005 as *Metzgeria 'liebmanniana'*); Turrialba cantón, Villa Mills, CATIE Station Siberia, 2,700 m, 6 Mar 2002, Holz CR 00-608 (RB, Costa 2008 as *Metzgeria 'liebmanniana'*). PUNTARENAS: S. loc. (Merwin et al. 2001 as *Metzgeria 'liebmanniana'*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a as *Metzgeria 'liebmanniana'*). SAN JOSÉ: Dota cantón, San Gerardo, Holz (Holz 2003 as *Metzgeria 'liebmanniana'*); Dota cantón, San Gerardo, 3,000 m, 7 Apr 1999, Holz CR 99-296 (RB, Costa 2008 as *Metzgeria 'liebmanniana'*); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a as *Metzgeria 'liebmanniana'*); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,300 m, 26 Dec 1999, Holz & Schäfer-Verwimp CR 99-1086 (RB, Costa 2008 as *Metzgeria 'liebmanniana'*).

PANAMA. S. loc. (Schäfer-Verwimp 2014 as *Metzgeria 'liebmanniana'*). CHIRIQUÍ: Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 1,950–2,260 m, 4 Apr 2006, Schäfer-Verwimp & Verwimp 30865, 30879 (JE, Schäfer-Verwimp 2014 as *Metzgeria 'liebmanniana'*); Tierra Altas distrito, Parque Internacional La Amistad, 15 Mar 1996, Costa et al. 3025a (RB, Costa 2008 as *Metzgeria 'liebmanniana'*).

Also reported from Mexico, Northern South America, Western South America, Brazil, Southern South America.

Metzgeria mexicana Steph., *Sp. Hepat. (Stephani)* 6: 55, 1917 (Stephani 1917b). Type: Mexico.

PANAMA. CHIRIQUÍ: Tierras Altas distrito, Parque Nacional Volcán Barú, Paso Ancho, Camino de ascenso a la cima, ladera Occidental, Bosque de las Brujas, 8°48'54.0"N, 82°34'33.9"W, 2,038 m, 11 Aug 2017, Guerra 111a (UCH, Arrocha et al. 2020); Tierras Altas distrito, Parque Nacional Volcán Barú, Paso Ancho, 8°48'55.13"N, 82°34'33.50"W, 2,047 m, Guerra Batista et al. (UCH, Guerra et al. 2020).

Also reported from Mexico, the Caribbean, Northern South America, Western South America.

Metzgeria myriopoda Lindb., *Acta Soc. Fauna Fl. Fenn.* 1(2): 22, 1877 (Lindberg 1877). Type: USA.

EL SALVADOR. SANTA ANA: Metapán municipio, Cerro Miramundo, hacienda Los Planos, 1,890–2,400 m, 25 Feb 1946, Carlson 963a (F, Costa 2008).

COSTA RICA. CARTAGO: Río Empalme and Río Estrella, 1,450 m, 21 Apr 1983, Liesner & Judziewicz 14649 (NY, Costa 2008).

PANAMA. COCLÉ: Antón distrito, El Valle de Antón, Alto de La Mesa, 8°38.3'N, 82°07.6'W, 850–870 m, 3 Apr 2009,

Schäfer-Verwimp & Verwimp 34730 (JE, Schäfer-Verwimp 2014).

Also reported from East Tropical Africa, North-Central USA, Northeastern USA, South-Central USA, Southeastern USA, Mexico, the Caribbean, Western South America, Brazil, Southern South America.

Metzgeria neotropica Kuwah., *Nova Hedwigia* 34: 779, 1981 (Kuwahara 1981). Type: Peru.

COSTA RICA. S. loc. (Gradstein and Uribe 2016). **CARTAGO:** Oreamuno cantón, road from Cartago to Volcán Irazú, *Lücking* (RB, Costa 2008).

Also reported from Western South America.

Metzgeria parviinvolucrata Kuwah., *Nova Hedwigia* 34: 774, 1981 (Kuwahara 1981). Type: Peru.

COSTA RICA. **CARTAGO:** Inter-American Highway between Empalme and Cerro La Asunción, 3,120 m, 26 Mar 1973, *Engel* 9151 (F, Costa 2008).

Also reported from Mexico, Western South America.

Metzgeria polytricha Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 553, 1885 (Spruce 1885). Type: Peru.

COSTA RICA. S. loc. (Schäfer-Verwimp et al. 2013; Gradstein 2021). **CARTAGO:** Oreamuno cantón, Volcán Irazú, Sep 1941, *Svihla* 41-471, 41-472, 41-473, 41-477 (NY, Costa 2008); Paraíso cantón, Rio Grande de Orosi, 9°42'N, 83°47'W, 1,590 m, 25 Mar 1973, *Engel* 9072a (F, Costa 2008). **HEREDIA:** San Isidro cantón, Cerro Caricias, 2,000–2,400 m, 11 Mar 1926, *Standley & Valerio* 52242, 52293 (JE, Costa 2008). **LIMÓN:** Talamanca cantón, Cahuita, 0 m, 16 Feb 1991, *Maas* 7933 (U, Costa 2008).

PANAMA. S. loc. (Schäfer-Verwimp et al. 2013). **CHIRIQUÍ:** Tierra Altas distrito, Parque Internacional La Amistad, 15 Mar 1996, *Costa et al.* 3024a (RB, Costa 2008).

Also reported from Northern South America, Western South America, Brazil.

Metzgeria procera Mitt., *Bot. Antarct. voy.* II (*Fl. Nov.-Zel.* 2): 166, 1855 (Mitten 1855). Type: Venezuela.

GUATEMALA. S. loc., 1892, *Levier* (NY, Costa 2008). **QUETZALTENANGO:** Montaña Chicharro, Volcán Santa María, 1,400–1,500 m, 17 Jan 1940, *Steyermark* 34317 (F, Costa 2008); Zunil municipio, Fuentes Georginas, 4 km S of Zunil, NW slopes of Pico Zunil, 14°45'4.0"N, 91°28'35.8"W, 23 Dec 2004, *Quedensley* 2078, det. Dauphin Sep 2017 (MO, W-0089078!, this publication); Zunil municipio, Fuentes Georginas, 4 km S of Zunil, NW slopes of Pico Zunil, 14°45'4.0"N, 91°28'35.8"W, 2 Jan 2006, *Quedensley* 3837, det. Dauphin Sep 2017 (MO, W-0089079!, this publication).

COSTA RICA. S. loc. (Gradstein et al. 1994); S. loc., *Hyde* (Kuwahara 1986). **LIMÓN:** Pococí cantón, Guápiles, near Río Toro Amarillo, 350 m, 9 Feb 1965, *Godfrey* 66290 (NY, Kuwahara 1986; Costa 2008); Pococí cantón, Guápiles, Río

Toro Amarillo, 350 m, *Hyde* 6055 (Dauphin 2005). **SAN JOSÉ:** Aserri cantón, Cerro Daser (Azulillo), 9°51'N, 84°07'W, 2,050–2,150 m, 19 Mar 1973, *Engel* 8694, 8747 (F, Costa 2008); Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, 29 Dec 1925, *Standley* 43728 (JE, Costa 2008); Moravia cantón, La Palma, 1,600 m, 17 Mar 1924, *Standley* 38014 (JE, Costa 2008).

PANAMA. **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, Quebrada Arena, 920–1,100 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna, 1 km N de Quebrada Bonita, 1,500 m, 12 Feb 1998, *Valdespino et al.* 924 (NY, Costa 2008); Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, *Schäfer-Verwimp & Verwimp* 34581 (JE, Schäfer-Verwimp 2014). **COCLÉ:** S. loc. (Schäfer-Verwimp 2014); La Pintada distrito, El Copé, 8°37'N, 80°35'W, 15 Jun 1996, *Ayarza & Wong* 50 (PMA, Dauphin et al. 2006; Costa 2008). **PANAMA WEST:** Capira distrito, Comunidad El Jordanal, 8°40'10"N, 80°07'37"W, 600 m, 21 Jul 2001, *Salazar Allen et al.* 18167 (PMA, Dauphin et al. 2006; Costa 2008); Capira distrito, Parque Nacional Altos de Campana, 8°40'N, 79°55'W, 800–900 m, 7 Apr 1989, *Lara et al.* 1459 (PMA, Dauphin et al. 2006; Costa 2008). **PANAMA:** S. loc. (Schäfer-Verwimp 2014). Note: We are not aware of any firsthand report from Panama Province and think it refers to Panama West. **VERAGUAS:** S. loc. (Schäfer-Verwimp 2014); Santa Fe distrito, NW de Santa Fé, 10.8 km de la Escuela Agrícola Alto de Piedra, camino a Calovébora, 8°30'N, 81°05'W, 8 Jun 1975, *Mori* 6731 (PMA, Dauphin et al. 2006; Costa 2008).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Metzgeria psilocraspeda Schiffn., *Österr. Akad. Wiss., Math.-Naturwiss. Kl., Denkschr.* 111: 25, 1964 (Schiffner and Arnell 1964). Type: Brazil.

GUATEMALA. **ALTA VERAPAZ:** Tucurú municipio, Reserva Privada Chelemhá (Pérez 2006).

Also reported from Brazil, Southern South America.

Metzgeria pulvinata Steph., *Biblioth. Bot.* 87(2): 179, 1916 (Stephani 1916b). Type: Bolivia.

COSTA RICA. **CARTAGO:** Paraíso cantón, Cerro Asunción, SE of Empalme, Interamerican Highway, 9°41'N, 83°52'W, 2,600 m, 17 Mar 1973, *Engel* 8603 (F, Costa 2008). **SAN JOSÉ:** Dota cantón, San Gerardo, 2,000 m, 14 Mar 2000, *Holz* CR 00-759 (RB, Costa 2008).

Also reported from West-Central Tropical Africa, Mexico, Western South America.

Metzgeria rufula Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 555, 1885 (Spruce 1885). Type: Ecuador.

COSTA RICA. **ALAJUELA:** San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 26 Mar 2010, *Norris* 110884 (UC, Norris et al. 2017). **SAN JOSÉ:** “Genesis II” Cloud Forest

Reserve, Cordillera de Talamanca, 2,300 m, Feb 1997, *Lücking* (RB, Costa 2008); Général (Tonduz 1896); Pérez Zeledón cantón, El General forest, *Pittier 6055* (CR, Stephani 1893c; Morales 1991; Kappelle 1996; Dauphin 2005).

PANAMA. CHIRIQUÍ: Tierras Altas distrito, El Volcán, road to Rio Sereno, near Santa Clara, 8°49.8'N, 82°44.0'W, 1,200 m, 2 Apr 2009, *Schäfer-Verwimp & Verwimp 34722* (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Volcán, road to Rio Sereno, 8°49.67'N, 82°42.85'W, 1,220 m, 2 Apr 2009, *Schäfer-Verwimp & Verwimp 34696/C* (JE, Schäfer-Verwimp 2014).

Also reported from West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, Eastern Asia, Australia, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Metzgeria scyphigera A.Evans, *Trans. Connecticut Acad. Arts* 18(5): 299, 1914 (Evans 1914b). Type: Peru.

GUATEMALA. ALTA VERAPAZ: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008); Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, Pérez 248 (USCG, Pérez 2009); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). EL PROGRESO: San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007). IZABAL: Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007). QUETZALTENANGO: Zunil municipio, Fuentes Georginas, Volcán de Zunil, 2,300–2,500 m, 3 Feb 1941, *Standley 85850* (F, Costa 2008). QUICHÉ: S. loc., Pérez 2356 (USCG, Pérez 2009). SAN MARCOS: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008). ZACAPA: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007).

COSTA RICA. ALAJUELA: San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 15 Mar 2010, *Norris 5746* (UC, Norris et al. 2017).

PANAMA. CHIRIQUÍ: Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,870–2,260 m, 6 Apr 2006, *Schäfer-Verwimp & Verwimp 30985* (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, *Schäfer-Verwimp & Verwimp 34575/B, 34594/A* (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Parque Internacional La Amistad, Las Nubes, sendero Panamá Verde, 8°53'37.4"N, 82°38'52.5"W, 2,218 m, Sep 2015–Jul 2016, *Guerra-Batista et al.* (Guerra-Batista et al. 2020).

Also reported from West-Central Tropical Africa, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands(?).

Metzgeria uncigera A.Evans, *Ann. Bot. (Oxford)* 24(2): 276, 1910 (Evans 1910). Type: Puerto Rico.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al. 146, 156, 382, 459* (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). IZABAL: Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007).

PANAMA. CHIRIQUÍ: Tierras Altas distrito, Parque Internacional La Amistad, Las Nubes, sendero Panamá Verde, 8°53'37.4"N, 82°38'52.5"W, 2,218 m, Sep 2015–Jul 2016, *Guerra-Batista et al.* (Guerra-Batista et al. 2020). COCLES: La Pintada distrito, Corregimiento El Copé, Parque Nacional G. D. Omar Torrijos H., Sendero La Rana Dorada, 8°40'06"N, 80°35'26"W, 696 m, 31 Jul 2017, *Dauphin & Gudiño 4480* (PMA, Dauphin et al. 2015). PANAMA WEST: Capira distrito, Parque Nacional Altos de Campana, Sendero de Interpretación, 8°40'N, 79°55'W, 11 Nov 1995, *Salazar Allen et al. 16026*, det. D. Reyes 1995 (PMA, Dauphin et al. 2015).

Also reported from Southeastern USA, the Caribbean, Northern South America, Western South America, Brazil.

Metzgeria violacea (Ach.) Dumort., *Recueil Observ. Jungerm.*: 26, 1835 (Dumortier 1835).

=*Jungermannia violacea* Ach., *Beitr. Naturk. (Weber & Mohr)* 1:77, 1805 (Acharius 1805). Type: New Zealand.

=*Metzgeria fruticulosa* auct., non (O.F.Müll.) A.Evans, *Annals of Botany* Oxford 24: 293, 1910 (Evans 1910), syn. fide Grolle and So (2003).

Note: *Metzgeria violacea* was previously mostly reported under the name *Metzgeria fruticulosa*, but Grolle and So (2003) showed that the type of the latter name belongs to *Riccardia palmata*, although never reported in that sense before.

COSTA RICA. S. loc. (Cole 1984 as *Metzgeria furcata* var. *fruticulosa*). PUNTARENAS: Monteverde, 15 Jan 1965, *James, W. 40b* (R, Reed and Robinson 1971 as *Metzgeria fruticulosa*; Morales 1991 as *Metzgeria fruticulosa*).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, Macaronesia, West-Central Tropical Africa, East Tropical Africa, Southern Africa, Western Indian Ocean, Russian Far East, Eastern Asia, Indian Subcontinent, Indo-China, Australia, New Zealand, Subarctic America, Western Canada, Northwestern USA, Southwestern USA, Southeastern USA, Mexico, Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands.

***Microlejeunea* (Spruce) Steph., *Hedwigia* 27(2): 61, 1888 (Stephani 1888c).**

Microlejeunea acutifolia Steph., *Hedwigia* 35(3): 113, 1896 (Stephani 1896). Type: Trinidad.

=*Lejeunea acutifolia* (Steph.) R.M.Schust., *J. Hattori Bot. Lab.* 72: 270, 1992 (Schuster 1992b), nom. inval. (ICN2018 Art. 41.5; basionym not cited).

≡*Lejeunea acutifolia* (Steph.) A.Lücking, *Div. Mikrohabitatpräfl. Epiphyll.* Moose: 103, 1995 (Lücking 1995), nom. inval. (ICN2018 Art. 30.8; published in a thesis).

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 487 (USCG, *Freire et al.* 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al.* 2005 as '*Microlejeunea*' *acutifolia*).

***BELIZE. *TOLEDO:** Punta Gorda, Nov 1932, *White* 73, det. Dauphin May 2017 (MO-5247575!, **this publication**).

EL SALVADOR. S. loc. (Lücking 1995 as *Lejeunea acutifolia*; Schäfer-Verwimp 1999; Ilkiu-Borges 2000). **SANTA ANA:** Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler B/5/d/3* (*Winkler* 1967).

COSTA RICA. S. loc. (Schäfer-Verwimp 1999; Ilkiu-Borges 2000). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, *Lücking* 92-164 (USJ, *Gradstein et al.* 1994; *Dauphin* 2005); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 92-163, 92-369, 92-457, 92-479, 92-582 (hb. Lücking, *Lücking* 1995 as *Lejeunea acutifolia*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (Lücking 1997 as *Lejeunea acutifolia*). **PUNTARENAS:** S. loc. (*Merwin et al.* 2001); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (*Sonnleitner et al.* 2009); Monteverde, <1,500 m (*Dauphin* 2005); Monteverde cantón, Campbell's Wood, *Sillett* 42494 (*Dauphin* 2005); Monteverde cantón, Campbell's Wood, 1,500 m, *Sillett* 5-5 (U, *Gradstein et al.* 1994); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, *Gradstein et al.* (U, *Sillett et al.* 1995).

PANAMA. COCLÉ: Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8°N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34263/E (JE, *Schäfer-Verwimp* 2014); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Río Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López* 693, 747.3 p.p., 814, 818, 824 p.p., 838 p.p. (PMA, *Sierra et al.* 2019a).

COCOS I. S. loc. (*Dauphin* 1995, 1999; Schäfer-Verwimp 1999; Ilkiu-Borges 2000); Bahía Yglesias, 0–20 m, Apr 1992, *Lücking* 617 (ULM, *Bernecker-Lücking* 2000); Río Genio, 5°32'57"N, 87°03'56"W, 0–50 m, *Lücking* 516, 537, 92-327 (USJ, *Bernecker-Lücking* 2000; *Dauphin* 2005); Río Genio, 5°32'57"N, 87°03'56"W, 50 m, Apr 1992, *Lücking* 92-327 (USJ, *Lücking* 1995 as *Lejeunea acutifolia*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Microlejeunea bullata (Taylor) Steph., *Hedwigia* 29(2): 90, 1890 (Stephani 1890c).

≡*Lejeunea bullata* Taylor, *London J. Bot.* 5: 398, 1846 (Taylor 1846a). Type: St. Vincent.

≡*Lejeunea ulicina* (Taylor) Gottsche, Lindenb. et Nees subsp. *bullata* (Taylor) R.M.Schust., *J. Hattori Bot. Lab.* 25: 55, 1962 (Schuster 1962).

GUATEMALA. ALTA VERAPAZ: Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, *Pérez* 194 (USCG, *Pérez* 2009); Tukurú municipio, Reserva Privada Chelemhá (*Pérez* 2006 as *Microlejeunea* cf. *bullata*). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 28 (USCG, *Freire et al.* 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al.* 2005).

BELIZE. S. loc. (*Fulford* 1938; *Frye and Clark* 1947; *Whittemore and Allen* 1996). ***TOLEDO:** Punta Gorda, Feb 1933, *White* 90, det. *Fulford* 1937 (MO-5375157!, **this publication**).

HONDURAS. S. loc. (*Jovet-Ast* 1960; *Schuster* 1962, 1980d, both as *Lejeunea ulicina* subsp. *bullata*; *Bischler et al.* 1963; *Fulford* 1987; *Fulford and Sharp* 1990; *Lücking* 1995 as *Lejeunea bullata*; *Bastos* 2004). **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 54225 p.p. (*Herzog* 1951).

EL SALVADOR. S. loc. (Lücking 1995 as *Lejeunea bullata*). **SANTA ANA:** Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler A/2/1, B/6/c/5* (*Winkler* 1967).

***NICARAGUA. *CHONTALES:** Cuapa municipio, road between Río Bizcocho and Río el Jordan, 12°15'N, 85°16'W, 350–550 m, 18 Dec 1983, *Stevens & Montiel* 22594B, det. *Dauphin* May 2017 (MO-5238385! <http://tropicos.org/specimen/90108650>, **this publication**).

COSTA RICA. S. loc. (*Jovet-Ast* 1957; *Gradstein* 1999a; *Dauphin* 2005; *Gradstein and Holz* 2005); Cordillera de Talamanca (*Holz and Gradstein* 2005b; *Holz* 2006); Cordillera de Talamanca, *Van Dunné* 266 (AMD, *Kappelle* 1996). **ALAJUELA:** Alajuela cantón, between Vara Blanca and Poás Volcano, 31 Jan 1985, *Eggers* CR 1/200 (*Pócs* 2006a). **GUANACASTE:** La Cruz cantón, Guanacaste National Park, Cerros Santa Elena, 10°53'24"N, 85°50'55"W, 650–700 m, 27 Aug 2003, *Dauphin et al.* 3309, 3346.2 (CR, *Dauphin* 2005; *Dauphin and Grayum* 2005). **HEREDIA:** La Uvita, *Morales* 249 (FLAS, *Morales* 1991; *Dauphin* 2005). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 92-625 (hb. Lücking, *Lücking* 1995 as *Lejeunea bullata*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (Lücking 1997 as *Lejeunea bullata*). **PUNTARENAS:** S. loc. (*Merwin et al.* 2001); Monteverde, <1,500 m (*Dauphin* 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, *Gradstein et al.* (U, *Sillett et al.* 1995); Osa cantón, Península de Osa, Boscosa, 150 m, *Gradstein & Dauphin* 9303a (U, USJ, *Gradstein et al.*

1994). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, Holz (Holz 2003); Dota cantón, San Gerardo, 9°35'40"N, 83°44'30"W, 3,000 m, Aug 1992, Van Dunné (Van Dunné and Kappelle 1998); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a).

PANAMA. S. loc. (Lücking 1995 as *Lejeunea bullata*); Canal Zone (Schäfer-Verwimp 2014). **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°44.3'N, 82°14.7'W, 1,100 m, 30 Mar 2009, Schäfer-Verwimp & Verwimp 34514 (JE, Schäfer-Verwimp 2014). **COCLÉ:** Antón distrito, El Valle de Antón, Golden Frog Inn and near surroundings, 8°36.6'N, 80°06.6'W, 640–650 m, 7 Apr 2006, Schäfer-Verwimp & Verwimp 31039 (JE, Schäfer-Verwimp 2014); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Río Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, Sierra & López 675, 729, 759, 777 (PMA, Sierra et al. 2019a). **DARIÉN:** Cerro Pirre (Stotler et al. 1998 as *Lejeunea ulicina* subsp. *bullata*); Cerro Pirre, 400–500 m, Salazar Allen & Gradstein 9293 (PMA, Stotler et al. 1998 as *Lejeunea ulicina* subsp. *bullata*); Cerro Pirre, above Rancho Mojado, 900 m, Salazar Allen & Gradstein 9245 (PMA, Stotler et al. 1998 as *Lejeunea ulicina* subsp. *bullata*); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, Gradstein & Salazar Allen (PMA, U, Gradstein and Salazar Allen 1992); Cerro Pirre, along trail to Rancho Mojado, 400–500 m, 4–8 Jun 1991, Gradstein & Salazar Allen (PMA, U, Gradstein and Salazar Allen 1992); **PANAMA WEST:** La Chorrera distrito, Barro Colorado Island (Reiner-Drehwald et al. 2013 as *Lejeunea ulicina* subsp. *bullata*); La Chorrera distrito, Barro Colorado Island, Shattuck 569 p.p. (Haynes 1933; Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Basilisk Bay, 2003, Dauphin 3165 (CR, PMA, Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Lutz trail, Shattuck 569 p.p. (F, Stotler et al. 1998 as *Lejeunea ulicina* subsp. *bullata*); La Chorrera distrito, Barro Colorado, Laboratory Cove, 2003, Dauphin 3148 (CR, PMA, Dauphin et al. 2022). **VERAGUAS:** Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, Schäfer-Verwimp & Verwimp 30844 (JE, Schäfer-Verwimp 2014).

COCOS I. S. loc. (Fosberg and Klawe 1966; Dauphin 1995; Lücking 1995 as *Lejeunea bullata*); S. loc., 1966, Fosberg & Klawe (Morales 1991); Camino a Cerro Pelón, 360 m, 15 Feb 1994, Dauphin 1187 (USJ, Dauphin 1995, 1999, 2005); Río Genio, 5°32'57"N, 87°03'56"W, 0–50 m, Apr 1992, Lücking 276, 540 (hb. Bernecker, Bernecker-Lücking 2000); Wafer Bay, 28 Jun 1932, Howell 227 p.p. (CAS, Clark 1953a); Wafer Bay, 0 m, Apr 1992, Lücking 483 (USJ, Bernecker-Lücking 2000).

Also reported from Eastern Canada, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands.

Microlejeunea capillaris (Gottsche) Steph., *Sp. Hepat. (Stephani)* 5: 819, 1915 (Stephani 1915).

≡ *Lejeunea capillaris* Gottsche, *Ann. Sci. Nat. Bot.*, sér. 5, 1: 163, 1864 (Gottsche 1864). Type: Brazil.

≡ *Microlejeunea colombiana* Bischl., *Nova Hedwigia* 5(1/2): 373, 1963 (Bischler et al. 1963), syn. fide Gradstein and Uribe (2016). Type: Colombia.

GUATEMALA. HUEHUETENANGO: Todos Santos Cuchumatán, Chihuitz, 15°30'40"N, 91°38'56"W, 2,790 m, 2006, Pérez et al. 1182 (USCG, Pérez 2009).

COSTA RICA. S. loc. (Schäfer-Verwimp and Pócs 2009; Schäfer-Verwimp and Van Melick 2016); S. loc., Schäfer-Verwimp & Holz SV/H-0489/B (JE, Czumay et al. 2013; Dong et al. 2013; Heinrichs et al. 2013, 2014a, 2014b; Bechteler et al. 2016a, 2016c; Zhu et al. 2017, 2018a, 2018b, 2019; Zhu and Shu 2018; Shu et al. 2022); Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b). **CARTAGO:** Turrialba, Turrialba National Park, Conejo (USJ, Gradstein et al. 1994; Dauphin 2005). **PUNTARENAS:** Osa cantón, Rincón, trail to Cerro Chocuaco, 350 m, Gradstein & Dauphin 9333 p.p. (U, USJ, Gradstein et al. 1994; Dauphin 2005). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, Los Robles, 12 Jun 1999, Holz CR 99-837 (GOET, CR, Schäfer-Verwimp 2001 as *Microlejeunea colombiana*); Dota cantón, San Gerardo, Los Robles, 2,400 m, 4 Jan 2000, Schäfer-Verwimp & Holz SV/H-0486/B (Schäfer-Verwimp 2001 as *Microlejeunea colombiana*).

PANAMA. S. loc. (Schäfer-Verwimp and Van Melick 2016 as *Microlejeunea colombiana*); Canal Zone (Schäfer-Verwimp 2014). **CHIRIQUÍ:** Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 1,980 m, 4 Apr 2006, Schäfer-Verwimp & Verwimp 30867 (JE, Schäfer-Verwimp 2014); Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,450–2,600 m, 4 Apr 2006, Schäfer-Verwimp & Verwimp 30888, 30914 (JE, Schäfer-Verwimp 2014 as *Microlejeunea colombiana*). **PANAMA WEST:** La Chorrera distrito, Barro Colorado Island, Salazar Allen 4501b (PMA, Stotler et al. 1998).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Microlejeunea crenulifolia (Gottsche) Steph., *Hedwigia* 35(3): 114, 1896 (Stephani 1896).

≡ *Lejeunea crenulifolia* Gottsche, *Mexik. Leverm.*: 227, 1863 (Gottsche 1863). Type: Trinidad.

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, foothills of Cerro Pinola, 1,280–2,000 m (Salazar Allen et al. 2021). **COCLÉ:** La Pintada distrito, Corregimiento El Copé, Parque Nacional G. D. Omar Torrijos H., Sendero La Rana Dorada, 8°40'06"N, 80°35'26"W, 696 m, 31 Jul 2017, Dauphin & Gudiño 4443 p.p., 4490 p.p. (PMA, Dauphin et al. 2015); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Río

Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López 701* (PMA, *Sierra et al. 2019a*).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Microlejeunea diversiloba (Spruce) Müll.Frib., *Lebermoose* 2(24): 654, 1915 (Müller 1915).

≡ *Lejeunea diversiloba* Spruce, *J. Bot.* 14: 235, 1876 (Spruce 1876a). Type: Mexico.

= *Lejeunea cucullata* δ *stricta* Gottsche, Lindenb. et Nees, *Syn. Hepat.* 5: 767, 1847 (Gottsche et al. 1847), syn. fide Gottsche (1863). Type: Mexico.

≡ *Microlejeunea stricta* (Gottsche, Lindenb. et Nees) Steph., *Hedwigia* 29(2): 90, 1890 (Stephani 1890c).

GUATEMALA. QUICHÉ: S. loc., Pérez 2184 (USCG, Pérez 2009 as *Microlejeunea stricta*).

EL SALVADOR. S. loc. (Fulford and Sharp 1990 as *Microlejeunea stricta*; Schäfer-Verwimp 2014 as *Microlejeunea stricta*). SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, Winkler A/1/12, A/6/2, A/7/4, A/8/3, A/26/8 (Winkler 1967 as *Microlejeunea stricta*).

COSTA RICA. S. loc. (Schäfer-Verwimp 2014 as *Microlejeunea stricta*). CARTAGO: Paraíso cantón, Orosi, Tapantí National Park, Morales 2252 *p.p.*, det. Morales (USJ, Morales 1991 as *Microlejeunea stricta*; Dauphin 2005 as *Microlejeunea stricta*). PUNTARENAS: Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a as *Microlejeunea stricta*).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, Cerro Hornito, 1,670–2,300 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, foothills of Cerro Pinola, 1,280–2,000 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,650 m, Schäfer-Verwimp & Verwimp 34420/C (JE, Schäfer-Verwimp 2014 as *Microlejeunea stricta*). COCLÉ: Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 700–1,000 m, 31 Mar 2006, Schäfer-Verwimp & Verwimp 30759 (JE, Schäfer-Verwimp 2014 as *Microlejeunea stricta*); Antón distrito, El Valle de Antón, along road to Mato Ahogado, 8°37.05'N, 82°06.60'W, 670 m, 4 Apr 2009, Schäfer-Verwimp & Verwimp 34756 (JE, Schäfer-Verwimp 2014 as *Microlejeunea stricta*); Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, Schäfer-Verwimp & Verwimp 34136/C (JE, Schäfer-Verwimp 2014 as *Microlejeunea stricta*); La Pintada distrito, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Rio Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López 668, 671, 673, 691 p.p.*, 692, 716 (PMA, *Sierra et al. 2019a* as *Microlejeunea stricta*).

Also reported from Mexico, the Caribbean, Western South America, Brazil.

Microlejeunea epiphylla Bischl., *Nova Hedwigia* 5(1/2): 378, 1963 (Bischler et al. 1963). Type: Guadeloupe.

≡ *Lejeunea epiphylla* (Bischl.) A.Lücking, *Diversit. Mikrohab. Epiphyllar* Moose: 106, 1995 (Lücking 1995), nom. inval. (ICN2018 Art. 30.9; published in thesis).

GUATEMALA. ALTA VERAPAZ: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008 as *Microlejeunea* cf. *epiphylla*). QUICHÉ: S. loc., Pérez 2197 (USCG, Pérez 2009). ZACAPA: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007).

EL SALVADOR. S. loc. (Lücking 1995 as *Lejeunea epiphylla*; Ilkiu-Borges 2000). SANTA ANA: Metapán municipio, Parque Nacional Monte Cristo, Cordillera de Metapán, 14°27'N, 89°22'W, 27 Jan 1998, *Davidse 37211 p.p.*, det. Dauphin May 2017 (MO-6699950!, **this publication**); Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, Winkler A/18/1 (Winkler 1967).

*NICARAGUA. *JINOTEGA: Ridge between Cerro Bravo and Cerro Picacho, 1,490–1,550 m, 26 May 1985, *Davidse 30513 p.p.*, det. Dauphin May 2017 (MO-6699935! <https://tropicos.org/specimen/100988169>, **this publication**).

COSTA RICA. S. loc. (Ilkiu-Borges 2000; Schäfer-Verwimp and Pócs 2009; Schäfer-Verwimp and Van Melick 2016). CARTAGO: Turrialba cantón, Guayabo, 1,100 m, Eggers (hb. Eggers, Eggers 2001). GUANACASTE: Tenorio, 500 m, Eggers (hb. Eggers, Eggers 2001). HEREDIA: San Miguel de Sarapiquí, 850 m, 30 Jan 1985, Eggers (hb. Eggers, Eggers 2001). LIMÓN: Braulio Carrillo National Park, 400–500 m (Eggers 2001); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Lücking 92-100 (USJ, Gradstein et al. 1994; Dauphin 2005); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, Lücking 91-106, 92-101, 92-354, 92-404, 92-492, 92-524 (hb. Lücking, Lücking 1995 as *Lejeunea epiphylla*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, Lücking (Lücking 1997 as *Lejeunea epiphylla*); Pococí cantón, Tortuguero, 1–5 m, Eggers (hb. Eggers, Eggers 2001). PUNTARENAS: Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009); Osa cantón, Península de Osa, 300 m (Eggers 2001); Osa cantón, Rincón, trail to Cerro Chocuaco, 300 m, Gradstein & Dauphin 9317a (U, USJ, Gradstein et al. 1994; Dauphin 2005). SAN JOSÉ: Acosta cantón, El Cornelio, 1,350 m, Dauphin et al. 2945 *p.p.*, det. Ilkiu-Borges (NY, Dauphin 2005).

PANAMA. S. loc. (Schäfer-Verwimp and Pócs 2009). *BOCAS DEL TORO: Bocas del Toro distrito, Salt Creek, Long Beach Trail, Aug 2017, Dauphin et al. 4632 (PMA, **this publication**). CHIRIQUÍ: Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,340–1,360 m, Schäfer-Verwimp & Verwimp 34351/C, 34377/B (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Volcán, along road to Rio Serena at western edge of the village, 8°47.6'N, 82°39.4'W, 1,370 m, 1 Apr 2009, Schäfer-Verwimp & Verwimp 34620, 34622/A, 34687/B (JE, Schäfer-Verwimp 2014). COCLÉ: Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N,

80°08.8'W, 640–870 m, 24 Mar 2009, *Schäfer-Verwimp & Verwimp* 34153/D, 34155 (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, Golden Frog Inn and near surroundings, 8°36.6'N, 80°06.6'W, 640–650 m, 7 Apr 2006, *Schäfer-Verwimp & Verwimp* 31059 (JE, Schäfer-Verwimp 2014). PANAMA WEST: La Chorrera, Barro Colorado, near Laboratory N Wing, 2003, *Dauphin* 3197 (CR, PMA, Dauphin et al. 2022); La Chorrera distrito, Barro Colorado, Fairchild, 2003, *Dauphin* 3133 (CR, PMA, Dauphin et al. 2022); La Chorrera distrito, Barro Colorado, Laboratory Cove, 2003, *Dauphin* 3144a (CR, PMA, Dauphin et al. 2022); La Chorrera distrito, Barro Colorado, Lake shore, 2003, *Dauphin* 3094 (CR, PMA, Dauphin et al. 2022); La Chorrera distrito, Barro Colorado, Snyder-Molino, 2003, *Dauphin* 3054 (CR, PMA, Dauphin et al. 2022). PANAMA: S. loc. (Schäfer-Verwimp 2014); Panamá distrito, Chagres National Park, Altos de Cerro Azul, Sendero El Cantar, 800 m, *Gradstein* 9783a (GOET, Stotler et al. 1998). VERAGUAS: Santa Fe distrito, base of Cerro Tute, 8°30'N, 81°06'W, 710–890 m, 26 Mar 2009, *Schäfer-Verwimp & Verwimp* 34266, 34283, 34289 (JE, Schäfer-Verwimp 2014); Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, *Schäfer-Verwimp & Verwimp* 30806, 30858 (JE, Schäfer-Verwimp 2014).

COCOS I. S. loc. (Dauphin 1995, 1999); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 400 m, *Lücking* 92-259 (USJ, Gradstein et al. 1994; Dauphin 2005); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 350–500 m, Apr 1992, *Lücking* 92-259 (USJ, Lücking 1995 as *Lejeunea epiphylla*); Yglesias D, 350–500 m, Apr 1992, *Lücking* 583, 621 (USJ, Bernecker-Lücking 2000).

Also reported from Southeastern USA, the Caribbean, Northern South America, Western South America, Brazil, Southern South America(?).

Microlejeunea subulistipa Steph., *Hedwigia* 35(3): 115, 1896 (Stephani 1896). Type: Brazil.

EL SALVADOR. SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hacienda Montecristo, *Winkler* A/8/2, B/6/d/1 (Winkler 1967).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Microlejeunea valenciana Steph., *Sp. Hepat. (Stephani)* 5: 815, 1915 (Stephani 1915). Type: Venezuela.

EL SALVADOR. SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hacienda Montecristo, *Winkler* A/26/12 (Winkler 1967).

Also reported from Northern South America.

***Micropterygium* Gottsche, Lindenb. et Nees,
Syn. Hepat. 2: 233, 1845 (Gottsche et al. 1845b).**

Micropterygium carinatum (Grev.) Reimers, *Hedwigia* 76(3): 166, 1936 (Reimers 1936).

≡ *Jungermannia carinata* Grev., *Ann. Lyceum Nat. Hist. New York* 1(2): 276, 1825 (Greville 1825). Type: Guadeloupe.

†COSTA RICA. S. loc. (Gradstein 2021) Note: This must refer to *Cocos* I.

COCOS I. Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 15 Feb 1994, *Dauphin* 961, det. S. R. Gradstein (USJ, MO-6699924! <https://www.tropicos.org/specimen/103021324>, Dauphin 1995, 1999, 2005).

Also reported from Southwestern Pacific(?), Northeastern USA(?), the Caribbean, Northern South America, Western South America, Brazil.

Micropterygium leiophyllum Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 386, 1885 (Spruce 1885). Type: Brazil.

COSTA RICA. S. loc. (Gradstein 2021). ALAJUELA: San Ramón cantón, San Ramón, Reserva Biológica Alberto Brenes, 800 m, *Dauphin* 2927 (NY, Dauphin 2005).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Micropterygium parvistipulum Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 383, 1885 (Spruce 1885). Type: Brazil.

PANAMA. S. loc. (Gradstein 2021). COCLÉ: La Pintada distrito, Corregimiento El Copé, Parque Nacional G. D. Omar Torrijos H., Sendero La Rana Dorada, 8°40'06"N, 80°35'26"W, 710 m, 1 Aug 2012, *Dauphin & Salazar Allen* 4483, 4547 (PMA, STRI, Dauphin et al. 2015).

Also reported from Northern South America, Western South America, Brazil.

Micropterygium pterygophyllum (Nees) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 413, 1877 (Trevisan 1877).

≡ *Jungermannia pterygophylla* Nees, *Fl. Bras. (Martius)* 1(1): 377, 1833 (Nees 1833b). Type: Brazil.

COSTA RICA. ALAJUELA: San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 5 Jul 2007, *Norris* 109977 (UC, Norris et al. 2017).

PANAMA. S. loc. (Costa 2017; Costa et al. 2020). COCLÉ: Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 700–1,000 m, 31 Mar 2006, *Schäfer-Verwimp & Verwimp* 30762 (JE, Schäfer-Verwimp 2014). DARIÉN: S. loc. (Schäfer-Verwimp 2014); Cerro Pirre (Stotler et al. 1998); Cerro Pirre, 400–500 m, *Salazar Allen & Gradstein* 9237 (PMA, Stotler et al. 1998); Cerro Pirre, along trail to Rancho Mojado, 400–500 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Micropterygium trachyphyllum Reimers, *Hedwigia* 73(3/4): 186, 1933 (Reimers 1933). Type: Barbados.

BELIZE. CAYO: S. loc., Dec 1993, *Allen* 15046 (BRH, MO, Whittemore and Allen 1996); S. loc., Dec 1993, *Allen* 15056 (BRH, MO, Whittemore and Allen 1996). *TOLEDO: Columbia River Forest Reserve, from Camp 2 along Little Quartz Ridge

spur to spur's summit, 16°23'17"N, 89°05'30"W, 16 Feb 1997, *Allen 18806 p.p.*, det. Dauphin May 2017 (MO-6699951!, **this publication**).

*HONDURAS. *ATLÁNTIDA: El Porvenir municipio, Pico Bonito National Park, trail from confluence to ridge camps, 15°38'N, 86°52'W, 1,500–1,630 m, 22 Apr 1996, *Allen 17503*, det. Dauphin May 2017 (MO-6236050! <https://tropicos.org/specimen/100371089>, **this publication**).

COSTA RICA. ALAJUELA: San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 5 Jul 2007, *Norris 109974* (UC, *Norris et al. 2017*); Upala cantón, Guanacaste National Park, Sector Pitilla, Sendero Nacho, 700 m, *Dauphin 1905* (CR, USJ, *Dauphin et al. 1998*; *Dauphin 2005*).

PANAMA. S. loc. (Dauphin et al. 1998). CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, foothills of Cerro Pinola, 1,280–2,000 m (Salazar Allen et al. 2021 as *Micropterygium* cf. *trachyphyllum*). COCLÉ: Antón distrito, N of El Valle de Antón, base of Cerro Pilón, *Crosby 4395* (MO, *Crosby 1971*; *Stotler et al. 1998*). COLÓN: Colón distrito, Santa Rita Ridge, *Crosby 4444* (MO, *Crosby 1971*; *Stotler et al. 1998*). PANAMA WEST: Capira distrito, Cerro Campana, *Crosby 4495* (MO, *Crosby 1971*; *Stotler et al. 1998*). PANAMA: Panamá distrito, above Altos de Cerro Azul down toward Río Chagres, 700–850 m, *Allen 9053* (MO, *Stotler et al. 1998*); Panamá distrito, Cerro Jefe (Stotler et al. 1998); Panamá distrito, Cerro Jefe, *Crosby 4535* (MO, *Crosby 1971*; *Stotler et al. 1998*); Panamá distrito, Cerro Jefe, *Hammel 4833* (MO, *Stotler et al. 1998*); Panamá distrito, Cerro Jefe, *Lewis & Dressler 7603* (MO, *Crosby 1971*; *Stotler et al. 1998*); Panamá distrito, Cerro Jefe, *Salazar Allen et al. 4033* (PMA, *Stotler et al. 1998*); Panamá distrito, Cerro Jefe, *Spörle 0.7* (PMA, *Spörle 1990*; *Stotler et al. 1998*); Panamá distrito, Cerro Jefe, *Valdespino & Aranda* (PMA, *Stotler et al. 1998*); Panamá distrito, Cerro Jefe, forest behind INTEL tower toward north, 900–1,000 m, *Salazar Allen & Chung 5204* (PMA, *Stotler et al. 1998*).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

***Mnioloma Herzog*, *Ann. Bryol.* 3: 115, 1930 (Herzog 1930).**

Mnioloma caespitosum (Spruce) R.M.Schust., *Fragm. Florist. Geobot.* 40(2): 839, 1995 (Schuster 1995a).

≡*Kantius caespitosus* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 412, 1885 (Spruce 1885). Type: Ecuador.

≡*Calypogeia caespitosa* (Spruce) Steph., *Bull. Herb. Boissier*, sér. 2, 8(9): 665 (Sp. Hepat. [Stephani] 3: 397), 1908 (Stephani 1908g).

*HONDURAS. *OCOTEPEQUE: La Labor municipio, Montaña del Candado, 13 km E of Nueva Ocotepeque and Cerro El Cocal, 14°27'N, 89°04'W, 2,000–2,180 m, 24 Mar 1993, *Allen 14490*, det. Dauphin May 2017 (MO-5232335! <https://tropicos.org/specimen/90102261>, **this publication**).

PANAMA. DARIÉN: Cerro Pirre (Stotler et al. 1998 as *Calypogeia caespitosa*); Cerro Pirre, above Rancho Mojado,

800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen 1992* as *Calypogeia caespitosa*); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen 1992* as *Calypogeia caespitosa*).

Also reported from East Tropical Africa, the Caribbean, Northern South America, Western South America, Brazil.

Mnioloma cellulosum (Spreng.) R.M.Schust., *Fragm. florist. Geobot.* 40(2): 836, 1995 (Schuster 1995).

≡*Jungermannia cellulosa* Spreng., *Syst. Veg. (ed 16) [Sprengel]* 4(1): 232, 1827 (Sprengel 1827b). Type: Guadeloupe.

≡*Calypogeia crenulata* Bischl., *Candollea* 18: 35, 1962 (Bischler 1962a), syn. fide Gradstein (2021). Type: St. Kitts.

COSTA RICA. PUNTARENAS: Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al. 2001a* as *Calypogeia crenulata*); Monteverde, 1,550 m, *Gradstein & Solano 9614* (U, USJ, *Gradstein et al. 1994* as *Calypogeia crenulata*; *Dauphin 2005* as *Calypogeia crenulata*).

PANAMA. CHIRIQUÍ: Gualaca distrito, Quebrada Honda in Fortuna Forest Reserve (8°45'40"N, 82°14'22"W), 1,150 m, 15 Jul 2021, *Rodriguez et al. 1102, 1103* (UCH, Ellis et al. 2022a). *NASO TJÉR DI COMARCA: Cerro Fábrega, Parque Internacional La Amistad, 9°07'05"N, 82°52'40"W, 3,200 m, 12 Feb 1995, *Dauphin et al. 1572A*, det. G. Dauphin Sep 2020 (CR!, **this publication**).

*COCOS I. Cerro Yglesias, 5°32'57"N, 87°03'36"W, 600 m, 22 Jan 1994, *Dauphin 963*, det. G. Dauphin Mar 2021 (USJ-47199!, CR-4468327!, W-0207456! <https://w.jacq.org/W0207456>, **this publication**); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 22 Jan 1994, *Dauphin 967*, det. G. Dauphin Mar 2021 (USJ-47180!, CR-4468368!, W-0207457! <https://w.jacq.org/W0207457>, **this publication**).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Mnioloma cyclostipum (Spruce) R.M.Schust., *Fragm. Florist. Geobot.* 40(2): 843, 1995 (Schuster 1995a).

≡*Kantius cyclostipus* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 411, 1885 (Spruce 1885). Type: Ecuador.

≡*Calypogeia cyclostipa* (Spruce) Steph., *Bull. Herb. Boissier*, sér. 2, 8(9): 664 (=Sp. Hepat. [Stephani] 3: 396), 1908 (Stephani 1908g).

GUATEMALA. ALTA VERAPAZ: Tucurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, 2,300–2,500 m, *Pérez 389* (USCG, *Pérez 2009*); Tucurú municipio, Reserva Privada Chelemhá (*Pérez 2006*).

COSTA RICA. ALAJUELA: San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 13 Mar 2010, *Norris 5715* (UC, *Norris et al. 2017*). PUNTARENAS: Coto Brus cantón, Fila Cruces, Cerro Paraguas, *Dauphin & Chacón 1744* (CR, *Dauphin 2005*).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, NE of camping site, 900–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Hornito, Fortuna, 1,000–1,200 m, *Salazar Allen*

698 (PMA, Stotler et al. 1998 as *Calypogeia cyclostipa*); Barú Volcano National Park (Rodríguez-Quiel et al. 2022). DARIÉN: Cerro Pirre, 1,200–1,300 m, Salazar Allen & Gradstein 9272 (PMA, Stotler et al. 1998 as *Calypogeia cyclostipa*).

COCOS I. Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 15 Feb 1994, Dauphin 963, 967, det. M. I. Morales (USJ, Dauphin 1995, 1999, both as *Calypogeia cyclostipa*, 2005).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Mnioloma fissistipulum (Bischl.) R.M.Schust., *Fragm. Florist. Geobot.* 40(2): 847, 1995 (Schuster 1995a).

≡ *Calypogeia fissistipula* Bischl., *Candollea* 18: 47, 1962 (Bischler 1962a).

Type: Venezuela.

PANAMA. COCLÉ: La Pintada distrito, Corregimiento El Copé, Parque Nacional G. D. Omar Torrijos H., Sendero La Rana Dorada, 8°40'06"N, 80°35'26"W, 696 m, 31 Jul 2017, Dauphin & Gudiño 4504 (PMA, Dauphin et al. 2015).

Also reported from Northern South America, Western South America.

Mnioloma rhynchophyllum Herzog, *Ann. Bryol.* 3: 120, 1930 (Herzog 1930). Lectotype (Söderström and Hentschel 2023: 15): Costa Rica, Vicinity of Orosi, province of Cartago, 30 Mar 1924, Standley 39843 (JE-04001641 <https://je.jacq.org/JE04001641>, isoelectotype JE-04001642 <https://je.jacq.org/JE04001642>).

≡ *Calypogeia rhynchophylla* (Herzog) Bischl., *Candollea* 18: 26, 1962 (Bischler 1962a).

COSTA RICA. S. loc. (Bonner 1977 as *Calypogeia rhynchophylla*; Cole 1982, 1983, both as *Calypogeia rhynchophylla*; Gradstein 1992c as *Calypogeia rhynchophylla*; Renner and Brown 2008); S. loc., Standley (JE, G, Schuster 2000c). ALAJUELA: San Ramón cantón, San Ramón, Reserva Biológica Alberto Brenes, Dauphin 2929 (NY, Dauphin 2005). CARTAGO: Paraíso cantón, Orosi, 1,000 m, 30 Mar 1924, Standley 39843 (JE-04001641, isoelectotype JE-04001642, B-20831, TYPE, Herzog 1930, 1938; Bischler 1962a as *Calypogeia rhynchophylla*, Fulford 1968 as *Calypogeia rhynchophylla*; Geissler and Bischler 1985; Morales 1991 as *Calypogeia rhynchophylla*; Dauphin 2005); Paraíso cantón, Tapanti National Park, Griffin & Eakin 224 (B, FLAS, HAC, U, Morales 1991 as *Calypogeia rhynchophylla*; Dauphin 2005); Paraíso cantón, Tapanti National Park, Morales & Griffin 200 (USJ, FLAS, Morales 1991 as *Calypogeia rhynchophylla*). PUNTARENAS: S. loc. (Merwin et al. 2001 as *Calypogeia rhynchophylla*); Monteverde cantón, Cerro Amigos, 10°18'N, 84°48'W, 27 Mar 1992, Lyon 466, det. Dauphin May 2017 (MO-4411698!, this publication); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a as *Calypogeia rhynchophylla*); Monteverde cantón, trail NE from Estación Biológica Monteverde, 10°19'N, 84°48'W, 27 Feb 1992, Lyon 89, det. Dauphin May 2017 (MO-4412795!, this publication).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, Institute of Hydraulic Resources and Electricity's plant nursery, 1,100 m (Salazar Allen et al. 2021). PANAMA WEST: San Carlos distrito, Cerro Pelado, 30 Jul 2001, Salazar Allen et al. 18832, 18833, 18834, 18835, 18836, 18837 (PMA, Dauphin 2007).

COCOS I. S. loc. (Dauphin 1995 as *Calypogeia rhynchophylla*; Merwin et al. 2001 as *Calypogeia rhynchophylla*); Cerro Yglesias, 5°32'57"N, 87°03'36"W, 600 m, 22 Jan 1994, Dauphin 965.1, det. G. Dauphin Mar 2021 (USJ-47182!, CR-4468311!, W-0207458! <https://w.jacq.org/W0207458>, this publication); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 550 m, 15 Feb 1994, Dauphin 1212 (USJ, CR, Dauphin 1995, 1999, both as *Calypogeia rhynchophylla*, 2005); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 15 Feb 1994, Dauphin 965, 982 (USJ, Dauphin 1995, 1999, both as *Calypogeia rhynchophylla*, 2005).

Not found outside Central America.

Monoclea Hook., Musci. Exot. 2: tab. clxxiv, 1820 (Hooker 1820).

Monoclea gottschei Lindb., *Rev. Bryol.* 13: 102, 1886 (Lindberg 1886) subsp. *gottschei*. Lectotype: Peru.

≡ *Monoclea forsteri* auct. non Hook., *Musci Exot.* 2: tab. clxxiv, 1820 (Hooker 1820). Type: New Zealand.

≡ *Monoclea gottschei* Lindb. subsp. *elongata* Gradst. et Mues, *Pl. Syst. Evol.* 189: 133, 1992 (Gradstein et al. 1992). Type: Bolivia.

≡ *Monoclea gottschei* subsp. *neotropica* Spörle, H.Becker, N.Salazar et M.P.Gupta, *J. Hattori Bot. Lab.* 70: 151, 1991 (Spörle et al. 1991), nom. inval. (ICN2018 Art. 39.1; no Latin description), syn. fide Stotler et al. (1998). Original material: Panama, Chiriquí, Serranía de Tabasara, Fortuna region (8°45'N, 82°15'W), Jun 1988, s. coll.

GUATEMALA. S. loc. (Stephani 1900b; Pagán 1939a; Hässel 1957, 1962; Campbell 1963; Miller et al. 1983; Campbell 1987). ALTA VERAPAZ: Cobán, 1,500 m, 25 Apr 1882, Lehmann 1345 (G, Stephani 1894a); E of Tactic on road to Tamahu, Standley 71081 (NY, USCG, Pérez 2009 as *Monoclea gottschei* subsp. *elongata*; Bischler-Causse et al. 2005 as *Monoclea gottschei* subsp. *elongata*); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 13, 19, 49, 55, 76, 96, 138, 167, 183, 207, 216, 229, 269, 291, 444, 533 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). HUEHUETENANGO: S. loc., Pérez 1411 (USCG, Pérez 2009 as *Monoclea gottschei* subsp. *elongata*). QUICHÉ: Chajul municipio, Amajchul, Montaña Qetxib, 15°41'9.6"N, 90°59'44.8"W, 1,283 m, 2007, Pérez 2236 (USCG, Pérez 2009 as *Monoclea gottschei* subsp. *elongata*). SACATEPÉQUEZ: Antigua, Standley 58984 (NY, Bischler-Causse et al. 2005 as *Monoclea gottschei* subsp. *elongata*). SAN MARCOS: S. loc., Standley 68558 (NY, Bischler-Causse et al. 2005 as *Monoclea gottschei* subsp. *elongata*; Pérez 2009 as *Monoclea gottschei* subsp. *elongata*).

BELIZE. CAYO: Southern Maya Mountains, Dec 1993, *Allen 15141* (BRH, MO, *Whittemore and Allen 1996*; *Bischler-Causse et al. 2005* as *Monoclea gottschei* subsp. *elongata*).

HONDURAS. S. loc., *Allen 14119, 14170, 14460, 17452, 17762, 17776* (MO, *Bischler-Causse et al. 2005* as *Monoclea gottschei* subsp. *elongata*). GRACIAS A DIOS: Brus Laguna municipio, trail near Rio Platano, *Wilson 69* (NY, *Bischler-Causse et al. 2005* as *Monoclea gottschei* subsp. *elongata*).

EL SALVADOR. *AHUACHAPÁN: San Francisco Menéndez municipio, El Impossible, Positas river, 13°51'06"N, 89°59'12"W, 18 Jan 1998, *Monro 1963*, det. Brinda and Dauphin Jun 2017 (MO-5280782!, *this publication*). SAN SALVADOR: Monte Cristo, *Thompson* (NY, *Bischler-Causse et al. 2005* as *Monoclea gottschei* subsp. *elongata*).

NICARAGUA. ESTELÍ: La Trinidad municipio, highway to San Nicholas, 10 km W of La Trinidad, *Stevens 14837* (MO, *Bischler-Causse et al. 2005* as *Monoclea gottschei* subsp. *elongata*). JINOTEGA: Jinotega municipio, Macizos de Peñas Blancas, 13°16'N, 85°40'W to 13°17'N, 85°41'W, 1,350–1,650 m, *Stevens 11386* (MO, *Bischler-Causse et al. 2005* as *Monoclea gottschei* subsp. *elongata*). MATAGALPA: Matagalpa municipio, Fuente Pura, *Moreno 18957* (U, *Bischler-Causse et al. 2005* as *Monoclea gottschei* subsp. *elongata*).

COSTA RICA. S. loc. (*Stephani 1900b*; *Pagán 1939a*; *Haupt 1942*; *Hässel 1957, 1962*; *Campbell 1963, 1987*; *Miller et al. 1983*; *Cole 1984*; *Gradstein 1999a* as *Monoclea gottschei* subsp. *elongata*; *Dauphin 2005* as *Monoclea gottschei* subsp. *elongata*; *Gradstein and Holz 2005*); Cordillera de Talamanca (*Holz 2003*; *Holz and Gradstein 2005b*); Cordillera de Talamanca, *Van Velzen & Wijtzes* (AMD, *Kappelle 1996*). ALAJUELA: Alajuela cantón, Poás Volcán, E slope, 6,000 ft (1,829 m), 25 Jul 1940, *Haupt* (*Haupt 1942*; *Morales 1991* as *Monoclea forsteri*); Poás Volcano, 2 Aug 1940, *Haupt* (*Dauphin 2005* as *Monoclea gottschei* subsp. *elongata*); San Ramón cantón, Nectandra Cloud Forest (UC, *Norris et al. 2017*); San Ramón cantón, Peñas Blancas, *Lyon 46, 51* (MO, *Bischler-Causse et al. 2005* as *Monoclea gottschei* subsp. *elongata*); San Ramón cantón, San Ramón, Reserva Biológica Alberto Brenes, *Traña 5* (CR, *Dauphin 2005* as *Monoclea gottschei* subsp. *elongata*). CARTAGO: Los Angeles, San Miguel, *Chacón 758* (CR, *Dauphin 2005* as *Monoclea gottschei* subsp. *elongata*); Paraíso cantón, Orosi, Tapantí National Park, *Morales 1729* (*Morales 1991*; *Dauphin 2005* as *Monoclea gottschei* subsp. *elongata*); Paraíso cantón, Tapantí National Park, *Gómez-Pignataro 18822, 18849, 18856* (MO, *Bischler-Causse et al. 2005* as *Monoclea gottschei* subsp. *elongata*); Turrialba cantón, Volcán Turrialba, *Stephani 1130* (*Morales 1991* [rejected as *Monoclea gottschei*]); Turrialba cantón, Volcán Turrialba, 2,000 m, 17 Jan 1882, *Lehmann 1130* (G, *Stephani 1894a*; *Dauphin 2005* as *Monoclea gottschei* subsp. *elongata*); Turrialba, *Maas 803* (U, *Bischler-Causse et al. 2005* as *Monoclea gottschei* subsp. *elongata*). HEREDIA: Barva cantón, Braulio Carrillo National Park, Sector Volcán Barva, *Morales 1959, 2002* (*Morales 1991*; *Dauphin 2005* as *Monoclea gottschei* subsp. *elongata*); San Rafael cantón, road between San Rafael and Rio Las Vueltas, *Stevens*

13920 (U, *Bischler-Causse et al. 2005* as *Monoclea gottschei* subsp. *elongata*). LIMÓN: Pococí cantón, Braulio Carrillo National Park, Quebrada Gonzáles, *Anton 224* (CR, *Dauphin 2005* as *Monoclea gottschei* subsp. *elongata*). PUNTARENAS: Buenos Aires cantón, Valle del Silencio, *Quesada 1186* (CR, *Dauphin 2005* as *Monoclea gottschei* subsp. *elongata*); Coto Brus cantón, Fila Cruces, Laguna Gamboa, *Dauphin 1716* (CR, *Dauphin 2005* as *Monoclea gottschei* subsp. *elongata*); Coto Brus cantón, Parque Internacional La Amistad, Santa María de Pittier, *Dauphin 1401* (CR, *Dauphin 2005* as *Monoclea gottschei* subsp. *elongata*); Monteverde (Morales 1991); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, *Gradstein 9427, 9428* (GOET, *Bischler-Causse et al. 2005* as *Monoclea gottschei* subsp. *elongata*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, *Lyon 22, 96, 105* (MO, *Bischler-Causse et al. 2005* as *Monoclea gottschei* subsp. *elongata*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al. 2001a*); Monteverde, *James, M. 9* (*Dauphin 2005* as *Monoclea gottschei* subsp. *elongata*); Monteverde, *Wheeler 247* (OSC, *Wheeler 2000*); Monteverde, 7 Jun 1966, *James, M. 9* (R, *Reed and Robinson 1971*); Osa cantón, Rincón, *Gradstein & Dauphin 9342* (GOET, *Bischler-Causse et al. 2005* as *Monoclea gottschei* subsp. *elongata*). SAN JOSÉ: Aserrí cantón, Tablazo, Pan-American Highway, *Haupt* (*Dauphin 2005* as *Monoclea gottschei* subsp. *elongata*); Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, *Holz et al. 2002*); Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, San Gerardo (Dauphin 2005 as *Monoclea gottschei* subsp. *elongata*); Dota cantón, San Gerardo, *Gradstein* (GOET, *Bischler-Causse et al. 2005* as *Monoclea gottschei* subsp. *elongata*); Montañas de Tablazo, *Haupt* (*Morales 1991* as *Monoclea forsteri*); Montes de Oca cantón, San Pedro, Centro Universitaria, *Gradstein* (GOET, *Bischler-Causse et al. 2005* as *Monoclea gottschei* subsp. *elongata*); Moravia cantón, La Hondura, *King C91-106* (MO, *Bischler-Causse et al. 2005* as *Monoclea gottschei* subsp. *elongata*); Pérez Zeledón cantón, Páramo Buenavista, *Anton 88* (CR, *Dauphin 2005* as *Monoclea gottschei* subsp. *elongata*).

PANAMA. S. loc. (*Gradstein et al. 1992* as *Monoclea gottschei* subsp. *elongata*; *Stotler et al. 1998* as *Monoclea gottschei* subsp. *elongata*; *Salazar Allen et al. 2017* as *Monoclea gottschei* subsp. *elongata*). BOCAS DEL TORO: S. loc., *Hammel 6113* (MO, *Bischler-Causse et al. 2005* as *Monoclea gottschei* subsp. *elongata*). CHIRIQUÍ: S. loc., *Kirkbride & Duke 860* (MO, *Stotler et al. 1998* as *Monoclea gottschei* subsp. *elongata*); S. loc., *Salazar Allen et al. 21397* (PMA, *Forrest et al. 2011*); “western Panamá” (*Stotler et al. 1998* as *Monoclea gottschei* subsp. *elongata*); Boquete distrito, Palo Alto, *Hammel 7436C* (MO, U, *Bischler-Causse et al. 2005* as *Monoclea gottschei* subsp. *elongata*); Gualaca distrito, Fortuna (Stotler et al. 1998 as *Monoclea gottschei* subsp. *elongata*); Gualaca distrito, Fortuna Dam, *Hammel 2101* (MO, *Stotler et al. 1998* as *Monoclea gottschei* subsp. *elongata*); Gualaca distrito, Fortuna Dam, *Hammel 2105*

(MO, Stotler et al. 1998 as *Monoclea gottschei* subsp. *elongata*; Bischler-Causse et al. 2005 as *Monoclea gottschei* subsp. *elongata*); Gualaca distrito, Fortuna Forest Reserve, foothills of Cerro Pinola, 1,280–2,000 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Institute of Hydraulic Resources and Electricity's plant nursery, 1,100 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Arena, 920–1,100 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quijada del Diablo, 1,200–1,600 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna, Hammel 2286 (U, Bischler-Causse et al. 2005 as *Monoclea gottschei* subsp. *elongata*); Gualaca distrito, Fortuna, Salazar Allen et al. 6245, 6250 (PMA, U, Bischler-Causse et al. 2005 as *Monoclea gottschei* subsp. *elongata*); Gualaca distrito, Fortuna, Spörle 1.2 (U, Bischler-Causse et al. 2005 as *Monoclea gottschei* subsp. *elongata*); Gualaca distrito, Fortuna, Spörle 1.20 (PMA, Spörle 1990); Gualaca distrito, Fortuna, Valdespino et al. 21, 30, 105, 106 (PMA, U, Bischler-Causse et al. 2005 as *Monoclea gottschei* subsp. *elongata*); Gualaca distrito, Serranía de Tabasani, Fortuna region, Jun 1988 (Spörle et al. 1991 as *Monoclea gottschei* subsp. *neotropica*); Barú Volcano National Park (Rodríguez-Quiel et al. 2022). COCLÉ: Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8°N, 80°06.9–7.0°W, 860–1,015 m, 25 Mar 2009, Schäfer-Verwimp & Verwimp 34184 (JE, Schäfer-Verwimp 2014 as *Monoclea gottschei* subsp. *elongata*). DARIÉN: S. loc. (Schäfer-Verwimp 2014 as *Monoclea gottschei* subsp. *elongata*); between Cerro Pirre and Pijibasal, Folsom 6418 (U, Bischler-Causse et al. 2005 as *Monoclea gottschei* subsp. *elongata*); Pinogana distrito, ~20 km SSW of Boca de Cupé, ~200 m, Allen 8664 (MO, Stotler et al. 1998 as *Monoclea gottschei* subsp. *elongata*). NGÄBE-BUGLÉ COMARCA: Kankintú distrito, Cerro Colorado, Antonio 2605, 4865 (MO, NY, Stotler et al. 1998 as *Monoclea gottschei* subsp. *elongata*; Bischler-Causse et al. 2005 as *Monoclea gottschei* subsp. *elongata*). VERAGUAS: S. loc., Antonio 2045 (MO, Stotler et al. 1998 as *Monoclea gottschei* subsp. *elongata*). S. loc. (Schäfer-Verwimp 2014 as *Monoclea gottschei* subsp. *elongata*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

***Monodactylopsis* R.M.Schust., Nova Hedwigia 56(1/2): 45, 1993 (Schuster 1993).**

Monodactylopsis monodactyla (Spruce) R.M.Schust., *Nova Hedwigia* 69(3/4): 523, 1999 (Schuster 1999).

≡ *Cephalozia monodactyla* Spruce, *Cephalozia*: 28, 1882 (Spruce 1882). Type: Brazil.

≡ *Arachniopsis monodactyla* (Spruce) R.M.Schust., *Nova Hedwigia* 10(1/2): 30, 1965 (Schuster 1965).

≡ *Zoopsisidella monodactyla* (Spruce) R.M.Schust. ex Gradst. et Hekking, *J. Hattori Bot. Lab.* 66: 219, 1989 (Gradstein and Hekking 1989), nom. inval. (ICN2018 Art. 41.5; basionym not cited).

COSTA RICA. S. loc. (Gradstein et al. 2001b as *Arachniopsis monodactyla*; Linares and Uribe 2002 as *Arachniopsis 'monodactylus'*; Costa and Silva 2003 as *Arachniopsis monodactyla*; Gradstein and Costa 2003 as *Arachniopsis monodactyla*; Engel and Smith Merrill 2004; Lavocat Bernard 2018; Costa et al. 2020; Gradstein 2021). **PUNTARENAS:** Osa cantón, Rincón, trail Boscosa-Cerro Chocuaco, 450 m, Gradstein & Dauphin 9320a, 9320b (U, USJ, Gradstein et al. 1994 as *Arachniopsis monodactyla*; Dauphin 2005 as *Arachniopsis monodactyla*).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

***Myriocoleopsis* Schiffn., Hedwigia 81(5/6): 234, 1944 (Schiffner 1944).**

Myriocoleopsis minutissima (Sm.) R.L.Zhu, Y.Yu et Pócs, *Phytotaxa* 183(4): 293, 2014 (Yu et al. 2014) subsp. *minutissima*. ≡ *Jungermannia minutissima* Sm., *Engl. Bot.* 23: table 1633, 1806 (Smith and Sowerby 1806). Type: Britain.

≡ *Cololejeunea coseguinana* L.Clark, *Proc. Calif. Acad. Sci.*, ser. 4, 27: 599, 1953 (Clark 1953a), syn. fide Pócs et al. (2014). Holotype: Nicaragua, near shore of Gulf of Fonseca, east of Constamolino Volcano, 7 Jul 1932, Howell 245 (CAS-214866 <https://www.gbif.org/occurrence/1426338196>).

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotope Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as *Cololejeunea minutissima*).

NICARAGUA. CHINANDEGA: El Viejo municipio, Gulf of Fonseca, east of Volcano Coseguina, 7 Jul 1932, Howell 242 p.p., 245 (CAS-372426, Clark 1953a as *Cololejeunea coseguinana*).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, North Africa, Macaronesia, West Tropical Africa, West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, Arabian Peninsula, China, Eastern Asia, Indian Subcontinent(?), Indo-China, Papuasias, Australia, Southwestern Pacific, South-Central USA, Southeastern USA, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Myriocoleopsis minutissima subsp. *myriocarpa* (Nees et Mont.) R.L.Zhu, Y.Yu et Pócs, *Phytotaxa* 183(4): 294, 2014 (Yu et al. 2014).

≡ *Lejeunea myriocarpa* Nees et Mont., *Hist. Phys. Cuba, Bot., Pl. Cell.*: 473, 1842 (Montagne 1842b). Type: Cuba.

≡ *Cololejeunea minutissima* (Sm.) Steph. subsp. *myriocarpa* (Nees et Mont.) R.M.Schust., *J. Elisha Mitchell Sci. Soc.* 71(2): 232, 1955 (Schuster 1955b).

***HONDURAS. *COMAYAGUA:** Siguatepeque municipio, Codefohr Forestry School, 14°35'N, 87°47'W, 1,080 m, 10 Apr 1996, Allen 17168, det. Dauphin Jun 2017 (MO-6230330! <https://www.tropicos.org/specimen/100367481>, this publication).

***NICARAGUA. *ESTELÍ:** Estelí municipio, road to San Juan de Limay, 13°12'54"N, 86°25'26"W, 1,150 m, 6 May 2010,

Magill 13936, det. Dauphin Jun 2017 (MO-6235702! <https://tropicos.org/specimen/100363747>, this publication).

COSTA RICA. **CARTAGO:** Turrialba, Bayer (USJ, Gradstein et al. 1994 as *Cololejeunea minutissima* subsp. *myriocarpa*; Dauphin 2005 as *Cololejeunea minutissima* subsp. *myriocarpa*).

PANAMA. **CHIRIQUÍ:** Tierras Altas distrito, Volcán, along road to Rio Serena at western edge of the village, 8°47.6'N, 82°39.4'W, 1,370 m, 1 Apr 2009, Schäfer-Verwimp & Verwimp 34619 (JE, Schäfer-Verwimp 2014 as *Cololejeunea minutissima* subsp. *myriocarpa*).

Also reported from West Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, Malesia, Australia, Southeastern Pacific, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Myriocoleopsis tixieri Pócs et Gradst., *Mem. New York Bot. Gard.* 121: 579, 2021 (Gradstein 2021).

≡*Cololejeunea tixieri* M.L.Morales et G.Dauphin, *Trop. Bryol.* 14: 133, 1998 (Morales and Dauphin 1998), nom. illeg. (ICN2018 Art. 53.1; hom. illeg. non Onr. 1989). Holotype: Panama, Bocas del Toro, P.L.L.A., C. Fábrega, 9°07'05"N, 82°52'40"W, 3,335 m, *Dauphin*, León & Matarrita 1556 (USJ-47774, isotypes CR, PMA).

≡*Cololejeunea dauphinii* R.L.Zhu, *J. Bryol.* 28(3): 277, 2006 (Zhu 2006).

?**COSTA RICA.** S. loc. (Bôas-Bastos and Bastos 2016 as *Cololejeunea dauphinii*; Gradstein 2021). Note: We are not aware of any firsthand report from Costa Rica.

PANAMA. S. loc. (Bôas-Bastos and Bastos 2016 as *Cololejeunea dauphinii*; Gradstein 2021). **NASO TJEËR DI COMARCA:** Parque Internacional La Amistad, Cerro Fábrega, 9°07'05"N, 82°52'40"W, 3,335 m, *Dauphin et al.* 1556 (USJ-47774, CR, PMA, TYPE of *Cololejeunea tixieri*, Morales and Dauphin 1998 as *Cololejeunea tixieri*; Crosby and Engel 2006 as *Cololejeunea tixieri*; Zhu 2006 as *Cololejeunea dauphinii*); Parque Internacional La Amistad, Cerro Fábrega, 9°07'05"N, 82°52'40"W, 3,335 m, *Dauphin* (Dauphin et al. 2006 as *Cololejeunea tixieri*); Parque Internacional La Amistad, Cima del Cerro Fábrega, 3,350 m, *Dauphin et al.* 1556 (Pócs et al. 2014 as *Cololejeunea dauphinii*).

Also reported from Western South America, Brazil.

***Mytilopsis* Spruce, *Cephalozia*: 90, 1882 (Spruce 1882).**

Mytilopsis albifrons Spruce, *Cephalozia*: 91, 1882 (Spruce 1882). Type: Peru.

COSTA RICA. S. loc. (Lavocat Bernard and Reeb 2016). **GUANACASTE:** Liberia cantón, Guanacaste National Park, Cacao Biological Station, 1,500 m, *Dauphin & Valdelomar* 2470 (Dauphin et al. 1998; Dauphin 2005).

PANAMA. S. loc. (Dauphin et al. 1998; Lavocat Bernard and Reeb 2016). **CHIRIQUÍ:** S. loc. (Schäfer-Verwimp 2014); Gualaca distrito, Fortuna Forest Reserve, trail along Río Hornito, 1,200 m (Salazar Allen et al. 2021); Gualaca distrito,

Fortuna, *Dauphin* (GOET, PMA, Stotler et al. 1998). **COCLÉ:** Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 700–1,000 m, 31 Mar 2006, Schäfer-Verwimp & Verwimp 30783 (JE, Schäfer-Verwimp 2014).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

***Nardia* Gray, *Nat. Arr. Brit. Pl.* 1: 694, 1821 (Gray 1821).**

Nardia succulenta (A.Rich.) Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 519, 1885 (Spruce 1885).

≡*Jungermannia succulenta* A.Rich., *Nov. Stirp. Pug.* 4: 43, 1832 (Lehmann 1832). Type: St. Kitts.

***GUATEMALA.** ***QUETZALTENANGO:** Zunil municipio, Aguas Amargas, NW slopes of Pico Zunil, 14°45'21.6"N, 91°29'21.6"W, 2,094 m, 13 Dec 2004, *Quedensley* 2002, det. Dauphin Sep 2017 (MO, W-0089080! <https://w.jacq.org/W0089080>, this publication); Zunil municipio, Aguas Amargas, NW slopes of Pico Zunil, 14°45'21.6"N, 91°29'21.6"W, 2,094 m, 9 May 2005, *Quedensley* 2305, det. Dauphin Sep 2017 (MO, W-0089081! <https://w.jacq.org/W0089081>, this publication).

COSTA RICA. **ALAJUELA:** Poás Volcano, 2,520 m, 30 Jul 1977, *Griffin & Araya* 8 (USJ, FLAS, Morales and Griffin 1983; Engel 1988; Morales 1991; Dauphin 2005); San Carlos cantón, Arenal (Jongmans et al. 2001); San Carlos, Volcán Arenal, 14 Dec 1977, *Balázs B/77/14/B*, det. Dauphin Jan 2017 (EGR, CR!, this publication); San Ramón cantón, 10°02'0"N, 84°31'10"W, 13 Dec 1993, *Hammel* 19349, det. Dauphin May 2017 (MO-5280970!, this publication). ***CARTAGO:** Paraíso cantón, Cerro Asunción, 9°36'00"N, 83°46'00"W, 3,000 m, 26 Feb 1996, *Dauphin et al.* 2224, det. G. Dauphin Nov 2020 (CR!, this publication). **GUANACASTE:** Liberia cantón, Rincón de La Vieja National Park, *Dauphin* 1866 (CR, Dauphin 2005).

PANAMA. **NGÄBE-BUGLÉ COMARCA:** Nole Duima distrito, Cerro Colorado Copper Mine, *Croat* 33185 (MO, Stotler et al. 1998).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil(?).

***Neesioscyphus* Grolle, *Österr. Bot. Z.* 111(1): 19, 1964 (Grolle 1964a).**

Neesioscyphus argillaceus (Nees) Grolle, *Österr. Bot. Z.* 111(1): 24, 1964 (Grolle 1964a).

≡*Jungermannia argillacea* Nees, *Fl. Bras. (Martius)* 1(1): 338, 1833 (Nees 1833b). Type: Brazil.

?**COSTA RICA.** S. loc. (Campos and Uribe 2012; Gradstein 2021). Note: We are not aware of any firsthand report from Costa Rica.

PANAMA. S. loc. (Campos and Uribe 2012). **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve (Salazar Allen et al. 2021); Gualaca distrito, Hornito, Fortuna, 1,170 m, *Stotler & Crandall-Stotler* 3502 (ABSH, PMA, Stotler et al. 1998).

Also reported from Northern South America, Western South America, Brazil.

Neesioscyphus bicuspidatus (Steph.) Grolle, *Rev. Bryol. Lichénol.* 34(1/2): 182, 1966 (Grolle 1966a).

≡ *Isotachis bicuspidata* Steph., *Symb. Antill.* 2: 471, 1901 (Stephani 1901b).

Lectotype: Guadeloupe.

COSTA RICA. S. loc., *Dauphin* 2042 (H, Vilnet et al. 2011; Feldberg et al. 2014). **ALAJUELA:** Poás National Park, *Morales & Canessa* 552 (USJ, *Dauphin* et al. 1998; *Dauphin* 2005). **PUNTARENAS:** Coto Brus cantón, Fila Cruces, Finca Ilama, 1,000–1,200 m, *Dauphin & Chacón* 1936, det. G. Dauphin Jun 2017 (CR, MO-4427247!, *Dauphin* et al. 1998; *Dauphin* 2005); Coto Brus cantón, Fila Cruces, Laguna Gamboa, 8°57'00"N, 83°04'20"W, 7 Jun 1995, *Dauphin* 1737, det. Dauphin Jun 2017 (MO-4427248!, *this publication*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, 4 Mar 1992, *Lyon* 159, det. Whittmore 1995 (MO-4438588!, *this publication*).

PANAMA. **NASO TIER DI COMARCA:** Cerro Fábrega, *De Gracia* 355 (PMA, *Dauphin* 2007).

Also reported from Mexico, the Caribbean, Brazil.

Neesioscyphus carneus (Nees) Grolle, *Österr. Bot. Z.* 111(1): 20, 1964 (Grolle 1964a).

≡ *Jungermannia carnea* Nees, *Fl. Brasil. Enum. Pl.* 1: 337, 1833 (Nees 1833b).

Type: Brazil.

PANAMA. S. loc. (Gradstein 2021). **VERAGUAS:** Santa Fe distrito, along road to Guabal on the Caribbean coast, 8°31.9–33.9'N, 81°08.8–11.3'W, 785 m, 27 Mar 2009, *Schäfer-Verwimp & Verwimp* 34292 (JE, *Schäfer-Verwimp* 2014).

Also reported from Western South America, Brazil.

***Neurolejeunea* Schiffn., *Hepat.* (Engl.-Prantl): 131, 1893 (Schiffner 1893a).**

Neurolejeunea breutelii (Gottsche) A. Evans, *Bull. Torrey Bot. Club* 34(1): 13, 1907 (Evans 1907c).

≡ *Lejeunea breutelii* Gottsche, *Syn. Hepat.* 3: 324, 1845 (Gottsche et al. 1845a). Type: St. Kitts.

GUATEMALA. S. loc. (Lücking 1995; Bastos 2004). **ALTA VERAPAZ:** Cobán, *Türckheim* 1957 (NY, *Gradstein* 1994; *Freire* 2006; *Pérez* 2009); Cobán, 1,310 m, *Türckheim* (Schuster 1980d). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 157 (USCG, *Freire et al.* 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al.* 2005 as *Neurolejeunea 'breuteli'*). **HUEHUETENANGO:** S. loc., *Pérez* 1452 (USCG, *Pérez* 2009). **QUICHÉ:** S. loc., *Pérez* 2235 (USCG, *Pérez* 2009).

BELIZE. **CAYO:** S. loc., Dec 1993, *Allen* 15229B (BRH, MO, Whittmore and Allen 1996). ***TOLEDO:** Bladen Nature Reserve, Richardson Creek, 16°33'N, 88°48'W, 2–3 Mar 1987, *Davidse* 31929, det. Dauphin May 2017 (MO-5238570!, *this publication*); Bladen Nature Reserve, Richardson Creek,

16°33'N, 88°48'W, 2–3 Mar 1987, *Davidse* 31935, det. Dauphin May 2017 (MO-5238379!, *this publication*).

HONDURAS. S. loc. (Schuster 1954; Lücking 1995; Bastos 2004). **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 53385, 55627 (JE, *Herzog* 1951; *Gradstein* 1994); Tela municipio, Lancetilla Valley, 20–600 m, 1928, *Standley* (Schuster 1980d). **COMAYAGUA:** Siguatepeque, *Standley* 56380 (S, *Gradstein* 1994); Siguatepeque, 1,080–1,400 m, *Standley* (Schuster 1980d). **CORTÉS:** Santa Cruz de Yojoa municipio, Lake Yojoa, *Morton* 7640 (NY, *Gradstein* 1994). ***LEMPIRA:** Gracias municipio, Montaña de Celaque, SE part of massif, 14°33'N, 88°39'W, 24 May 1991, *Davidse & Zúñiga* 34665 p.p., det. Dauphin May 2017 (MO-6699934!, *this publication*).

***NICARAGUA.** ***ATLÁNTICO NORTE:** Siuna municipio, road from Siuna to El Dos, 13°46'N, 84°47'W, 12 Dec 1980, *Stevens* 18720, det. Dauphin May 2017 (MO-5228164! <http://tropicos.org/specimen/90103079>, *this publication*). ***MATAGALPA:** La Dalia municipio, Macizos de Peñas Blancas, top and N slope of ridge SW of finca El Cielo, S of Rio Gusaneras, 13°15'N, 85°42'W, 16 Jan 1979, *Stevens* 11626 p.p., det. Dauphin May 2017 (MO-6699920! <http://tropicos.org/specimen/100988644>, *this publication*).

COSTA RICA. **GUANACASTE:** Bagaces cantón, Fortuna, Represa Cabromico, *Chavarría* 1483 (CR, *Dauphin* 2005). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 92-391, 94-32 (hb. Lücking, *Lücking* 1995); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (*Lücking* 1997). **PUNTARENAS:** S. loc. (*Merwin et al.* 2001); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (*Sonnleitner et al.* 2009); Monteverde, <1,500 m (*Dauphin* 2005); Monteverde cantón, Campbell's Wood, 1,550 m, *Sillett* 3-8 (U, *Gradstein et al.* 1994); Monteverde cantón, Campbell's Wood, *Sillett* 42436 (*Dauphin* 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, *Gradstein et al.* (U, *Sillett et al.* 1995); Osa cantón, Osa Peninsula, Región de Los Mogos, Cerro Helado, 250–300 m, *Gradstein & Dauphin* 9361 (U, USJ, *Gradstein et al.* 1994; *Dauphin* 2005); Osa cantón, Rincón, trail to Cerro Chocuaco, 250 m, *Gradstein & Dauphin* 9332 (U, USJ, *Gradstein et al.* 1994; *Dauphin* 2005).

PANAMA. Canal Zone (Schäfer-Verwimp 2014). **CHIRIQUÍ:** S. loc. (Schäfer-Verwimp 2014); Gualaca distrito, Fortuna Forest Reserve, NE of camping site, 900–1,200 m (*Salazar Allen et al.* 2021); Gualaca distrito, Fortuna, Hornito, Chiriquí River, 1,000 m, *Salazar Allen et al.* 577 (PMA, *Stotler et al.* 1998); **COCLÉ:** Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, *Schäfer-Verwimp & Verwimp* 34110, 34145 (JE, *Schäfer-Verwimp* 2014). **PANAMA WEST:** La Chorrera distrito, Barro Colorado Island, Zetek 4, *Willis* 56 (PMA, *Stotler et al.* 1998; *Dauphin et al.*

2022). VERAGUAS: Santa Fe distrito, along road to Guabal on the Caribbean coast, 8°31.9–33.9'N, 81°08.8–11.3'W, 330 m, 27 Mar 2009, *Schäfer-Verwimp & Verwimp* 34299/C (JE, Schäfer-Verwimp 2014); Santa Fe distrito, between the village and Alto de Piedra, 8°31'N, 81°06'W, 635–600 m, 27 Mar 2009, *Schäfer-Verwimp & Verwimp* 34327 (JE, Schäfer-Verwimp 2014).

Also reported from Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Neurolejeunea sastreana Gradst., *Bryologist* 92(3): 345, 1989 (Gradstein 1989). Type: Puerto Rico.

COSTA RICA. HEREDIA: Sarapiquí cantón, Rara Avis, 700 m, 11–13 Jan 1994, *Cascante* (USJ, Gradstein et al. 1994; Dauphin 2005). LIMÓN: Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480–700 m, *Lücking* 32477 (Dauphin 2005); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, *Lücking* 92-12 (USJ, Gradstein et al. 1994).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Neurolejeunea seminervis (Spruce) Schiffn., *Hepat. (Engl.-Prantl)*: 131, 1893 (Schiffner 1893a).

≡ *Lejeunea seminervis* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 84, 1884 (Spruce 1884). Type: Brazil/Venezuela.

GUATEMALA. S. loc. (*Lücking* 1995; Ilkiu-Borges 2000; Dauphin et al. 2015). ALTA VERAPAZ: Panzós municipio, Cerca del Río Polochic, abajo de Panzós, *Maxon & Hay* 3095 (US, Y, Gradstein 1994; Freire 2006; Pérez 2009). HUEHUETENANGO: S. loc., *Pérez* 1415 (USCG, Pérez 2009).

BELIZE. S. loc. (*Fulford* 1938; Whitemore and Allen 1996).

COSTA RICA. S. loc. (Ilkiu-Borges 2000; Dauphin et al. 2015). LIMÓN: Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, *Lücking* 92-82 (USJ, Gradstein et al. 1994; Dauphin 2005); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 91-82 (hb. *Lücking*, *Lücking* 1995); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (*Lücking* 1997).

PANAMA. COCLÉ: La Pintada distrito, Corregimiento El Copé, Parque Nacional G. D. Omar Torrijos H., Cuadrante 00,03 parcela de 1 ha, 8°40'02"N, 80°35'21"W, 728 m, 17 Jul 2013, *Sierra et al.* 219 p.p. (PMA, Dauphin et al. 2015).

Also reported from Mexico, Northern South America, Western South America, Brazil.

***Noteroclada Taylor ex Hook.f. et Wilson,*
London J. Bot. 3: 166, 1844 (Hooker
and Wilson 1844).**

Noteroclada confluens Taylor, *London J. Bot.* 3: 166, 1844 (Hooker and Wilson 1844). Type: Brazil.

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Gradstein 1999a; Dauphin 2005;

Gradstein and Holz 2005). CARTAGO: San Gerardo, 5 km NW crater Irazú, 2,000 m, *Gómez-Pignataro* 19876 (JE, Crandall-Stotler et al. 2010). LIMÓN: Cordillera de Talamanca, 20 Jan 2000, *Holz* CR 00-186 (STU, Schütz et al. 2016). SAN JOSÉ: Dota cantón, Copey, Reserve Forestal Los Santos, Pan-American Highway sur km 93, 3,200 m, *Gradstein* 9730 (U, USJ, Gradstein et al. 1994; Dauphin 2005); Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Pérez Zeledón cantón, Villa Mills, Base del Páramo Buenavista, *Traña* 82 (CR, Dauphin 2005).

Also reported from Mexico, Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands.

***Nowellia Mitt., Nat. Hist. Azores:*
321, 1870 (Mitten 1870).**

Nowellia curvifolia (Dicks.) Mitt., *Nat. Hist. Azores*: 321, 1870 (Mitten 1870).

≡ *Jungermannia curvifolia* Dicks., *Fasc. Pl. Crypt. Brit.* 2: 15, 1790 (Dickson 1790). Type: Britain.

GUATEMALA. S. loc. (Schuster 1974; Fulford and Sharp 1990; Gradstein et al. 2001b; Damsholt 2002; Linares and Uribe 2002; Schuster 2002). ALTA VERAPAZ: Cobán, 1,600 m, *Türckheim* 6316 (M, Grolle 1968c). BAJA VERAPAZ: Finca Bucaral, 6,000 ft (1,829 m), *Sharp* 2784 (TENN, Fulford 1968; Freire 2006); Purhulhá municipio, Civija, 4,000 ft (1,219 m), *Sharp* 5167 p.p. (TENN, Fulford 1968; Freire 2006). EL PROGRESO: Finca Piamonte, 2,400–2,500 m, *Steyermark* 43434 (F, Fulford 1968; Freire 2006); Jicaro, 4,600 ft (1,402 m), *Sharp* 2689 p.p. (TENN, Fulford 1968; Freire 2006; Pérez 2009); Morazán municipio, above Morazán, 4,300 ft (1,310 m), *Sharp* 5097 (TENN, Fulford 1968; Freire 2006; Pérez 2009); San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, *Ramírez* (USCG, BIGU, Ramírez 2007). HUEHUETENANGO: S. loc., *Pérez* 1249 (USCG, Pérez 2009); San Juan Ixcay, 8,800 ft (2,682 m), *Sharp* 4988 p.p. (TENN, Fulford 1968; Freire 2006). QUETZALTENANGO: Above Chiquival, 7,700 ft (2,347 m), *Sharp* 2076 (TENN, Fulford 1968; Freire 2006; Pérez 2009); above Chiquival, 7,700 ft (2,347 m), *Sharp* 2077 (TENN, Fulford 1968; Freire 2006). QUICHÉ: S. loc., *Pérez* 2329 (USCG, Pérez 2009); Nebaj, 8,500 ft (2,591 m), *Sharp* 2527 (TENN, Fulford 1968; Freire 2006). TOTONICAPÁN: S. loc., 3,100–3,200 m, *Standley* 84549 (F, Fulford 1968; Freire 2006). ZACAPA: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, Ramírez 2007).

*HONDURAS. *LEMPIRA: Gracias municipio, Montaña de Celaque, 14°33'N, 88°38'W, 1,400 m, *Allen* 11833, det. Whitemore 1993 (MO! <http://tropicos.org/specimen/90009996>, this publication).

COSTA RICA. S. loc. (Arnell 1956a; Jovet-Ast 1960; Schuster 1974; Cole 1982, 1983; Schuster 1983a; Fulford and Sharp 1990; Damsholt 2002); Cordillera de Talamanca (Holz and

Gradstein 2005b; Holz 2006); Cordillera de Talamanca, *Kappelle 4617a* (U, Kappelle 1996); Crispinis, 2,800 m (JE, Grolle 1968c). **GUANACASTE**: Liberia cantón, Guanacaste National Park, Sector Volcán Cacao, 10°55'43"N, 85°28'10"W, *Dauphin 2444* (CR, Dauphin 2005). **HEREDIA**: Barva cantón, Volcán Barva, *Griffin et al. D208* (USJ, FLAS, Morales 1991; Dauphin 2005). **LIMÓN**: Talamanca cantón, Valle del Silencio, *Quesada 1515* (CR, Dauphin 2005). **PUNTARENAS**: Coto Brus cantón, Parque Internacional La Amistad, Pittier, *Dauphin 1596* (CR, Dauphin 2005). **SAN JOSÉ**: Dota cantón, "Los Robles" (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, *Standley 43723a* (JE, B, S, Herzog 1938; Morales 1991); Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, *Standley 43747*, det. Herzog (JE, B-18532, S, Herzog 1938; Grolle 1968c; Morales 1991; Dauphin 2005); Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, *Holz* (Holz 2003).

PANAMA. CHIRIQUÍ: S. loc., *Schäfer-Verwimp & Verwimp 30924* (M, Feldberg et al. 2016).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, Macaronesia, Siberia(?), Russian Far East, Caucasus, Western Asia, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasia, Australia, Eastern Canada, North-Central USA, Northeastern USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Nowellia evansii Grolle, *J. Hattori Bot. Lab.* 31: 33, 1968 (Grolle 1968c). Type: Jamaica.

=*Nowellia caribbeana* Fulford, *Mem. New York Bot. Gard.* 11(3): 329, 1968 (Fulford 1968), syn. fide Robinson (1970). Type: Venezuela.

GUATEMALA. S. loc. (Fulford et al. 1970 as *Nowellia caribbeana*; Schuster 2002). **ALTA VERAPAZ**: Road to Tamahú, 1,500–1,600 m, *Standley 91494* (F, Fulford 1968 as *Nowellia caribbeana*; Freire 2006 as *Nowellia caribbeana*; Pérez 2009 as *Nowellia caribbeana*). **BAJA VERAPAZ**: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al. 63* (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

BELIZE. CAYO: S. loc., Dec 1993, *Allen 15293* (BRH, MO, Whittemore and Allen 1996).

HONDURAS. S. loc. (Fulford et al. 1970 as *Nowellia caribbeana*; Schuster 2002). **FRANCISCO MORAZÁN**: San Antonio de Oriente municipio, Piedra Herrada, Cerro de Uyuca, 1,500–1,650 m, *Standley 4885*, 11896 (F, Fulford 1968 as *Nowellia caribbeana*).

COSTA RICA. S. loc. (Fulford et al. 1970 as *Nowellia caribbeana*; Cole 1982, 1983, both as *Nowellia caribbeana*; Schuster 2002). **SAN JOSÉ**: Dota cantón, south of El Empalme, *Little 5637* (hb. Little, Fulford 1968 as *Nowellia caribbeana*; Morales 1991; Kappelle 1996; Dauphin 2005 as *Nowellia caribbeana*).

Also reported from the Caribbean, Northern South America, Western South America.

Nowellia reedii H. Rob., *Bryologist* 73(1): 150, 1970 (Robinson 1970). Holotype: Costa Rica, Puntarenas, near Monteverde, 4,300 ft, Feb 1969, *James 1969-42* (US-00072997 <http://n2t.net/ark:/65665/3ee024c17-e8f2-4c7a-80a3-a0fde06804e1>, isotype hb. REED).

COSTA RICA. S. loc. (Cole 1982, 1983; Schuster 1983a; Gradstein 1992c; Gradstein et al. 2001b; Graham et al. 2016; Costa et al. 2020). **GUANACASTE**: Liberia cantón, Guanacaste National Park, Sector Volcán Cacao, 10°55'43"N, 85°28'10"W, 29 Oct 1995, *Dauphin 2462* (CR, USJ, MO-2949534, Dauphin 2005). **PUNTARENAS**: Monteverde, 4,300 ft (1,310 m), Feb 1969, *James, W. 1969-42* (US-00072997, hb. Reed, TYPE, Robinson 1970; Reed and Robinson 1971; Geissler and Bischler 1989; Morales 1991; Dauphin 2005).

Also reported from Northern South America, Western South America, Brazil.

Nowellia yunckeri Fulford, *Mem. New York Bot. Gard.* 11(3): 329, 1968 (Fulford 1968). Holotype: Honduras, near Siguatepeque, *Yuncker 6527* (NY ex DPU).

HONDURAS. S. loc. (Schuster 1974, 1983a, 2002; Graham et al. 2016); S. loc., *Standley 56211* (F, Fulford 1968). **COMAYAGUA**: Siguatepeque municipio, El Achioté, *Yuncker 6408* (DPU, Fulford 1968); Siguatepeque, *Yuncker 6527* (NY ex DPU, TYPE, Fulford 1968; Geissler and Bischler 1989).

Also reported from Northern South America.

***Odontolejeunea* (Spruce) Schiffn., Hepat. (Engl.-Prantl): 127, 1893 (Schiffner 1893a).**

Odontolejeunea decemdentata (Spruce) Steph., *Sp. Hepat. (Stephani)* 5: 175, 1912 (Stephani 1912a).

=*Lejeunea decemdentata* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15(1): 148, 1884 (Spruce 1884). Type: Ecuador.

=*Odontolejeunea tocoriensis* Steph., *Hedwigia* 35(3): 117, 1896 (Stephani 1896), syn. fide Teeuwen (1989). Lectotype (Teeuwen 1989: 10 as "holotype"): Costa Rica, Quebrada de Tocori, Mar 1893, *Tonduz* (G-00112858 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=141822&lang=en>, isotype BM).

=*Odontolejeunea longispica* A. Evans, *Bull. Torrey Bot. Club* 35(8): 380, 1908 (Evans 1908a), syn. fide Teeuwen (1989). Type: Jamaica.

GUATEMALA. ALTA VERAPAZ: S. loc., Pérez 87 (USCG, Pérez 2009); S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008); Tucurú municipio, Reserva Privada Chelemhá (Pérez 2006). **BAJA VERAPAZ**: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

COSTA RICA. S. loc. (Stephani 1912a as *Odontolejeunea tocoriensis*; Pagán 1942b as *Odontolejeunea tocoriensis*; Geissler and Bischler 1989; Schäfer-Verwimp and Giancotti 1993; Reiner-Drehwald 1999; Lavocat Bernard et al. 2009; Schäfer-Verwimp

and Pócs 2009; Schäfer-Verwimp 2014; Lavocat Bernard 2018). **ALAJUELA**: Cordillera Central, Eggers 1, 36 (U, Morales 1991; Gradstein 1994; Dauphin 2005); Cordillera Central, 1985, Eggers CR 1/36 (U, Teeuwen 1989); San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 5 Jul 2007, Norris 110378c (UC, Norris et al. 2017); San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 11 Mar 2010, Risk 17213 (UC, Norris et al. 2017). **CARTAGO**: Jiménez cantón, Río Naranjo, 1897, Tonduz 15573 (G, NY, Teeuwen 1989; Morales 1991; Dauphin 2005). **GUANACASTE**: Tilarán cantón, Arenal, ~500 m (Eggers 2001); Tilarán cantón, El Arenal, 485–600 m, 1926, Standley & Valerio 45161a (JE, S, Herzog 1951 as *Odontolejeunea longispica*; Teeuwen 1989; Morales 1991; Gradstein 1994; Dauphin 2005). **HEREDIA**: Heredia cantón, Vara Blanca, 1,380 m, Eggers (hb. Eggers, Eggers 2001); San Miguel de Sarapiquí, 850 m, 30 Jan 1985, Eggers (hb. Eggers, Eggers 2001); Sarapiquí cantón, Rara Avis, Dauphin 2177 (CR, Dauphin 2005). **LIMÓN**: Braulio Carrillo National Park, 400–500 m (Eggers 2001); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, Lücking 91-43, 91-44, 91-45, 91-46, 91-47, 91-48, 91-49, 91-50, 92-59, 92-63, 92-64, 92-214 (hb. Lücking, Lücking 1995); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, Lücking (Lücking 1997); Talamanca cantón, Bordes del Río Yorquín, 1894, Pittier 8528 (JE, Herzog 1951 as *Odontolejeunea longispica*; Teeuwen 1989; Morales 1991; Dauphin 2005). **PUNTARENAS**: Coto Brus cantón, Las Cruces, Jardín Botánico Wilson, Dauphin 1714 (CR, Dauphin 2005); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde, 1,600 m, Eggers (hb. Eggers, Eggers 2001); Quepos cantón, Quebrada Tocori, Tonduz 3077b (BM, G, Stephani 1896 as *Odontolejeunea tocoriensis*; Teeuwen 1989; Morales 1991); Quepos cantón, Quebrada Tocori, Mar 1893, Tonduz 3077b (G-00112858 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=141822&lang=en>, BM, TYPE of *Odontolejeunea tocoriensis*, Geissler and Bischler 1989 as *Odontolejeunea tocoriensis*; Dauphin 2005). **SAN JOSÉ**: Dota cantón, San Marcos, 1893, Tonduz 15576 (G, Teeuwen 1989; Morales 1991; Gradstein 1994; Dauphin 2005); Pérez Zeledón cantón, Quizarra near San Isidro, 700 m, Eggers (hb. Eggers, Eggers 2001).

PANAMA. **COCLÉ**: Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8°N, 80°06.9–7.0°W, 860–1,015 m, 25 Mar 2009, Schäfer-Verwimp & Verwimp 34220/B (JE, Schäfer-Verwimp 2014); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Río Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, Sierra & López 661, 662, etc. (PMA, Sierra et al. 2019a).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Odontolejeunea lunulata (F.Weber) Schiffn., *Hepat. (Engl.-Prantl)*: 128, 1893 (Schiffner 1893a).

=*Jungermannia lunulata* F.Weber, *Hist. Musc. Hepat. Prodr.*: 33, 1815 (Weber 1815). Type: Patria ignota.

=*Phragmicoma calcarata* Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 19: 259, 1843 (Montagne 1843), syn. fide Teeuwen (1989). Type: Surinam.

=*Odontolejeunea calcarata* (Mont.) Steph., *Sp. Hepat. (Stephani)* 5: 177, 1912 (Stephani 1912a).

=*Lejeunea sieberiana* Gottsche, *Syn. Hepat.* 3: 328, 1845 (Gottsche et al. 1845a), syn. fide Vanden Berghen (1952). Type: Mauritius.

=*Odontolejeunea sieberiana* (Gottsche) Schiffn., *Hepat. (Engl.-Prantl)*: 128, 1893 (Schiffner 1893a).

GUATEMALA. S. loc. (Lücking 1995; Bastos 2004). **ALTA VERAPAZ**: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008); between Senahu and Actala, 1905, Maxon & Hay 3322a (YU, Teeuwen 1989); Cobán municipio, Cubilquits, 350 m, 1906, *Türckheim* 5067 (G, NY, Teeuwen 1989; Gradstein 1994; Freire 2006); Cobán, Las Victorias National Park, 1,100–1,300 m, 2002 (Andersohn 2004); Tactic, 1939, Standley 69994 (NY, US, Teeuwen 1989; Gradstein 1994; Freire 2006); Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, Pérez 390 (USCG, Pérez 2009); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). **BAJA VERAPAZ**: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 146, 157, 309, 459, 470 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). **CHIMALTENANGO**: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008). **CHIMQUIMULA**: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008). **HUEHUETENANGO**: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008); Nentón municipio, La Bendición de Dios, Montaña La Virgen, 16°01'18"N, 91°32'21"W, Pérez 1691 (USCG, Pérez 2009). **IZABAL**: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008). **SAN MARCOS**: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008). **ZACAPA**: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007).

***BELIZE**. ***TOLEDO**: Columbia River Forest Reserve, Camp 1, 16°22'59"N, 89°07'17"W, 11 Feb 1997, Allen 18568, det. Dauphin Jun 2017 (MO-5228023! <https://www.tropicos.org/specimen/90102222>, this publication).

HONDURAS. S. loc. (Lücking 1995; Bastos 2004). **ATLÁNTIDA**: Tela municipio, Lancetilla Valley, 20–600 m, Standley 54835 (Herzog 1951); Tela municipio, Lancetilla Valley, Standley (Standley 1931); Tela, 20–600 m, Standley 55586 (S, US, Teeuwen 1989; Gradstein 1994). **COMAYAGUA**: Siguatepeque, Morton 7580 (US, Gradstein 1994). **CORTÉS**: N of Lake Yojoa, Morton 7884 (US, Gradstein 1994); San Francisco de Yojoa municipio, along Río Lindo, N of Lake Yojoa, 500–600 m, 9–12 Apr 1951, Morton 7879b (US, Gradstein 1994).

EL SALVADOR. S. loc. (Lücking 1995). **SAN VICENTE:** San Vicente, *Winkler C/2* (Winkler 1967 as *Odontolejeunea sieberiana*). **SANTA ANA:** Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler A/12/2, A/13/1, A/14/1, etc.* (Winkler 1967).

***NICARAGUA.** ***MATAGALPA:** La Dalia municipio, Macizos de Peñas Blancas, vicinity of Finca El Cielo, 13°15'N, 85°85.41'W, 13–18 Jan 1979, *Stevens 11698*, det. Dauphin May 2017 (MO-6236072! <https://www.tropicos.org/specimen/100366248>, this publication).

COSTA RICA. S. loc. (Stephani 1913 as *Odontolejeunea calcarata*; Cole 1982, 1983; Fulford 1987 as *Odontolejeunea sieberiana*; Bastos 2004); S. loc., 22–24 Sep 2000, *Piippo* (H, Ahonen 2004, 2006; Feldberg et al. 2014); Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b). **ALAJUELA:** Poás, 1,950 m, *Eggers* (hb. Eggers, Eggers 2001). **CARTAGO:** Jiménez cantón, Río Naranjo, 1897, *Tonduz 15573* (G, NY, Teeuwen 1989; Morales 1991; Dauphin 2005); Paraíso cantón, Orosi, Tapantí National Park, 1,000–1,500 m, *Griffin & Eakin 321b* (U, Teeuwen 1989; Morales 1991; Gradstein 1994; Dauphin 2005); Santiago, 1,050 m, *Maxon 99* (NY, YU, Teeuwen 1989; Morales 1991; Dauphin 2005); Turrialba cantón, Esmeralda, 2,100, *Pittier 6003* (Stephani 1893c as *Odontolejeunea sieberiana*; Morales 1991; Dauphin 2005); Turrialba cantón, Esmeralda, 2,000 m, 1890, *Tonduz* (G, Teeuwen 1989); Turrialba cantón, Guayabo, 1,100 m, *Eggers* (hb. Eggers, Eggers 2001). **GUANACASTE:** Caribbean slope N of Tenorio, 500 m, 3 Feb 1985, *Eggers CR 3/49* (Eggers et al. 2001); Tenorio, 500 m, *Eggers* (hb. Eggers, Eggers 2001); Tilarán cantón, Cordillera Tilarán, *Eggers 47* (U, Morales 1991; Gradstein 1994; Dauphin 2005); Tilarán cantón, Cordillera Tilarán, *Eggers 5* (U, Morales 1991; Dauphin 2005). **HEREDIA:** Heredia cantón, Vara Blanca, 1,380 m, *Eggers* (hb. Eggers, Eggers 2001); Rancho Flores forest, *Pittier 6041 p.p.* (Stephani 1893c as *Odontolejeunea sieberiana*; Teeuwen 1989; Morales 1991; Dauphin 2005); San Isidro cantón, Cerro Caricias, ~2,000 m (Eggers 2001); San Isidro cantón, Cerro de Caricias, *Standley & Valerio 51988* (Morales 1991); San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, *Standley 51988 p.p.* (JE-04002124, Herzog 1951; Dauphin 2005); San Isidro cantón, Yerba Buena, 2,000 m, *Standley 49802 p.p.* (Herzog 1951); San Isidro cantón, Yerba Buena, 200 m, 1926, *Standley & Valerio 49802* (JE, Teeuwen 1989; Morales 1991; Gradstein 1994; Dauphin 2005); Sarapiquí cantón, La Selva, 100 m, *Eggers* (hb. Eggers, Eggers 2001); Sarapiquí cantón, Puerto Viejo, Laguna Hule, *Dauphin & Gonzáles 2143* (CR, Dauphin 2005). **LIMÓN:** Braulio Carrillo National Park, 400–500 m (Eggers 2001); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking 91-3, 91-117, 91-130, etc.* (hb. Lücking, Lücking 1995); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (Lücking 1997); Pococí cantón, Tortuguero, 1–5 m, *Eggers* (hb. Eggers, Eggers 2001); Shiroles, 100 m, 1895, *Tonduz 15502* (G, Teeuwen 1989;

Morales 1991; Gradstein 1994; Dauphin 2005); Siquirres cantón, Cairo, *Standley & Valerio 48676* (JE, Teeuwen 1989; Morales 1991; Gradstein 1994; Dauphin 2005). **PUNTARENAS:** S. loc. (Merwin et al. 2001); Buenos Aires cantón, Boruca (Dauphin 2005); Buenos Aires cantón, Boruca, *Tonduz 15507* (G, Teeuwen 1989; Morales 1991; Dauphin 2005); Buenos Aires cantón, Cobagra, 1892, *Tonduz 15567* (G, Teeuwen 1989; Morales 1991; Dauphin 2005); Cordillera de Tilarán, 1985, *Eggers CR 5/47* (U, Teeuwen 1989); Golfito cantón, Esquinas, <100 m, *Eggers* (hb. Eggers, Eggers 2001); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 80–140 m (GOET, Wanek and Pörtl 2008); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde, 1,600 m, *Eggers* (hb. Eggers, Eggers 2001); Monteverde, 15 Jan 1965, *James, W. 40a* (R, Reed and Robinson 1971). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin 2005); Général (Tonduz 1896 as *Odontolejeunea sieberiana*); Pérez Zeledón cantón, El General forest, 2,000–2,400 m, *Pittier 6054 p.p.* (Stephani 1893c as *Odontolejeunea sieberiana*; Morales 1991; Dauphin 2005); Pérez Zeledón cantón, Quizarra near San Isidro, 700 m, *Eggers* (hb. Eggers, Eggers 2001).

PANAMA. S. loc. (Lücking 1995). ***BOCAS DEL TORO:** Bocas del Toro distrito, Bastimentos, Salt Creek, Sendero a Long Beach, 9.29456°N, 82.10303°W, 70 m, 16 Aug 2017, *Gudiño 3364*, det. Gudiño Aug 2017 (PMA, this publication). **CHIRIQUÍ:** Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,880 m, 6 Apr 2006, *Schäfer-Verwimp & Verwimp 30988* (JE, Schäfer-Verwimp 2014); Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Cerro Hornito, 1,670–2,300 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quijada del Diablo, 1,200–1,600 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°41.4'N, 82°13.7'W, 1,280 m, 30 Mar 2009, *Schäfer-Verwimp & Verwimp 34463, 34488, 34519/B* (JE, Schäfer-Verwimp 2014); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,680 m, *Schäfer-Verwimp & Verwimp 34444* (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Laguna de El Volcán, 8°46.1'N, 82°40.4'W, 1,370 m, 1 Apr 2009, *Schäfer-Verwimp & Verwimp 34640/A* (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, *Schäfer-Verwimp & Verwimp 34532/C, 34569, 34575/A* (JE, Schäfer-Verwimp 2014); Tierras

Altas distrito, Parque Internacional La Amistad, Las Nubes, 8°53'37.4"N, 82°38'52.5"W, 2,218 m, Sep 2015–Jul 2016, *Guerra-Batista et al.* (Guerra-Batista et al. 2020). **COCLÉ:** Antón distrito, El Valle de Antón, Alto de La Mesa, 8°38.3'N, 82°07.6'W, 850–870 m, 3 Apr 2009, *Schäfer-Verwimp & Verwimp* 30754, 34735/B (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 24 Mar 2009, *Schäfer-Verwimp & Verwimp* 34138/C (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4'–8'N, 80°06.9'–7.0'W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34262/C (JE, Schäfer-Verwimp 2014); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Río Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López* 661, 662, etc. (PMA, Sierra et al. 2019a). **DARIÉN:** S. loc. (Schäfer-Verwimp 2014); Cerro Pirre (Stotler et al. 1998); Cerro Pirre, *Salazar Allen & Gradstein* 9284 (PMA, Stotler et al. 1998); Cerro Pirre, along trail to Rancho Mojado, 400–500 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992). **PANAMA WEST:** Capira distrito, Altos de Campana National Park, 850 m, *Salazar Allen & Gradstein* 9254 (PMA, Stotler et al. 1998). **PANAMA:** S. loc. (Schäfer-Verwimp 2014). Note: We are not aware of any firsthand report from Panama Province and think it refers to Panama West.

COCOS I. S. loc. (Dauphin 1995, 1999); S. loc., *Pittier* (G-00047702 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=159230&lang=en>, Evans 1904 as *Odontolejeunea sieberiana*); Bahía Yglesias, 0–20 m, Apr 1992, *Lücking* 458, 468, 470, 645 (ULM, USJ, Bernecker-Lücking 2000); Cerro Yglesias, 5°32'57"N, 87°03'56"W, Jun 2016, *Sanchez* 2756, det. Dauphin 2016 (CR!, this publication); Colnett, 200–250 m, Apr 1992, *Lücking* 453 (USJ, Bernecker-Lücking 2000); Cuenca de la Quebrada Pittier, rumbo a Bahía Yglesias, 5°31'81.5"N, 87°03'32.3"W, 285 m, 29 Nov 2013, *Estrada et al.* 6164, det. G. Dauphin Jun 2021 (CR-4468354!, this publication); Río Genio, 5°32'57"N, 87°03'56"W, 0–50 m, Apr 1992, *Lücking* 534 (hb. Bernecker, Bernecker-Lücking 2000); Sendero hacia Cerro Yglesias, sobre ladera hacia Valle de los Piratas, cuenca del Río Minuto, 5°31'56.9"N, 87°03'28.3"W, 251 m, 27 Nov 2013, *Estrada* 6145, det. G. Dauphin Apr 2021 (CR-4468349!, this publication); Yglesias A, 50–100 m, Apr 1992, *Lücking* 560 (USJ, Bernecker-Lücking 2000); Yglesias C, 250–350 m, Apr 1992, *Lücking* 576, 578 (USJ, Bernecker-Lücking 2000).

Also reported from West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Western Indian Ocean, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Odontolejeunea rhomalea (Spruce) Steph., *Sp. Hepat. (Stephani)* 5: 176, 1912 (Stephani 1912a).

≡*Lejeunea rhomalea* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 147, 1884 (Spruce 1884). Type: Ecuador.

GUATEMALA. S. loc. (Lücking 1995). **ALTA VERAPAZ:** Cobán municipio, Cubilquitz, 350 m, 1906, *Türckheim* 5060, 5063, 5066 (BM, G, NY, Teeuwen 1989; Gradstein 1994); Cobán, 1,550 m, 1906, *Türckheim* 5080 (G, Teeuwen 1989; Gradstein 1994). **BAJA VERAPAZ:** Purhulhá municipio, Biotope Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

COSTA RICA. **CARTAGO:** Jiménez cantón, Río Naranjo, *Tonduz* 3075 p.p., 3082 p.p., 15504, 15605 (G, Teeuwen 1989; Morales 1991; Gradstein 1994; Dauphin 2005). **HEREDIA:** Sarapiquí cantón, Puerto Viejo, *Biolley* 15583 (G, Teeuwen 1989; Morales 1991; Dauphin 2005). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 91-35, 92-10, 92-40, 92-41, 92-42, 92-43, 92-44, 94-14, 94-33 (hb. Lücking, Lücking 1995); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (Lücking 1997); Pococí cantón, Braulio Carrillo National Park, Quebrada González, 10°12'N, 83°55'W, 480 m, Mar 1991–Jun 1992, *Lücking* 92-211 (CR, Lücking 1995; Dauphin 2005); Shirole, 100 m, 1895, *Tonduz* 15581 (NY, G, Teeuwen 1989; Morales 1991; Dauphin 2005); Talamanca cantón, Tsaki, 200 m, *Tonduz* 6032, 6230, 6231, 15542 (G, Teeuwen 1989; Morales 1991; Gradstein 1994; Dauphin 2005). **PUNTARENAS:** Buenos Aires cantón, Boruca, *Tonduz* 15505, 15506 (G, Teeuwen 1989; Morales 1991; Dauphin 2005); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009); Osa cantón, Santo Domingo de Golfo Dulce, 1896, *Tonduz* 15564, 15579, 15604 (G, NY, S, YU, Teeuwen 1989; Morales 1991; Dauphin 2005).

Also reported from Mexico, Northern South America, Western South America, Brazil.

***Odontoschisma* (Dumort.) Dumort., *Recueil Observ. Jungerm.*: 19, 1835 (Dumortier 1835).**

Odontoschisma bifidum (Fulford) Gradst., Aranda et Vanderp., *Phytotaxa* 162(4): 232, 2014 (Gradstein et al. 2014).

≡*Cladomastigum bifidum* Fulford, *Acta Bot. Venez.* 2(5/8): 80, 1967 (Fulford 1967). Type: Venezuela.

≡*Iwatsukia bifida* (Fulford) R.M.Schust., *Bull. Nat. Sci. Mus. Tokyo* 11(1): 314, 1968 (Schuster 1968b).

***HONDURAS.** ***OLANCHO:** Catacamas municipio, Sierra de Algalta, Montaña Babilonia Ridge camp, 15 km NNW of Catacamas, 14°59'N, 85°56'W, 1,910 m, 1 Jun 1992, *Allen* 12689B, det. Dauphin May 2017 (MO-5922024! <http://tropicos.org/specimen/90229650>, this publication).

COSTA RICA. S. loc. (Costa 2017; Costa et al. 2020). **SAN JOSÉ:** S. loc. (Gradstein and Ilkiu-Borges 2015); Moravia cantón, Braulio Carrillo National Park, road to Limón, 10°03'10.0"N, 84°00'20.0"W, 1,700 m, 13 Sep 2006, *Erzberger & Dauphin* 11787, det. G. Dauphin and M. I. Morales (B, USJ, Dauphin and

Erzberger 2010 as *Iwatsukia bifida*); Moravia cantón, Braulio Carrillo National Park, road to Limón, 10°03'10.0"N, 84°00'20.0"W, 1,700 m, 2 Dec 2009, *Dauphin* 4184, 4185, det. Váña (USJ, PRC, *Dauphin* and Erzberger 2010 as *Iwatsukia bifida*).

Also reported from Northern South America, Brazil.

Odontoschisma jishibae (Steph.) L.Söderstr. et Váña, *Phytotaxa* 112(1): 13, 2013 (Váña et al. 2013b).

≡ *Cephalozia jishibae* Steph., *Sp. Hepat. (Stephani)* 6: 437, 1924 (Stephani 1924). Type: Japan.

≡ *Iwatsukia jishibae* (Steph.) N.Kitag., *J. Hattori Bot. Lab.* 28: 103, 1965 (Kitagawa 1965).

GUATEMALA. QUICHÉ: S. loc., Pérez 2313 (USCG, Pérez 2009 as *Iwatsukia jishibae*).

COSTA RICA. S. loc. (Váña and Piippo 1989 as *Iwatsukia jishibae*; Enroth 1991 as *Iwatsukia jishibae*; Konstantinova and Vasiljev 1994 as *Iwatsukia jishibae*; Schuster and Konstantinova 1996 as *Iwatsukia jishibae*; O'Shea et al. 2001 as *Iwatsukia jishibae*; Schuster 2002 as *Iwatsukia jishibae*); Cordillera de Talamanca (Holz and Gradstein 2005b as *Iwatsukia jishibae*; Holz 2006 as *Iwatsukia jishibae*). ALAJUELA: Poás Volcano, 2,550 m, 31 Jul 1977, *Griffin & Araya* 96, det. Grolle (FLAS, USJ, PRC, JE, NY, Váña 1980 as *Iwatsukia jishibae*; Morales and Griffin 1983 as *Iwatsukia jishibae*; Morales 1991 as *Iwatsukia jishibae*; *Dauphin* 2005 as *Iwatsukia jishibae*; Gradstein and Ilkiu-Borges 2015). CARTAGO: S. loc., 2,700 m, Holz CR 00-543 (H-3202307, Konstantinova 2004 as *Iwatsukia jishibae*); Turrialba cantón, Villa Mills, CATIE Station Siberia, Holz CR543 (EGR, GOET, NY, etc., Gradstein and Ilkiu-Borges 2015). SAN JOSÉ: Dota cantón, San Gerardo, Holz (Holz 2003 as *Iwatsukia jishibae*); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a as *Iwatsukia jishibae*).

Also reported from West Tropical Africa, West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Western Indian Ocean, Siberia, Russian Far East, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasias, Northern South America.

Odontoschisma longiflorum (Taylor) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 419, 1877 (Trevisan 1877).

≡ *Sphagnocetis longiflora* Taylor, *London J. Bot.* 5: 281, 1846 (Taylor 1846b). Type: Jamaica.

?GUATEMALA. S. loc. (Fulford 1987). Note: We do not know of any firsthand report from Guatemala.

?BELIZE. S. loc. (Fulford 1987; Whittemore and Allen 1996). Note: We do not know of any firsthand report from Belize.

COSTA RICA. S. loc. (Cole 1982, 1983). PUNTARENAS: S. loc. (Merwin et al. 2001); Monteverde, <1,500 m (Morales 1991; *Dauphin* 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W,

1,545–1,560 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995); Monteverde, 4,300 ft (1,310 m), Feb 1969, *James, W.* 1969-19a (US, Reed and Robinson 1971; *Dauphin* 2005).

PANAMA. CHIRIQUÍ: S. loc., *Schäfer-Verwimp & Verwimp* 34382/B (M, Feldberg et al. 2016, 2017); Gualaca distrito, Fortuna, Costa et al. 3054 (RB, Gradstein and Ilkiu-Borges 2015). COLÓN: Colón distrito, Santa Rita Ridge, 5 mi (8 km) from highway, Croat 13207, det. Váña (MO, PMA, Stotler et al. 1998).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Odontoschisma sphagni (Dicks.) Dumort., *Recueil Observ. Jungerm.* 19, 1835 (Dumortier 1835).

≡ *Jungermannia sphagni* Dicks., *Fasc. Pl. Crypt. Brit.* 1: 6, 1785 (Dickson 1785). Type: Britain.

≡ *Jungermannia prostrata* Sw., *Prodr. (Swartz)*: 143, 1788 (Swartz 1788), syn. fide Aranda et al. (2014). Type: Jamaica.

≡ *Odontoschisma prostratum* (Sw.) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 419, 1877 (Trevisan 1877).

≡ *Sphagnocetis stolonifera* Lindenb. et Gottsche, *Syn. Hepat.* 5: 688, 1847 (Gottsche et al. 1847), syn. fide Gradstein and Ilkiu-Borges (2015). Type: Mexico.

≡ *Odontoschisma stoloniferum* (Lindenb. et Gottsche) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 419, 1877 (Trevisan 1877).

GUATEMALA. S. loc. (Fulford and Sharp 1990 as *Odontoschisma prostratum*; Schumacker and Váña 1999 as *Odontoschisma prostratum*). BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as *Odontoschisma 'prostratum'*).

?HONDURAS. S. loc. (Schumacker and Váña 1999 as *Odontoschisma prostratum*). Note: We do not know of any firsthand report from Honduras.

COSTA RICA. S. loc. (Schumacker and Váña 1999 as *Odontoschisma prostratum*). GUANACASTE: Liberia cantón, Guanacaste National Park, Sector Cacao, Fila al Volcán Cacao, 10°55'43"N, 85°28'10"W, 1,100 m, *Dauphin* 2478, det. *Dauphin* (CR, *Dauphin* 2005 as *Odontoschisma stoloniferum*).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, Macaronesia, Northeast Tropical Africa(?), Southern Africa(?), Eastern Canada, North-Central USA, Northeastern USA, South-Central USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America.

Odontoschisma variabile (Lindenb. et Gottsche) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 419, 1877 (Trevisan 1877).

≡ *Sphagnocetis variabilis* Lindenb. et Gottsche, *Syn. Hepat.* 5: 688, 1847 (Gottsche et al. 1847). Type: Mexico.

≡ *Odontoschisma falcifolium* Steph., *Bull. Herb. Boissier, sér. 2*, 8(8): 585 (= *Sp. Hepat. [Stephani]* 3: 369), 1908 (Stephani 1908b), syn. fide Gradstein (2013b). Type: Brazil.

=*Odontoschisma brasiliense* auct. Note: A SE Brazilian species rejected from the rest of South and Central America by Gradstein and Ilkiu-Borges (2015).

GUATEMALA. S. loc. (Fulford and Sharp 1990; Schäfer-Verwimp and Pócs 2009). **ALTA VERAPAZ:** Cerro Chinajá, *Steyermark 45634* (F, Fulford 1968; Freire 2006; Pérez 2009). **BAJA VERAPAZ:** Purhulhá municipio, Civija, 4,100 ft (1,250 m), *Sharp 5177, 5184, 5185 p.p.* (TENN, Fulford 1968; Freire 2006; Pérez 2009); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as *Odontoschisma brasiliense*). ***QUETZALTENANGO:** Zunil municipio, road to Fuentes Georginas, 4 km S of Zunil, NW slopes of Pico Zunil, 14°45'15.6"N, 91°28'58.4"W, 12 Dec 2004, *Quedensley 1482*, det. Dauphin Sep 2017 (MO, W-0089082!, **this publication**). **QUICHÉ:** Uspantán, 15°27'23.7"N, 90°47'58.9"W, 2,365 m, 2007, *Pérez et al. 2340* (USCG, Pérez 2009 as *Odontoschisma brasiliense*).

HONDURAS. S. loc. (Fulford and Sharp 1990; Schäfer-Verwimp and Pócs 2009; Gradstein 2013b; Schäfer-Verwimp 2014). ***ATLÁNTIDA:** El Porvenir municipio, Pico Bonito National Park, trail from confluence to ridge camps, 15°37'N, 86°53'W, 23 Apr 1996, *Allen 17572*, det. Dauphin May 2017 (MO-6238549!, **this publication**); El Porvenir municipio, Pico Bonito National Park, trail from confluence to ridge camps, 15°38'N, 86°51'W, 20 Apr 1996, *Allen 17375*, det. Dauphin May 2017 (MO-6236048!, **this publication**); El Porvenir municipio, Pico Bonito National Park, trail from confluence to ridge camps, 15°38'N, 86°51'W, 20 Apr 1996, *Allen 17496*, det. Dauphin May 2017 (MO-6236051!, **this publication**). **COMAYAGUA:** Siguatepeque, *Standley 56200* (S, Gradstein and Ilkiu-Borges 2015). ***CORTÉS:** San Pedro Sula municipio, Cusuco National Park, from Rio Cusuco to summit of Cerro Jilincó ~22 km W of San Pedro Sula, 16 km S of Cuyamel, 15°31'N, 88°14'W, 20 Mar 1993, *Allen 14308*, det. Dauphin May 2017 (MO-5227616!, **this publication**). **FRANCISCO MORAZÁN:** San Antonio de Oriente municipio, Cerro de Uyuca, 1,500 m, *Standley 683 p.p.*, 734 p.p. (F, Fulford 1968); San Antonio de Oriente municipio, Cerro de Uyuca, 1,620–1,800 m, *Standley et al. 8023 p.p.* (F, Fulford 1968).

***EL SALVADOR.** ***SANTA ANA:** Metapán municipio, Cerro Monte Cristo, ~14 mi NE of Metapán, trail to Punto Trifinio, 2,100–2,400 m, 31 Jul 1977, *Croat 42457*, det. Dauphin May 2017 (MO-5228837! <http://tropicos.org/specimen/100988150>, **this publication**); Metapán municipio, Cerro Monte Cristo, ~14 mi NE of Metapán, trail to Punto Trifinio, 2,100–2,400 m, 31 Jul 1977, *Croat 42497*, det. Dauphin May 2017 (MO-5228836! <http://tropicos.org/specimen/100988160>, **this publication**).

COSTA RICA. **LIMÓN:** Talamanca cantón, Cerro Kámuk, *Davidse et al. 25993* (MO, U, Gradstein and Ilkiu-Borges 2015).

PANAMA. **BOCAS DEL TORO:** Dolphin Bay (9°13'14.7"N, 82°13'02.9"W), Aug 2017 (Salazar Allen et al. 2022); Salt Creek (9°17'39.7"N, 82°06'11.2"W) on Isla Bastimento, Aug 2017 (Salazar Allen et al. 2022). **CHIRIQUÍ:** Gualaca distrito, Fortuna

Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,420 m, *Schäfer-Verwimp & Verwimp 34382/B* (JE, Schäfer-Verwimp 2014). ***COLÓN:** Colón distrito, Santa Rita Ridge, 5 mi (8 km) from highway, 31 Jan 1971, det. Dauphin May 2017 (MO-5281098!, **this publication**).

Also reported from East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Otigoniolejeunea (Spruce) Schiffn., Hepat. (Engl.-Prantl): 125, 1893 (Schiffner 1893a).

Otigoniolejeunea huctumalcensis (Lindenb. et Gottsche) Y.M. Wei, R.L. Zhu et Gradst., *Phytotaxa* 162(4): 237, 2014 (Wei et al. 2014).

≡ *Lejeunea huctumalcensis* Lindenb. et Gottsche, *Syn. Hepat.* 5: 762, 1847 (Gottsche et al. 1847). Type: Mexico.

≡ *Pycnolejeunea dussiana* Steph., *Symb. Antill. (Urban)* 3: 278, 1902 (Stephani 1902d), syn. fide Reiner-Drehwald and Ilkiu-Borges (2007). Type: Guadeloupe.

≡ *Ceratolejeunea dussiana* (Steph.) G. Dauphin, *Fl. Neotrop. Monogr.* 90: 54, 2003 (Dauphin 2003).

≡ *Ceratolejeunea dentatocornuta* Steph., *Sp. Hepat. (Stephani)* 5: 407, 1913 (Stephani 1913), syn. fide Dauphin (2003). Type: Ecuador.

≡ *Hygrolejeunea ocellata* Steph., *Sp. Hepat. (Stephani)* 5: 565, 1914 (Stephani 1914), syn. with *Ceratolejeunea dussiana* fide Dauphin (2005). Lectotype (Bonner 1966: 657) if not holotype: Ile Cocos, 1902, *Pittier s.n.*, hb. Cardot 83 (G-00047702 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=159230&lang=en>).

≡ *Pycnolejeunea cocosana* Mizut., *J. Hattori Bot. Lab.* 33: 253, 1970 (Mizutani 1970).

?**GUATEMALA.** ?**CHIMALTENANGO:** S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008 as *Ceratolejeunea* cf. *dussiana*). ?**CHIQUMULA:** S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008 as *Ceratolejeunea* cf. *dussiana*). Note: We do not know of any positively identified specimen from Guatemala.

***NICARAGUA.** ***ATLÁNTICO SUR:** Nueva Guinea municipio, road from Rio Blanco to Rio Copalar, 12°52'30"N, 85°02'30"W, 200–400 m, 13 Feb 1979, *Stevens 12050 p.p.*, det. Dauphin May 2017 (MO-6699911! <https://www.tropicos.org/specimen/100988666>, **this publication**).

COSTA RICA. S. loc. (Bastos 2004 as *Ceratolejeunea dussiana*; Lavocat Bernard et al. 2009 as *Ceratolejeunea dussiana*); S. loc., *Pittier* (G, Dauphin 2000, 2003, both as *Ceratolejeunea dussiana*). **HEREDIA:** Sarapiquí cantón, Finca el Plástico, Sendero el Tigre, *Dauphin 2174 p.p.* (GOET, Dauphin 2005 as *Ceratolejeunea dussiana*). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, near park entrance, 10°06.9'N, 83°58.4'W, 500 m, 29 Dec 1999, *Schäfer-Verwimp & Holz SV/H-0283/A* (CR, JE, Ellis et al. 2014a). **PUNTARENAS:** Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W),

3 Feb 2005 (Sonnleitner et al. 2009 as *Ceratolejeunea dussiana*); Monteverde cantón, Reserva Biológica Monteverde, 1,550 m, *Gradstein* 9419, 9430, 9464 (GOET, Reiner-Drehwald and Ilkiu-Borges 2007 as *Lejeunea huctumalcensis*).

PANAMA. S. loc. (Bastos 2004 as *Ceratolejeunea dussiana*; Lavocat Bernard et al. 2009 as *Ceratolejeunea dussiana*; Fossatti et al. 2020). **BOCAS DEL TORO:** Dolphin Bay (9°13'14.7"N, 82°13'02.9"W), Aug 2017 (Salazar Allen et al. 2022). **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,640 m, Schäfer-Verwimp & Verwimp 34417/A (JE, Schäfer-Verwimp 2014); Gualaca distrito, Reserva Forestal La Fortuna, Hornito, Sendero Quebrada Alemán, 1,100–1,200 m, Reiner-Drehwald 960078, 960099 (PMA, Reiner-Drehwald and Ilkiu-Borges 2007 as *Lejeunea huctumalcensis*). **COCLÉ:** La Pintada distrito, Corregimiento El Copé, Parque Nacional G. D. Omar Torrijos H., Sendero La Rana Dorada, 8°40'06"N, 80°35'26"W, 696 m, 31 Jul 2017, *Dauphin & Gudiño* 4490 p.p. (PMA, Dauphin et al. 2015). **DARIÉN:** S. loc. (Schäfer-Verwimp 2014); Cerro Pirre (Stotler et al. 1998 as *Ceratolejeunea dentatocornuta*); Cerro Pirre, Salazar Allen & Gradstein 9268 (GOET, Dauphin 2000, 2003, both as *Ceratolejeunea dussiana*; Dauphin et al. 2006 as *Ceratolejeunea dussiana*); Cerro Pirre, 1,200–1,300 m, Salazar Allen & Gradstein 9279 (PMA, GOET, U, Stotler et al. 1998 as *Ceratolejeunea dentatocornuta*; Dauphin 2000, 2003, both as *Ceratolejeunea dussiana*; Dauphin et al. 2006 as *Ceratolejeunea dussiana*); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992 as *Ceratolejeunea dentatocornuta*).

COCOS I. S. loc. (Stephani 1914 as *Hygrolejeunea ocellata*; Clark 1953a as *Hygrolejeunea ocellata*; Fosberg and Klawe 1966 as *Hygrolejeunea ocellata*; Miller et al. 1983 as *Hygrolejeunea ocellata*; Geissler and Bischler 1989 as *Pycnolejeunea cocosana*; Dauphin 1995, 1999, both as *Hygrolejeunea ocellata*; Lavocat Bernard et al. 2009 as *Ceratolejeunea dussiana*; Schäfer-Verwimp and Reiner-Drehwald 2009 as *Lejeunea huctumalcensis*; Schäfer-Verwimp 2014; Schäfer-Verwimp and Van Melick 2016); S. loc., *Dauphin* 999 (USJ, Dauphin 2000, 2003, 2005, all as *Ceratolejeunea dussiana*); S. loc., Pittier 14071 (G, Mizutani 1970 as *Pycnolejeunea cocosana*); S. loc., Pittier (G-00047702 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=159230&lang=en>, TYPE of *Hygrolejeunea ocellata*, He 1999 as *Pycnolejeunea cocosana*); S. loc., 50 m, 1902, Pittier (G [Steph. No. 5271], Reiner-Drehwald and Ilkiu-Borges 2007 as *Lejeunea huctumalcensis*); S. loc., 1966, Fosberg & Klawe (Morales 1991 as *Hygrolejeunea ocellata*); S. loc., 1994, *Dauphin* A-4/17 (USJ, Dauphin 2000, 2003, both as *Ceratolejeunea dussiana*); Cerro Pelón, 5°32'57"N, 87°03'56"W, 500 m, *Dauphin* A-7, det. G. Dauphin Apr 2021 (USJ-47533!, CR-4468411!, W!, this publication); Cuenca de la Quebrada Alfaro, rumbo a Bahía Yglesias, 5°31'8.4"N, 87°03'14.9"W, 266 m,

Estrada et al. 6169, det. G. Dauphin Apr 2021 (CR-4468361!, this publication); El Gallinero, antes de mirador a Valle Wafer, 5°32'57"N, 87°03'56"W, 110 m, 25 Feb 1990, *Dauphin* A-4/17, det. G. Dauphin Apr 2021 (USJ-47630!, CR-4468424!, W!, this publication); Fila entre Bahía Wafer y Chatham, sendero hacia Cerro Yglesias, sobre ladera hacia Valle de los Piratas, Cuenca del Río Minuta, 5°32'56.9"N, 87°03'28.3"W, 251 m, *Estrada et al.* 6142, det. G. Dauphin May 2021 (CR-4468346!, this publication); Río Genio, 5°32'57"N, 87°03'56"W, 130 m, 23 Jan 1990, *Dauphin* 1011, det. G. Dauphin Oct 2020 (CR-4468160!, this publication); Río Genio, 5°32'57"N, 87°03'56"W, 130 m, 23 Jan 1990, *Dauphin* 999, det. G. Dauphin Jan 2021 (USJ-47189!, CR-4468422!, W!, this publication); Río Genio, 5°32'57"N, 87°03'56"W, 0–50 m, Apr 1992, *Lücking* 550 (hb. Bernecker, Bernecker-Lücking 2000 as *Ceratolejeunea* cf. *dentatocornuta*); Río Genio, 5°32'57"N, 87°03'56"W, 130 m, 24 Jan 1994, *Dauphin* 1011, det. G. Dauphin Oct 2020 (CR!, this publication); Río Genio, 5°32'57"N, 87°03'56"W, Jun 2016, *Sanchez* 2697, det. Dauphin 2016 (CR!, this publication).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Otigoniolejeunea portoricensis (Hampe et Gottsche) Y.M.We, R.L.Zhu et Gradst., *Phytotaxa* 162(4): 237, 2014 (Wei et al. 2014).

≡ *Lejeunea portoricensis* Hampe et Gottsche, *Linnaea* 25(3): 352, 1853 (Hampe and Gottsche 1852). Type: Puerto Rico.

≡ *Physantholejeunea portoricensis* (Hampe et Gottsche) R.M.Schust., *Phytologia* 39(6): 429, 1978 (Schuster 1978b).

?**COSTA RICA.** S. loc. (Lavocat Bernard et al. 2009 as *Physantholejeunea portoricensis*). Note: We are not aware of any firsthand report from Costa Rica.

PANAMA. **DARIÉN:** Santa Fe distrito, Cerro Chucantí, Sendero del Helicóptero, desde letrero “Chucantí, Reserva Natural Privada” hacia la cima, 8°47'22"N, 78°27'17"W, 863 m, 21 Dec 2009, *Gudiño* 841 (PMA, Dauphin et al. 2015).

†**COCOS I.** S. loc. (Schäfer-Verwimp and Reiner-Drehwald 2009 as *Physantholejeunea portoricensis*); S. loc., *Dauphin* 943 (USJ, Dauphin 1999 as *Physantholejeunea portoricensis*); Río Genio, 5°32'57"N, 87°03'56"W (Dauphin 2005 as *Physantholejeunea portoricensis*). Note: Dauphin (1999, 2005) are based on a misidentification of *Stictolejeunea balfourii*.

Also reported from the Caribbean, Brazil.

***Pallavicinia* Gray, Nat. Arr. Brit. Pl. 1: 775, 1824 (Gray 1821).**

Pallavicinia lyellii (Hook.) Gray, Nat. Arr. Brit. Pl. 1: 775, 1821 (Gray 1821).

≡ *Jungermannia lyellii* Hook., Brit. Jungermann.: tab. 77, 1816 (Hooker 1816b). Type: Britain.

GUATEMALA. **ALTA VERAPAZ:** Tucurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, Pérez 249 (USCG, Pérez 2009); Tucurú municipio, Reserva Privada Chelemhá (Pérez

2006). **BAJA VERAPAZ**: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 2, 3, 130, 163, 188, 375, 397, 411, 412, 443, 476, 488, 497 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. (Freire 2006); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as 'Pallavicina' lyellii). **EL PROGRESO**: San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007). **HUEHUETENANGO**: Barillas municipio, San José Maxbal, Laguna Maxbal, 15°56'23"N, 91°18'19"W, Pérez 1398 (USCG, Pérez 2009). **QUICHÉ**: S. loc., Pérez 2306 (USCG, Pérez 2009). **ZACAPA**: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007).

BELIZE. S. loc. (Ştefănuţ 2003). **CAYO**: S. loc., Dec 1993, Allen 15067 (BRH, MO, Whittemore and Allen 1996); S. loc., Dec 1993, Allen 15119 (BRH, MO, Whittemore and Allen 1996). **TOLEDO**: S. loc., Dec 1993, Allen 15369 (BRH, MO, Whittemore and Allen 1996); S. loc., Dec 1993, Allen 15503 (BRH, MO, Whittemore and Allen 1996).

HONDURAS. S. loc. (Ştefănuţ 2003). Note: We are not aware of any firsthand report from Honduras.

COSTA RICA. S. loc. (Cole 1984; Schäfer-Verwimp and Pócs 2009). **ALAJUELA**: Poás Volcano, 2 Aug 1940, Haupt (Haupt 1942; Morales 1991; Dauphin 2005); San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 5 Jul 2007, Norris 110208 (UC, Norris et al. 2017). **GUANACASTE**: Liberia cantón, Rincón de La Vieja National Park, Las Pailas, 800–1,200 m, Dauphin 1858 (CR, Dauphin 2005). **PUNTARENAS**: S. loc. (Merwin et al. 2001); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a).

PANAMA. **DARIÉN**: Summit of Pirre Massif, 1,200–1,350 m, Allen 8863 (MO, Stotler et al. 1998).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa, Macaronesia, West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, Caucasus, Western Asia, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasias, Australia, Southwestern Pacific, Southeastern Pacific, Northwestern Pacific, Northeastern Pacific, Eastern Canada, North-Central USA, Northeastern USA, Southwestern USA, South-Central USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

***Paracromastigum* Fulford et J.Taylor, *Brittonia* 13(4): 336, 1961 (Fulford and Taylor 1961).**

Paracromastigum granatense (Gottsche) R.M.Schust., *J. Hattori Bot. Lab.* 48: 341, 1980 (Schuster 1980c).

=*Lepidozia granatensis* Gottsche, *Ann. Sci. Nat. Bot.*, sér. 5, 1: 139, 1864 (Gottsche 1864). Type: Colombia.

=*Bonneria granatensis* (Gottsche) Fulford et J.Taylor, *Brittonia* 13(4): 334, 1961 (Fulford and Taylor 1961).

=*Lepidozia granatensis* Gottsche f. *elator* Steph., *Prim. Flor. Costaricensis*: 180, 1893 (Stephani 1893c), nom. inval. (ICN2018 Art. 38.1a; no description). Original material: Costa Rica, Alajuela, sommet du volcan de Poás, Pittier 6020.

COSTA RICA. S. loc. (Schuster 1963a as *Bonneria granatensis*; Fulford 1966 as *Bonneria granatensis*; Gradstein 1999a; Dauphin 2005; Gradstein and Holz 2005; Schäfer-Verwimp et al. 2013; Gradstein 2021); Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b). **ALAJUELA**: Poás National Park (Dauphin 2005); Poás Volcano, Pittier 6017, 6020 (Stephani 1893c as *Lepidozia granatensis* and its f. *elator*; Fulford and Taylor 1961 as *Bonneria granatensis*; Morales 1991 as *Bonneria granatensis*; S. loc., 1891–1896, Durand & Pittier (Morales and Griffin 1983 as *Bonneria granatensis*). **SAN JOSÉ**: Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,200 m, Gradstein 9726, 9729 (USJ, Gradstein et al. 1994).

Also reported from Western South America.

Paracromastigum pachyrhizum (Nees) Fulford, *Mem. New York Bot. Gard.* 11(3): 390, 1968 (Fulford 1968).

=*Jungermannia pachyrhiza* Nees, *Fl. Bras. (Martius)* 1(1): 339, 1833 (Nees 1833b). Type: Brazil.

=*Alobiella bifida* Steph., *Symb. Antill.* 2: 470, 1901 (Stephani 1901b), syn. fide Gradstein and Costa (2003). Type: Guadeloupe.

=*Paracromastigum bifidum* (Steph.) R.M.Schust., *J. Hattori Bot. Lab.* 48: 341, 1980 (Schuster 1980d).

=*Leucosarmentum portoricense* Fulford, *Mem. New York Bot. Gard.* 11(3): 386, 1968 (Fulford 1968). Type: Puerto Rico.

=*Paracromastigum portoricense* (Fulford) A.V.Freire, *Biodiv. Guatemala*: 64, 2006 (Freire 2006), nom. inval. (ICN2018 Art. 41.5; basionym not cited).

GUATEMALA. S. loc. (Gradstein et al. 1977 as *Leucosarmentum portoricense*; Schäfer-Verwimp and Pócs 2009 as *Paracromastigum bifidum*). **ALTA VERAPAZ**: Cobán municipio, N of Cobán, 4,400 ft (1,341 m), Sharp 2972 p.p., 2973 (TENN, Fulford 1968 as *Leucosarmentum portoricense*; Freire 2006 as *Paracromastigum portoricense*; Pérez 2009 as *Paracromastigum portoricense*).

PANAMA. **DARIÉN**: Pinogana distrito, 1.5 mi (2.4 km) along trail to Boca de Cupé from Cana, Allen 8949, det. Whittemore 1990 as *Paracromastigum bifidum* (MO!, Stotler et al. 1998 as *Paracromastigum bifidum*); Pinogana distrito, Cana, at entrance to old Cana Mines, 4 May 1990, Allen 8949, det. Whittemore 1990 as *Paracromastigum bifidum* (MO-3678089!, this publication). **NASO TJÉR DI COMARCA**: Cerro Fábrega, De Gracia 395 (PMA, Dauphin 2007). **PANAMA**: Panamá distrito, Altos de Cerro Azul, Sendero El Cantar, Stotler & Crandall-Stotler 3500 (ABSH, PMA, Stotler et al. 1998 as *Paracromastigum bifidum*).

Also reported from the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

***Pictolejeunea Grolle, Feddes Repert. 88(4):
248, 1977 (Grolle 1977a).***

Pictolejeunea picta (Steph.) Grolle, *Feddes Repert.* 88(4): 252, 1977 (Grolle 1977a).

≡ *Prionolejeunea picta* Steph., *Sp. Hepat. (Stephani)* 5: 223, 1913 (Stephani 1913). Type: Trinidad.

COSTA RICA. S. loc. (Gradstein et al. 2001b). **LIMÓN:** Pococí cantón, Llanuras de Tortuguero, *Dauphin et al.* 1655 (CR, Dauphin 2005). **PUNTARENAS:** Osa cantón, Osa Peninsula, Corcovado National Park, Cerro Chocuaco, 500–600 m, *Quirós* 29 (USJ, Gradstein et al. 1994; Dauphin 2005).

PANAMA. S. loc. (Gradstein et al. 2001b). **DARIÉN:** Cerro Pirre (Stotler et al. 1998); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992); Cerro Pirre, from camping site of Rancho Mojado, 1,000 m, *Salazar Allen & Gradstein* 9259 p.p. (PMA, Stotler et al. 1998). **PANAMA WEST:** La Chorrera distrito, Barro Colorado Island, *Gradstein & Salazar Allen* 15139 (Dauphin et al. 2022); La Chorrera distrito, Barro Colorado, Pearson, 2003, *Dauphin* 3105 (CR, PMA, Dauphin et al. 2022).

COCOS I. Río Chatham, 5°32'57"N, 87°03'56"W, 100 m, 15 Feb 1994, *Dauphin* 1099 (USJ, CR, Dauphin 1995, 1999, 2005).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

***Plagiochasma Lehm., Nov. Stirp. Pug. 4:
13, 1832 (Lehmann 1832).***

Plagiochasma crenulatum Gottsche, *Mexik. Leverm.*: 266, 1863 (Gottsche 1863). Type: Mexico.

GUATEMALA. **ALTA VERAPAZ:** Cobán municipio, Gardens of La Posada, 1,350 m, *Richards & Williams* 2791A (F, NY, U, Bischler 1979a as *Plagiochasma wrightii*; Bischler-Causse et al. 2005; Pérez 2009); Senahú municipio, Finca Sepacuité, 900 m, *Maxon & Hay* (US, YU, Bischler 1979a). **IZABAL:** Along Río Frio, 50–75 m, *Steyermarck* 41620 (F, Bischler 1979a as *Plagiochasma rupestre*; Bischler-Causse et al. 2005; Pérez 2009).

***BELIZE.** ***CAYO:** Las Cuevas Field Station, 16°44'N, 88°59'W, 10 Dec 1996, *Allen* 18262A, det. Brinda and Dauphin Jun 2017 (MO-5223977! <http://tropicos.org/specimen/90094434>, this publication); Monkey Tail Branch from Las Cuevas to the confluence with the Raspaculo Branch, 16°45'N, 88°56'W, 12 Dec 1996, *Allen* 18305, det. Brinda and Dauphin Jun 2017 (MO-5223976! <https://tropicos.org/specimen/90094435>, this publication). ***TOLEDO:** Edwards Road beyond Columbia, near Resemideres, 26 Feb 1948, *Gentle* 6444, det. Brinda and Dauphin Jun 2017 (MO-5228129! <https://tropicos.org/specimen/90103088>, this publication).

HONDURAS. S. loc. (Davison and Schotz 1998). **COMAYAGUA:** La Libertad municipio, Chichipates, Río Yure, 22 Nov–31 Dec 1980, *Nelson et al.* 6692, det. Brinda Jun 2017 (MO-3678540!, this publication); Siguatepeque, 1,050 m,

Standley & Charon 6272 (F, Bischler 1979a as *Plagiochasma rupestre*; Bischler-Causse et al. 2005); Siguatepeque, *Yuncker et al.* 6461 (hb. Fulford, Bischler-Causse et al. 2005).

?COSTA RICA. S. loc. (Dauphin 2005). Note: We are not aware of any firsthand report from Costa Rica.

Also reported from Southwestern USA, Southeastern USA, Mexico.

Plagiochasma cuneatum A. Evans, *Amer. J. Bot.* 19(7): 627, 1932 (Evans 1932). Type: USA.

GUATEMALA. S. loc. (Schuster 1992c). **HUEHUETE-NANGO:** Huehuetenango municipio, Zaculeu ruins, 1,740 m, *Volk* 6/717 (PC, Bischler 1979a; Bischler-Causse et al. 2005).

Also reported from South-Central USA, Mexico, the Caribbean.

Plagiochasma intermedium Lindenb. et Gottsche, *Syn. Hepat.* 4: 513, 1846 (Gottsche et al. 1846). Type: Mexico.

≡ *Aytonia intermedia* (Lindenb. et Gottsche) Kuntze, *Revis. Gen. Pl.* 1: 143, 1891 (Kuntze 1891).

GUATEMALA. S. loc. (Haynes et al. 1923; Haupt 1942; Hattori 1948, 1952, 1968b; Jovet-Ast 1965; Bapna and Kachroo 2000b; Chaudhary et al. 2006; Flores and Suárez 2015); S. loc., *Donnell Smith* (Underwood 1895 as *Aytonia intermedia*); S. loc., *Friedrichstahl* (UC, W, Bischler 1979a). **CHIMALTENANGO:** Patzún municipio, along Río Modeno, 5 km W of Patzún, 1,740 m, *Richards & Williams* 3051 (F, Bischler 1979a; Bischler-Causse et al. 2005; Pérez 2009). **ESCUINTLA:** Below Las Lajas, 900–1,200 m, *Standley* 64856 (F, NY, Bischler 1979a; Bischler-Causse et al. 2005; Pérez 2009). **HUEHUETENANGO:** Huehuetenango municipio, Zaculeu ruins, 1,740 m, *Volk* 6/0718 (JE, Bischler 1979a; Bischler-Causse et al. 2005). **SACATEPÉQUEZ:** Antigua, ~25 mi W of Guatemala city, 7–23 Jul 1940, *Haupt* (Haupt 1942). **SANTA ROSA:** Cuajiniquilapa, 2,500 ft (762 m), Aug 1894, *Heyde & Lux* 6292 (BM, F, FH, G, NY, YU, Bischler 1979a; Evans 1915; Bischler-Causse et al. 2005); Cuajiniquilapa (Schuster 1992c); Guachipilín (Schuster 1992c); Guachipilín, 2,500 ft (762 m), Sep 1893, *Heyde & Lux* 6292 (BM, F, FH, G, NY, US, MO-5379586, Evans 1915; Bischler 1979a; Pérez 2009); La Joya de Limón, E of Cuilapa, 900 m, *Standley* 78282 (F, NY, Bischler 1979a; Bischler-Causse et al. 2005). **SOLOLÁ:** Panchel municipio, Hotel Regis at Panajachel, 1,500 m, *Richards & Williams* 3018 (F, Bischler 1979a; Bischler-Causse et al. 2005; Pérez 2009). **SUCHITEPÉQUEZ:** Finca El Naranjo, *Svihla* 45-6189 (hb. Fulford, Bischler-Causse et al. 2005; Pérez 2009).

COSTA RICA. S. loc. (Cole 1984; Schuster 1992c). **CARTAGO:** Oreamuno cantón, Río Reventado, N of Cartago, 1,460–1,650 m, *Standley & Valerio* 49396 (NY, US, YU, Bischler 1979a; Morales 1991; Bischler-Causse et al. 2005; Dauphin 2005). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 92-394 (hb. Lücking, Bischler-Causse et al. 2005). **SAN JOSÉ:** Escazú cantón, Escazú mountains, 6,000 ft (1,829 m), 7 Aug 1940, *Haupt* (Haupt 1942; Morales 1991; Dauphin 2005); San José

cantón, N bank of the Torres River between Bolívar Park and the Penitentiary, 27 Jul 1940, *Haupt* (**Haupt 1942**); vicinity of Las Pavas, 1,070 m, *Standley 36060* (YU, **Bischler 1979a**; **Morales 1991**; **Bischler-Causse et al. 2005**; **Dauphin 2005**).

Also reported from Southeastern USA, Mexico, Northern South America, Western South America, Southern South America.

Plagiochasma landii A. Evans, *Bull. Torrey Bot. Club* 42(5): 298, 1915 (Evans 1915). Type: Mexico.

GUATEMALA. S. loc. (Schuster 1992c; Stotler and Crandall-Stotler 2017). QUETZALTENANGO: Alonzo, San Juan Ostuncalco, *Standley 84178* (F, **Bischler-Causse et al. 2005**; **Pérez 2009**); San Juan Ostuncalco municipio, region of Los Alonzi, mountains above San Juan Ostuncalco, 2,700–2,800 m, *Standley 84170* (F, **Bischler 1979a** as *Plagiochasma rupestre*).

COSTA RICA. S. loc. (Schuster 1992c; Stotler and Crandall-Stotler 2017). CARTAGO: Oreamuno cantón, ravine N of Carit Sanatorium, Irazú, *Stork* (US, **Bischler 1979a** as *Plagiochasma rupestre*; **Morales 1991**; **Bischler-Causse et al. 2005**; **Dauphin 2005**).

Also reported from South-Central USA, Mexico.

Plagiochasma rupestre (J.R.Forst. et G.Forst.) Steph. var. *rupestre*, *Bull. Herb. Boissier* 6(10): 783 (= *Spec. Hep. [Stephani]* 1: 80), 1898 (Stephani 1898b).

≡ *Aytonia rupestris* J.R.Forst. et G.Forst., *Char. gen. pl.*, ed. 2: 148, 1776 (Forster and Forster 1776). Type: Madeira.

GUATEMALA. S. loc. (**Bischler 1979b**; **Miller et al. 1983**); S. loc., Volk 6/710 (P, **Bischler 1979a**). SACATEPÉQUEZ: Ato tenango municipio, Las Lajas, 1,200 m, *Standley 58128* (F, NY, **Bischler 1979a**; **Bischler-Causse et al. 2005**; **Pérez 2009**). SOLOLÁ: Santiago de Atitlán municipio, Santiago de Atitlán, Zueban, *Degen* (W, **Bischler 1979a** as *Plagiochasma mexicanum*).

*NICARAGUA. *JINOTEGA: Jinotega municipio, Cerro de La Cruz, middle E slope, 13°05'25"N, 86°00'40"W, 8 Feb 2010, *Stevens & Montiel 29550*, det. Brinda and Dauphin Jun 2017 (MO-5223976! <https://tropicos.org/specimen/100256037>, this publication).

COSTA RICA. S. loc. (**Bischler 1979b**; **Miller et al. 1983**; **Ruklani and Rubasinghe 2022**). ALAJUELA: San Ramón cantón, Finca Nectandra, 10°11'N, 84°31'W, 5 Jul 2007, *Norris 110367* (UC, **Norris et al. 2017**). CARTAGO: Cartago cantón, Taras, *Meléndez* (P [?=PC], **Bischler 1979a**; **Morales 1991**; **Bischler-Causse et al. 2005**; **Dauphin 2005**). SAN JOSÉ: Entre San José y Heredia, 5 Jul 1941, *Svihla 41-452* (**Svihla 1942**; **Morales 1991**; **Dauphin 2005**); Santa Ana cantón, Rancho El Rodeo, 18 Jul 1941, *Svihla 41-506* (**Svihla 1942**; **Morales 1991**; **Dauphin 2005**).

PANAMA. S. loc. (**Bischler 1979a**, 1979b; **Miller et al. 1983**). CHIRIQUÍ: Boquete distrito, on trail to Bajo Mono, 9 Sep 1940, *Svihla 40-414* (**Svihla 1942**; **Stotler et al. 1998**); Boquete, 2 Sep 1940, *Svihla 40-447* (**Bischler-Causse et al. 2005**); Boquete, 5 Sep 1940, *Svihla 41-404* (**Svihla 1942**; **Stotler et al. 1998**).

Also reported from Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe(?), North Africa,

Macaronesia, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Middle Atlantic Ocean, Western Indian Ocean, Caucasus, Western Asia, Arabian Peninsula, China, Mongolia, Eastern Asia, Indian Subcontinent, Indo-China, Australia, New Zealand, Southwestern Pacific, Southeastern Pacific, Northwestern USA, North-Central USA, Southwestern USA, South-Central USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

***Plagiochila* (Dumort.) Dumort., *Recueil Observ. Jungerm.: 14, 1835* (Dumortier 1835).**

Plagiochila abrupta Lehm. et Lindenb., *Sp. Hepat. (Lindenberg)* 2–4: 106, 1840 (Lindenberg 1840). Type: St. Vincent.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotope Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (**Freire et al. 2005**).

Also reported from the Caribbean, Northern South America.

Plagiochila adianthoides (Sw.) Lindenb., *Sp. Hepat. (Lindenberg)* 2–4: 77, 1840 (Lindenberg 1840).

≡ *Jungermannia adianthoides* Sw., *Prodr. (Swartz)*: 142, 1788 (Swartz 1788). Type: Jamaica.

= *Plagiochila procera* Lindenb., *Sp. Hepat. (Lindenberg)* 2–4: 40, 1840 (Lindenberg 1840), syn. fide Heinrichs et al. (1998a). Type: Ecuador.

= *Plagiochila gibbosa* Lindenb. et Gottsche, *Linnaea* 20(3): 324, 1847 (Hampe 1847), syn. fide Heinrichs et al. (1998a). Lectotype: Venezuela.

= *Plagiochila angulifolia* Steph., *Bull. Herb. Boissier*, sér. 2, 5(4): 359 (= *Sp. Hepat. [Stephani]* 2: 527), 1905 (Stephani 1905e), syn. fide Heinrichs (2002). Lectotype (Bonner 1962b: 16): Costa Rica, San José, Santiago, 1,100 m, 22 Apr 1901, *Breuer*, ex hb. Mönkemeyer 11 (G).

= *Plagiochila esmeraldana* Steph., *Sp. Hepat.* 6: 146, 1918 (Stephani 1918), syn. fide Heinrichs et al. (1998b). Lectotype (Bonner 1962b: 100; see also Heinrichs et al. 1998b as “holotype”): Costa Rica, La Esmeralda, Nov 1892, *Biolley 15664*, ex hb. Cardot (G-00064075 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=125583&lang=en>, isolecototypes NY-01113098, M).

= *Plagiochila secundidens* Steph. ex Dugas, *Thèse Fac. Sci. Paris*, ser. A, no. 1170: *Contrib. Étude Plagiochila*, 1928: 155, 188, 1928 (Dugas 1928), syn. fide Heinrichs (2002). Lectotype (Söderström et al. 2023a: 154): E viciniis urbis Guatemala, 1892, s. coll. (PC-0103036 <https://science.mnhn.fr/institution/mnhn/collection/pc/item/pc0103036>, isolecotype G-00115860 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=286225&lang=en>).

= *Plagiochila gibbosa* f. *cellulis-magis-incrass* Herzog ex Carl, *Ann. Bryol., Suppl.* 2: 64, 1931 (Carl 1931b), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Costa Rica, Alto de La Estrella, province of Cartago, Mar 26, 27, 1924, *Standley 39052* (US-04627008 <http://n2t.net/ark:/65665/3bb257dd1-a283-43de-bdc0-e2187f498be6>).

GUATEMALA. S. loc. (**Bonner 1962b** as *Plagiochila secundidens*; **Geissler and Bischler 1989** as *Plagiochila secundidens*; **Schuster 2021**); S. loc., 1892 (G-26440, **Dugas 1928** as *Plagiochila secundidens*; **Heinrichs 2002**). ALTA VERAPAZ: Cobán

municipio, Cubilquita, 1,350 m, 1902, *Türkheim* 8358 (US, Heinrichs 2002); Cobán, 1,600 m, *Türkheim* 5580 (BM, FH, M, NY, Heinrichs 2002); Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, 2,300–2,500 m, Pérez 394 (USCG, Pérez 2009); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Plagiochila* cf. *adiantoides*). **EL PROGRESO**: San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007). **GUATEMALA**: Guatemala City, 1892 (NY, TYPE of *Plagiochila secundidens*, Pérez 2009 as *Plagiochila angulifolia*). **HUEHUETENANGO**: Todos Santos Cuchumatán, Chihuitz, 15°30'40"N, 91°38'56"W, 2,790 m, 2006, Pérez s. loc. 1682 (USCG, Pérez 2009).

BELIZE. S. loc. (Schuster 2021). **TOLEDO**: Columbia River Forest Reserve, 715 m, 1997, Allen 19056 (GOET, Heinrichs 2002).

HONDURAS. S. loc. (Schuster 2021). **COMAYAGUA**: Siguatopeque municipio, El Achote, 1,850 m, 1936, Yunker et al. 6648 (NY, Heinrichs 2002).

COSTA RICA. S. loc., (500–)1,200–3,000 m (Pagán 1942b as *Plagiochila procera*; Fulford and Sharp 1990 as *Plagiochila procera*; Holz et al. 2001; Schuster 2021); S. loc., Breuer (Stephani 1905e as *Plagiochila procera*); S. loc., Killip 18363 (Carl 1931b as *Plagiochila procera*); S. loc., Tonduz (Stephani 1905e as *Plagiochila procera*); Cordillera de Talamanca (Holz and Gradstein 2005b as *Plagiochila 'adiantoides'*; Holz 2003). **ALAJUELA**: S. loc., 1901, Breuer 217 (G, Heinrichs 2002); Alajuela cantón, Viento Fresco (Dauphin 2005); Alajuela cantón, Viento Fresco, 1,600–1,900 m, Standley 47947a (Herzog 1938 as *Plagiochila angulifolia*; Morales 1991 as *Plagiochila angulifolia*); Alajuela cantón, Viento Fresco, 1,600–1,900 m, 1926, Standley & Torres 47809 (B, FH, M, US, Heinrichs 2002); Poás (Dauphin 2005); Poás Volcano, 2,700 m, 1977, Griffin & Araya 34, det. H. Inoue (USJ, FLAS, Morales 1991 as *Plagiochila procera*; Dauphin 2005); Poás, 2,275 m, 1888, Pittier 16 (G, Heinrichs 2002). **CARTAGO**: S. loc., 1,500 m, 1900, Wercklé 6266 (G, M, Carl 1931b as *Plagiochila procera*; Heinrichs 2002); Alto de La Estrella (Dauphin 2005); Alto de La Estrella, Standley 39052 (US, Carl 1931b as *Plagiochila gibbosa* f. *cellulis-magis-incrass*; Herzog 1938 as *Plagiochila gibbosa* f. *cellulis-magis-incrass*; Morales 1991 as *Plagiochila esmeraldana*; Heinrichs 2002); Jiménez cantón, Río Naranjo (Dauphin 2005); Jiménez cantón, Río Naranjo, 200–250 m, Tonduz 3069 (G, Heinrichs 2002); Turrialba cantón, Esmeralda, Nov 1892, Biolley 15664 (G-025198 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=125583&lang=en>, TYPE of *Plagiochila esmeraldana*, Bonner 1962b as *Plagiochila esmeraldana*; Heinrichs et al. 1998b). **HEREDIA**: Barva cantón, Barva Volcano, 1892, Bielly 15664 (G, M, NY, Stephani 1918 as *Plagiochila esmeraldana*; Carl 1931b as *Plagiochila gibbosa*; Geissler and Bischler 1989 as *Plagiochila esmeraldana*; Heinrichs 2002); Barva cantón, Volcán Barva, 1,950 m (Dauphin 2005); Barva cantón, Volcán Barva, 2,800 m, Valerio 3 (Carl 1931b as *Plagiochila gibbosa*; Herzog 1938 as *Plagiochila gibbosa*; Morales 1991 as *Plagiochila*

esmeraldana); La Esmeralda (Dauphin 2005). **LIMÓN**: Chirripó (Dauphin 2005); Chirripó Grande, 2,500 m, 1932, Kupper 1271b (JE, M, Heinrichs 2002). **PUNTARENAS**: S. loc. (Merwin et al. 2001); Coto Brus cantón, Fila Pittier (Dauphin 2005); Coto Brus cantón, Parque Internacional La Amistad, Pittier, 1,900 m, 1995, Dauphin 1368 (GOET, Heinrichs 2002); Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, Gradstein et al. (U, Sillett et al. 1995); Monteverde, James 10 (US, Heinrichs 2002); Osa cantón, Península de Osa, 300 m (Dauphin 2005); Osa cantón, Rincón, trail to Cerro Chocuaco, 450 m, Gradstein & Dauphin 9321 (GOET, Heinrichs 2002). **SAN JOSÉ**: División, Monte Carmelo (Dauphin 2005); División, Monte Carmelo, 2,150 m, 1986, Kappelle et al. 751 (US, Heinrichs 2002); Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, La Chonta (Dauphin 2005); Dota cantón, Laguna de La Chonta, 2,000–2,100 m, 1925, Standley 42204 (US, Carl 1931b as *Plagiochila gibbosa*; Heinrichs 2002); Dota cantón, Laguna de La Chonta, NE of Sta María de Dota, 1,900 m, Standley 47809, 47820 (B, FH, M, US, Carl 1931b as *Plagiochila gibbosa*; Herzog 1938 as *Plagiochila gibbosa*; Morales 1991 as *Plagiochila esmeraldana*); Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, Río Savegre valley, 2,300–2,700 m, 1999, Heinrichs et al. 4159 (GOET, B, BM, CBG, hb. Drehwald, E, hb. Frahm, G, hb. Heinrichs, JE, KRAM, MO, NICH, NY, S, hb. Schäfer-Verwimp, W. Further, Heinrichs et al. 2000b; Heinrichs and Anton 2001; Heinrichs 2002; Dauphin 2005); Dota cantón, San Gerardo, Río Savegre valley, 2300–2700, 1999, Heinrichs et al. 4314 (GOET, Heinrichs 2002; Groth and Heinrichs 2003; Groth et al. 2004a; Heinrichs et al. 2004d, 2005a, 2006b; Schäfer-Verwimp et al. 2006; Jamy et al. 2016; Patzak et al. 2016; Renner et al. 2017a); Dota cantón, San Gerardo, Río Savegre valley, 2,300–2,700 m, 1999, Heinrichs et al. 4315, 4316 (GOET, Heinrichs 2002); Dota cantón, Santa María, 1,500–1,800 m, Standley 41682 (US, Carl 1931b as *Plagiochila gibbosa*; Herzog 1938 as *Plagiochila gibbosa*; Morales 1991 as *Plagiochila esmeraldana*; Kappelle 1996 as *Plagiochila esmeraldana*; Dauphin 2005); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 2,600–3,000 m (Dauphin 2005); Santiago, 1,100 m, 22 Apr 1901, Breuer (G, TYPE of *Plagiochila angulifolia*, Stephani 1905e as *Plagiochila angulifolia*; Bonner 1962b as *Plagiochila angulifolia*; Geissler and Bischler 1989 as *Plagiochila angulifolia*; Heinrichs 2002).

PANAMA. **CHIRIQUÍ**: Gualaca distrito, Fortuna (Stotler et al. 1998 as *Plagiochila gibbosa*); Gualaca distrito, Fortuna Forest Reserve, NE of camping site, 900–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, trail to Quebrada Las Mellizas (Salazar Allen et al. 2021); Gualaca

distrito, Fortuna, *Spörle & Aranda* 1.35, 1.36 (PMA, *Spörle* 1990 as *Plagiochila gibbosa*; *Stotler et al.* 1998 as *Plagiochila gibbosa*); Gualaca distrito, Hornito, Fortuna, ~1,000 m, 20 May 1988, *Salazar Allen et al.* 6201 p.p. (U, *Heinrichs* 2002); Tierras Altas distrito, Cerro Punta, Las Cumbras, 1971, *Croat* 13748 (MO, US, *Stotler et al.* 1998 as *Plagiochila gibbosa*; *Heinrichs* 2002); Barú Volcano National Park (*Rodríguez-Quiel et al.* 2022). **DARIÉN:** Cerro Pirre (*Stotler et al.* 1998); Cerro Pirre, 1,200–1,300 m, *Salazar Allen & Gradstein* 9293 (PMA, *Stotler et al.* 1998); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992). **PANAMA:** Panamá distrito, along creek by road to Pacora, epiphyte, 800 m, *Spörle & Aranda* (PMA, *Stotler et al.* 1998); Panamá distrito, Cerro Jefe (*Stotler et al.* 1998); Panamá distrito, Cerro Jefe, forest behind the INTEL tower, 900–1,000 m, *Spörle* (PMA, *Spörle* 1990).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Plagiochila aequatorialis Gottsche, *Ann. Sci. Nat. Bot.*, sér. 4, 8: 334, 1857 (Gottsche 1857). Type: America aequatorialis.

COSTA RICA. HEREDIA: Barva cantón, Bosques entre el Volcán Barva y Carrizal, *Pittier* 6012 (G, *Stephani* 1893c; *Morales* 1991; *Dauphin* 2005). **SAN JOSÉ:** Dota cantón, San Gerardo, Río Savegre Valley between holiday camp Chacón and waterfall, 2,000 m, 9 Apr 2000, *Holz* CR 00-693 (CR, GOET, *Holz et al.* 2001; *Dauphin* 2005).

Also reported from Western South America.

Plagiochila aerea Taylor, *London J. Bot.* 5: 263, 1846 (Taylor 1846b). Type: Ecuador.

=*Plagiochila bursata* Lindenb., *Sp. Hepat. (Lindenberg)* 2–4: 88, 1840 (Lindenberg 1840), nom. illeg. (ICN2018 Art. 52.1; nom. superfl.). Type: “in carabais.”

=*Plagiochila alpina* Gottsche, *Ann. Sci. Nat. Bot.*, sér. 5, 1: 101, 1864 (Gottsche 1864), syn. fide Grolle and Heinrichs (1999). Lectotype: Venezuela.

=*Plagiochila bursata* f. *depauperata* Herzog ex Carl, *Ann. Bryol., Suppl.* 2: 67, 1931 (Carl 1931b), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Grolle and Heinrichs (1999). Original material: Costa Rica, Cerro de las Lajas, north of San Isidro, Provincia de Heredia, altitude 2,000–2,400 m, 7 Mar 1926, *Standley & Valerio* 51505 (US-04627055 <http://n2t.net/ark:/65665/30cc6abf3-82de-494b-939a-0aedc2256b8b>, JE); Costa Rica, Cerros de Zurquí, northeast of San Isidro, Provincia de Heredia, altitude 2,000–2,400 m, 3 Mar 1926, *Standley & Valerio* 50709 (US-04627056 <http://n2t.net/ark:/65665/3a52bef74-e37c-4d48-b3ab-8d41e26f82f8>, JE, M); same location, *Standley & Valerio* 50299 (US-04627054 <http://n2t.net/ark:/65665/34e92e297-2c48-40cc-8b42-a0b79772318e>, JE, M).

=*Plagiochila bursata* var. *fissistipula* Herzog ex Carl, *Ann. Bryol., Suppl.* 2: 67, 1931 (Carl 1931b), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Grolle and Heinrichs (1999). Original material: Costa Rica, Heredia, Cerro de las Caricias, N of San Isidro, 11 Mar 1926,

Standley & Valerio 52150 (US-00289474 <http://n2t.net/ark:/65665/3082bbb6b-2cf0-4e7e-8170-b110d6faf690>, JE).

=*Plagiochila bursata* var. *pilistipula* Herzog ex Carl, *Ann. Bryol., Suppl.* 2: 67, 1931 (Carl 1931b), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Grolle and Heinrichs (1999). Original material: Costa Rica, La Hondura, province of San José, altitude 1,300 to 1,700 m, 2–4 Mar 1924, *Standley* 36300 (US-04675708 <http://n2t.net/ark:/65665/338668d00-ee81-47c9-b23b-3af64b75d695>, JE); same location, 16 Mar 1924, *Standley* 37811 (US-04627043 <http://n2t.net/ark:/65665/39766537c-664a-45d1-a229-c4f4305d275a>, JE); Cerro de las Caricias, north of San Isidro, Provincia de Heredia, altitude 2,000–2,400 m, 11 Mar 1926, *Standley & Valerio* 52161 (US-04626933 <http://n2t.net/ark:/65665/39578e3d5-167d-4192-a7a2-336e06f0c5e6>, JE, M).

=*Plagiochila bursata* var. *fissistipula* Herzog, *Rev. Bryol. Lichénol.* 11(1/2): 16, 1939 (Herzog 1938), nom. inval. (ICN2018 Art. 39.1; no Latin description), syn. fide Grolle and Heinrichs (1999). Original material: Costa Rica, Heredia, Cerro de las Caricias, N of San Isidro, 11 Mar 1926, *Standley & Valerio* 52150 (US-00289474 <http://n2t.net/ark:/65665/3082bbb6b-2cf0-4e7e-8170-b110d6faf690>, JE).

=*Plagiochila bursata* f. *intermedia* Herzog, *Rev. Bryol. Lichénol.* 11(1/2): 16, 1938 (Herzog 1938), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Grolle and Heinrichs (1999). Original material: Costa Rica, Cerro de Las Lajas, north of San Isidro, Provincia de Heredia, altitude 2,000–2,400 m, 7 Mar 1926, *Standley & Valerio* 51646 (US-04627053 <http://n2t.net/ark:/65665/36416dbe9-30fd-4bb9-8538-1519dea26893>, JE).

=*Plagiochila bursata* f. *pilistipula* Herzog, *Rev. Bryol. Lichénol.* 11(1/2): 16, 1938 (Herzog 1938), nom. inval. (ICN2018 Art. 30.1; no Latin description), syn. fide Grolle and Heinrichs (1999). Original material: Costa Rica, La Hondura, province of San José, altitude 1,300 to 1,700 m, 2–4 Mar 1924, *Standley* 36300 (US-04675708 <http://n2t.net/ark:/65665/338668d00-ee81-47c9-b23b-3af64b75d695>, JE); same location, 16 Mar 1924, *Standley* 37811 (US-04627043 <http://n2t.net/ark:/65665/39766537c-664a-45d1-a229-c4f4305d275a>, JE).

=*Plagiochila bursata* f. *tenera* Herzog, *Rev. Bryol. Lichénol.* 11(1/2): 16, 1938 (Herzog 1938), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Grolle and Heinrichs (1999). Original material: Costa Rica, La Estrella, province of Cartago, 26–27 Mar 1924, *Standley* 39460 (US-04675707 <http://n2t.net/ark:/65665/3977c943f-6c69-4ef7-83f8-30fc929bf817>); Cerro de Las Lajas, north of San Isidro, Provincia de Heredia, altitude 2,000–2,400 m, 7 Mar 1926, *Standley & Valerio* 51505 (US-04627055 <http://n2t.net/ark:/65665/30cc6abf3-82de-494b-939a-0aedc2256b8b>, JE); Cerros de Zurquí, northeast of San Isidro, Provincia de Heredia, altitude 2,000–2,400 m, 3 Mar 1926, *Standley & Valerio* 50299 (US-04627054 <http://n2t.net/ark:/65665/34e92e297-2c48-40cc-8b42-a0b79772318e>, JE); same location, 3 Mar 1926, *Standley & Valerio* 50709 (US-04627056 <http://n2t.net/ark:/65665/3a52bef74-e37c-4d48-b3ab-8d41e26f82f8>, JE, M); Las Nubes, province of San José, altitude 1,500 to 1,900 m, 20–22 Mar 1924, *Standley* 38479 (US-04627052 <http://n2t.net/ark:/65665/3cfb6f2d1-936c-4e9b-92c8-cf4f86a6c3dc>).

=*Plagiochila bursata* f. *amphigastriis-minimis-digitatis* Herzog, *Rev. Bryol. Lichénol.* 11(1/2): 16, 1938 (Herzog 1938), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Grolle and Heinrichs (1999).

Original material: Costa Rica: La Palma, province of San José, altitude about 1,600 m, 17 Mar 1924, *Standley* 38009 (US-04627044 <http://n2t.net/ark:/65665/36b21be5a-a42d-421d-b38c-06c35e894f1c>); same location, *Standley* 38052 (US-04627051 <http://n2t.net/ark:/65665/34fb1dd11-4ecb-4bf0-bae6-766675bb11b4>).

GUATEMALA. **ALTA VERAPAZ:** Cobán, 1,600 m, *Türkheim* (G in hb. Levier 5817, *Grolle and Heinrichs* 1999); Cobán, 1,350 m, 1887, *Türkheim* (G, *Heinrichs* 2002). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 390, 391 (USCG, *Freire et al.* 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al.* 2005 as *Plagiochila bursata*). **EL PROGRESO:** San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007). **SACATEPÉQUEZ:** Volcán de Agua, det. Inoue 1967 (NY, Pérez 2009). **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007 also as *Plagiochila* aff. *bursata*).

BELIZE. **TOLEDO:** S. loc., Dec 1993, *Allen* 15321 (BRH, MO, *Whittemore and Allen* 1996 as *Plagiochila bursata*).

HONDURAS. S. loc. (*Bonner* 1962b as *Plagiochila bursata* f. *tenera*). **FRANCISCO MORAZÁN:** San Antonio de Oriente municipio, Cerro de Uyuca, 1,650–2,000 m, *Morton* 7181 (S, *Grolle and Heinrichs* 1999).

NICARAGUA. **GRANADA:** Granada municipio, Mombacho Volcano, 960 m, *Maxon* 7794 (S, *Grolle and Heinrichs* 1999); Granada municipio, Volcán Mombacho, 1,000–1,220 m, 1981, *Heinrichs & Moreno* 191 (U, *Heinrichs* 2002).

COSTA RICA. S. loc. (*Bonner* 1962b; *Cole* 1982, 1983, both as *Plagiochila bursata*; *Fulford and Sharp* 1990; *Gradstein and Holz* 2005); S. loc., *Heinrichs et al.* 4143 (*Heinrichs et al.* 2000b); S. loc., *Heinrichs et al.* 4157 (B, BM, CBG, hb. Drehwald, E, hb. Frahm, G, GOET, hb. Heinrichs, JE, KRAM, MO, NICH, NY, S, hb. Schäfer-Verwimp, W. Further, *Heinrichs and Anton* 2001; *Dauphin* 2005); S. loc., 5,000–8,000 ft (1,524–2,438 m), *Oersted* 1169 (YU, G, S, *Hampe* 1851b as *Plagiochila bursata*; *Müller* 1851 as *Plagiochila bursata*; *Polakowsky* 1879 as *Plagiochila bursata*); S. loc., *Pittier* (G, *Stephani* 1902a); S. loc., *Standley* 38616 (*Carl* 1931b as *Plagiochila bursata*); S. loc., 1,300–2,400 m, *Standley* 52161 (JE, M, *Carl* 1931b as *Plagiochila bursata* var. *pilistipula*; *Grolle and Heinrichs* 1999); S. loc., *Standley* 52205 (*Geissler and Bischler* 1989 as *Plagiochila bursata* f. *depauperata*); S. loc., *Standley* 52864 (*Carl* 1931b as *Plagiochila bursata* var. *fissistipula*); S. loc., *Standley* 53161 (*Geissler and Bischler* 1989 as *Plagiochila bursata* 'f. *pilistipula*'); Cordillera de Talamanca (*Holz* 2003; *Holz and Gradstein* 2005b). **ALAJUELA:** San Ramón cantón, along road from San Ramón to Bajo Rodríguez, at Río Cataratas, 27 Nov 1987, *Croat* 68109, det. *Dauphin* May 2017 (MO-52755911, this publication); San Ramón cantón, Nectandra Cloud Forest Reserve, Quebrada Verde, *Norris* 110322a (UC-2054069, *Norris et al.* 2017). **CARTAGO:** La Estrella, *Standley* 39460 (*Herzog* 1938 as *Plagiochila*

bursata f. *tenera*; *Geissler and Bischler* 1989 as *Plagiochila bursata* f. *tenera*; *Morales* 1991 as *Plagiochila bursata*); La Unión cantón, Carpintera, *Pittier* 6033 (*Stephani* 1893c; *Morales* 1991); La Unión cantón, Carpintera, 1,500–1,850 m, *Standley* 34436 (*Carl* 1931b as *Plagiochila bursata*; *Herzog* 1938 as *Plagiochila bursata*; *Morales* 1991 as *Plagiochila bursata*); Paraíso cantón, Oroquieta, Tapantí National Park (Dauphin 2005); Paraíso cantón, Tapantí National Park, 1,400 m, 1999, *Heinrichs et al.* 4322 (*Heinrichs* 2002). **HEREDIA:** Barva cantón, Volcán Barva, *Vale-rio* 22 (*Carl* 1931b as *Plagiochila bursata*); San Isidro cantón, Cerro Caricias, ~2,000 m (Dauphin 2005); San Isidro cantón, Cerro de Caricias, *Standley* 51646 (*Herzog* 1938 as *Plagiochila bursata* f. *intermedia*; *Geissler and Bischler* 1989 as *Plagiochila bursata* f. *intermedia*; *Morales* 1991 as *Plagiochila bursata*; *Grolle and Heinrichs* 1999; *Heinrichs* 2002); San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, 1926, *Standley* 52150 (*Carl* 1931b as *Plagiochila bursata* var. *fissistipula*; *Herzog* 1938 as *Plagiochila bursata* var. *fissistipula*; *Geissler and Bischler* 1989 as *Plagiochila bursata* var. *fissistipula*; *Morales* 1991 as *Plagiochila bursata*; *Grolle and Heinrichs* 1999; *Heinrichs* 2002); San Isidro cantón, Cerro de las Caricias, N of San Isidro, 2,000–2,400 m, 1926, *Standley* 52161 (JE, *Heinrichs* 2002); San Isidro cantón, Cerro de Las Lajas (Dauphin 2005); San Isidro cantón, Cerro de Las Lajas, *Standley* 50777 (*Carl* 1931b; *Morales* 1991); San Isidro cantón, Cerro de Las Lajas, 2,000–2,400 m, *Standley* 51505 (*Carl* 1931b as *Plagiochila bursata* f. *depauperata*; *Herzog* 1938 as *Plagiochila bursata* f. *tenera*; *Geissler and Bischler* 1989 as *Plagiochila bursata* f. *tenera*; *Morales* 1991 as *Plagiochila bursata*; *Grolle and Heinrichs* 1999); San Isidro cantón, Cerro de Las Lajas, 2,000–2,400 m, *Standley* 51619 (*Herzog* 1938; *Morales* 1991); San Isidro cantón, Cerro Zurquí (Dauphin 2005); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley* 50268, 50339, 50376, 50519, 50532 (*Carl* 1931b; *Herzog* 1938 as *Plagiochila bursata*; *Morales* 1991 as *Plagiochila bursata*); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, 1926, *Standley* 50299 (*Carl* 1931b as *Plagiochila bursata* f. *depauperata*; *Herzog* 1938 as *Plagiochila bursata* f. *tenera*; *Geissler and Bischler* 1989 as *Plagiochila bursata* f. *depauperata* and f. *tenera*; *Morales* 1991 as *Plagiochila bursata*; *Grolle and Heinrichs* 1999; *Heinrichs* 2002); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, 1926, *Standley* 50445 (JE, *Carl* 1931b; *Herzog* 1938; *Morales* 1991; *Heinrichs* 2002); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, 1926, *Standley* 50709 (*Carl* 1931b as *Plagiochila bursata* f. *depauperata*; *Herzog* 1938 as *Plagiochila bursata* f. *tenera*; *Geissler and Bischler* 1989 as *Plagiochila bursata* f. *depauperata* and f. *tenera*; *Morales* 1991 as *Plagiochila bursata*; *Grolle and Heinrichs* 1999; *Heinrichs* 2002); San Isidro cantón, Yerba Buena, 2,000 m, *Standley* 49744 (*Morales* 1991). **PUNTARENAS:** S. loc. (*Merwin et al.* 2001); Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, Checo Trail near Adorno clearing, 4,300 ft (1,310 m), Feb 1969, *James, W.* (R, *Reed and Robinson* 1971 as *Plagiochila bursata*); Monteverde cantón, forest road "El Camino," 1,500 m, 1998, *Arts* CR 24/08, CR 24/16 (GOET, *Heinrichs* 2002); Monteverde cantón, Monteverde

Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995 as *Plagiochila bursata*); Monteverde, 4,300 ft (1,310 m), Feb 1969, *James, W.* 1969-22 (R, *Reed and Robinson* 1971 as *Plagiochila bursata*); Puntarenas cantón, Brillante, 25 Jul 1966, *James, W.* (R, *Reed and Robinson* 1971 as *Plagiochila bursata*). SAN JOSÉ: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, *Holz et al.* 2002); Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, Río Savegre valley, “Los Robles,” 2,300 m, 1999, *Heinrichs et al.* 4321 (GOET, *Heinrichs* 2002; *Groth and Heinrichs* 2003; *Groth et al.* 2003, 2004a, 2004b; *Heinrichs et al.* 2003a, 2004a, 2004b, 2004c, 2004d, 2005a, 2005b, 2006a, 2006b; *Lindner et al.* 2004; *Rycroft et al.* 2004; *Schäfer-Verwimp et al.* 2006; *Patzak et al.* 2016; *Renner et al.* 2017a); Moravia cantón, La Hondura (Dauphin 2005); Moravia cantón, La Hondura, 1,200–1,500 m, *Standley & Valerio* 51820, 51834 (JE, *Grolle and Heinrichs* 1999); Moravia cantón, La Hondura, 1,300–1,700 m, *Standley* 36480, 51814, 51820, 51834 (Carl 1931b as *Plagiochila bursata*; *Herzog* 1938 as *Plagiochila bursata*; *Morales* 1991 as *Plagiochila bursata*); Moravia cantón, La Hondura, 1,300–1,700 m, 1924, *Standley* 36300, 37811 (Carl 1931b as *Plagiochila bursata* var. *pilistipula*; *Herzog* 1938 as *Plagiochila bursata* f. *pilistipula*; *Bonner* 1962b as *Plagiochila bursata* f. *pilistipula* [“Honduras”]; *Geissler and Bischler* 1989 as *Plagiochila bursata* f. *pilistipula* and ‘f. *pilistipula*’; *Morales* 1991 as *Plagiochila bursata*; *Grolle and Heinrichs* 1999; *Heinrichs* 2002); Moravia cantón, La Hondura, 1,200–1,500 m, 1926, *Standley* 51864 (*Herzog* 1938 as *Plagiochila bursata* var. *fissistipula*; *Geissler and Bischler* 1989 as *Plagiochila bursata* var. *fissistipula*; *Morales* 1991 as *Plagiochila bursata*; *Grolle and Heinrichs* 1999; *Heinrichs* 2002); Moravia cantón, La Palma (Dauphin 2005); Moravia cantón, La Palma, *Pittier* 6001 (*Stephani* 1893c as *Plagiochila bursata*; *Morales* 1991 as *Plagiochila bursata*); Moravia cantón, La Palma, 1,550 m, *Pittier* (G-025380, *Grolle and Heinrichs* 1999); Moravia cantón, La Palma, 1,600 m, *Standley* 38006 (*Herzog* 1938 as *Plagiochila alpina*; *Morales* 1991 as *Plagiochila alpina*); Moravia cantón, La Palma, 1,600 m, *Standley* 38052 (*Herzog* 1938 as *Plagiochila bursata* f. *amphigastriis-minimis-digitatis*; *Geissler and Bischler* 1989 as *Plagiochila bursata* var. *fissistipula*; *Grolle and Heinrichs* 1999 [“Honduras”]); Moravia cantón, La Palma, *Valerio* 36 (*Morales* 1991); Vásquez de Coronado cantón, Las Nubes (Dauphin 2005); Vásquez de Coronado cantón, Las Nubes, 1,500–1,900 m, *Standley* 36616, 38448 (Carl 1931b as *Plagiochila bursata*; *Herzog* 1938 as *Plagiochila bursata*; *Morales* 1991 as *Plagiochila bursata*); Vásquez de Coronado cantón, Las Nubes, 1,500–1,900 m, *Standley* 38479 (*Herzog* 1938 as *Plagiochila alpina* and *Plagiochila bursata* f. *tenera*; *Geissler and Bischler* 1989 as *Plagiochila bursata* f. *tenera*; *Morales* 1991 as *Plagiochila*

alpina and *Plagiochila bursata*); Vásquez de Coronado cantón, Las Nubes, 1,600 m, 1924, *Standley* 38009 (JE, *Herzog* 1938 as *Plagiochila bursata* var. *fissistipula*; *Geissler and Bischler* 1989 as *Plagiochila bursata* var. *fissistipula*; *Morales* 1991 as *Plagiochila bursata*; *Grolle and Heinrichs* 1999; *Heinrichs* 2002).

PANAMA. S. loc. (Ramírez et al. 2010 as *Plagiochila bursata*). CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, Quebrada Alemán, 1,200–1,400 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, SW of camping site, from Finca Pittí to foothills of Cerro Fortuna, 1,000–1,270 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna, 1,000–1,200 m, *Salazar Allen et al.* 672 (PMA, *Stotler et al.* 1998); Gualaca distrito, Fortuna, *Spörle* 1.30 (PMA, *Spörle* 1990 as *Plagiochila bursata*). COCLÉ: S. loc., *Spellman et al.* B114a (*Stotler et al.* 1998). DARIÉN: Chepigana distrito, Cerro Sapo, 1,085 m, *Hammel* 1185 (U, *Grolle and Heinrichs* 1999); Chepigana distrito, Cerro Sapo, 1,100 m, 1979, *Hammel* 7248 (U, *Heinrichs* 2002). PANAMA WEST: Capira distrito, Parque Nacional Altos de Campana, 850 m, *Salazar Allen et al.* 9469 (U, *Grolle and Heinrichs* 1999). VERAGUAS: Las Minas distrito, 18 km W of Las Minas, cerro Alto Higo, 750 m, 1978, *Hammel* 4277 (U, *Heinrichs* 2002).

COCOS I. S. loc. (*Bonner* 1962b as *Plagiochila bursata* var. *fissistipula*; *Fosberg and Klawe* 1966 as *Plagiochila bursata*; *Dauphin* 1995 as *Plagiochila bursata*, 1999 as *Plagiochila bursata*, 2005); S. loc., 1966, *Fosberg & Klawe* (*Morales* 1991 as *Plagiochila bursata*); Chatham Bay, 28 Jun 1932, *Howell* 228 p.p. (CAS, *Clark* 1953a as *Plagiochila bursata*); Wafer Bay, 28 Jun 1932, *Walton Clark* 221 p.p., 230 p.p. (CAS, *Clark* 1953a as *Plagiochila bursata*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Plagiochila alternans Lindenb. et Gottsche, *Syn. Hepat.* 5: 648, 1847 (Gottsche et al. 1847). Type: Mexico.

=*Plagiochila columbica* Gottsche, *Ann. Sci. Nat. Bot.*, sér. 4, 8: 324, 1857 (Gottsche 1857), syn. fide Müller et al. (1999). Type: Venezuela.

=*Plagiochila grandifolia* Steph., *Sp. Hepat.* 6: 160, 1918 (*Stephani* 1918), syn. fide *Herzog* (1955b). Lectotype (*Bonner* 1962b: 127): Costa Rica, Cartago, 1,500 m, May 1900, *Wercklé s.n.*, hb. *Levier* 6267 (G-00061423 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=127763&lang=en>, isoelectotypes JE-04007571 <https://je.jacq.org/JE04007571>, JE-040072 <https://je.jacq.org/JE04007572>, M).

COSTA RICA. S. loc., 1,400–2,900 m (*Herrera* 1921, 1926, 1941; *Holz et al.* 2001); S. loc., *Heinrichs et al.* 4317 (*Heinrichs* 2002; *Groth et al.* 2003; *Heinrichs et al.* 2003a, 2004d; *Schäfer-Verwimp et al.* 2006); S. loc., *Hyde* (*Evans* 1914b); S. loc., *Standley* 36608 (Carl 1931b as *Plagiochila columbica*); S. loc., *Wercklé* (Carl 1931b as *Plagiochila grandifolia*); Cordillera de Talamanca (*Holz* 2003; *Holz and Gradstein* 2005b). ALAJUELA: Alajuela cantón, Viento Fresco (Dauphin 2005); Alajuela cantón, Viento Fresco, 1,600–1,900 m, *Standley & Torres* 47780 (JE, M, NY, Müller et al. 1999); Alajuela cantón, Viento Fresco,

1,600–1,900 m, *Standley* 47780 (**Carl 1931b** as *Plagiochila columbica*; **Herzog 1938** as *Plagiochila columbica*; **Morales 1991** as *Plagiochila columbica*). **CARTAGO**: S. loc., *Wercklé* (**Stephani 1918** as *Plagiochila grandifolia*; **Dauphin 2005**); S. loc., 1,500 m, May 1900, *Wercklé* (hb. Levier 6267 in hb. G, **TYPE** of *Plagiochila grandifolia*, **Bonner 1962b** as *Plagiochila grandifolia*; **Geissler and Bischler 1989** as *Plagiochila grandifolia*; **Morales 1991** as *Plagiochila grandifolia*); Turrialba cantón, 12 km SW, Finca La Palmira, *Maas* 801, det. Müller and Heinrichs (**GOET, Dauphin 2005**). **HEREDIA**: San Isidro cantón, Cerro Caricias, ~2,000 m (**Dauphin 2005**); San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, *Standley* 52029 (**Herzog 1938** as *Plagiochila columbica*; **Morales 1991** as *Plagiochila columbica*); San Isidro cantón, Cerro Zurquí (**Dauphin 2005**); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley* 50294 (**JE, US, Carl 1931b** as *Plagiochila columbica*; **Herzog 1938** as *Plagiochila columbica*; **Morales 1991** as *Plagiochila columbica*; **Müller et al. 1999**). **PUNTARENAS**: Coto Brus (**Dauphin 2005**); Monteverde cantón, Cordillera de Tilarán, Santa Elena, 1,600 m, *Eggers* CR5/90 (**JE, US, Müller et al. 1999**). **SAN JOSÉ**: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (**CR, Holz et al. 2002**); Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, *Standley* 43945 (**Carl 1931b** as *Plagiochila columbica*; **Herzog 1938** as *Plagiochila columbica*; **Morales 1991** as *Plagiochila columbica*); Dota cantón, Copey, Laguna de La Escuadra (**Dauphin 2005**); Dota cantón, Laguna de la Escuadra, NE de El Copey, 2,000–2,200 m, *Standley* 41918 (**US, JE, M, Carl 1931b** as *Plagiochila columbica*; **Herzog 1938** as *Plagiochila columbica*; **Morales 1991** as *Plagiochila columbica*; **Kappelle 1996** as *Plagiochila columbica*; **Müller et al. 1999**); Dota cantón, San Gerardo (**Dauphin 2005**); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,100 m, 30 Nov 1999, *Heinrichs et al.* *AHH-134* (**GOET, Dauphin 2005**); Vásquez de Coronado cantón, Las Nubes (**Dauphin 2005**); Vásquez de Coronado cantón, Las Nubes, 1,500–1,900 m, *Standley* 38608 (**Herzog 1938** as *Plagiochila columbica*; **Morales 1991** as *Plagiochila columbica*).

PANAMA. CHIRIQUÍ: Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, *Schäfer-Verwimp & Verwimp* 34601 (**JE, Schäfer-Verwimp 2014**).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Plagiochila ambigua Lindenb. et Hampe, *Linnaea* 24(6): 640, 1851 (Hampe 1851a). Type: Costa Rica.

COSTA RICA. S. loc., 5,000–8,000 ft (1,524–2,438 m), *Oersted* (Hampe 1851a; *Polakowsky* 1879; *Stephani* 1905f; **Bonner 1962b**; **Geissler and Bischler 1989**).

Not found outside Central America.

Plagiochila amicta Steph., *Bull. Herb. Boissier*, sér. 2, 5(9): 895 (=Sp. *Hepat. [Stephani]* 2: 561), 1905 (*Stephani* 1905d). Type: Colombia.

=*Plagiochila subbiloba* Herzog, *Repert. Spec. Nov. Regni Veg.* 21(1/7): 25, 1925 (Herzog 1925b), syn. fide Heinrichs (2002). Type: Brazil.

COSTA RICA. S. loc., *Heinrichs et al.* 4178 (**GOET, Heinrichs 2002**; **Groth et al. 2003**; **Heinrichs et al. 2003a, 2004d, 2005a**; **Schäfer-Verwimp et al. 2006**; **Patzak et al. 2016**); Cordillera de Talamanca (**Holz 2003**; **Holz and Gradstein 2005b**). **SAN JOSÉ**: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (**CR, Holz et al. 2002** as *Plagiochila subbiloba*); Dota cantón, Chacón Holiday Camp (**Dauphin 2005**); Dota cantón, San Gerardo (**Dauphin 2005**); Dota cantón, San Gerardo, Río Savegre Valley, holiday camp Chacón, Los Robles y Sendero La Quebrada, 2,300 m, 28 Sep 1999, *Heinrichs et al.* 4176 (**CR, GOET, Holz et al. 2001** as *Plagiochila subbiloba*; **Heinrichs 2002**; **Dauphin 2005**).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Plagiochila angustisedens Steph., *Bull. Herb. Boissier*, sér. 2, 5(8): 743 (=Sp. *Hepat. [Stephani]* 2: 542), 1905 (*Stephani* 1905f). Type: Venezuela.

PANAMA. PANAMA: Panamá distrito, Cerro Jefe (*Stotler et al. 1998*); Panamá distrito, Cerro Jefe, *Spörle* 5225 (**PMA, Spörle 1990** as *Plagiochila 'angusticedens'*); Panamá distrito, Cerro Jefe, forest behind INTEL tower toward north, 900–1,000 m, *Salazar Allen & Chung* 5225 (**PMA, Stotler et al. 1998**).

Also reported from Mexico(?), the Caribbean, Northern South America.

Plagiochila arcuata Lindenb., *Sp. Hepat. (Lindenberg)* 2–4: 94, 1840 (Lindenberg 1840). Type: St. Vincent.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotope Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (**Freire et al. 2005**).

?**HONDURAS**. S. loc. (*Ellis et al. 2022a*). Note: We are not aware of any firsthand report from Central America.

Also reported from Mexico, the Caribbean, Northern South America, Western South America.

Plagiochila biapiculata Steph., *Bull. Herb. Boissier*, sér. 2, 5(9): 891 (=Sp. *Hepat.* 2: 557), 1905 (*Stephani* 1905d). Lectotype (*Söderström et al. 2023a*: 152) if not holotype: Costa Rica, *Pittier* (G-00064113 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=125096&lang=en>).

COSTA RICA. S. loc., *Pittier & Durand* (G, *Stephani* 1905d; **Bonner 1962b**; **Geissler and Bischler 1989**).

Not found outside Central America.

Plagiochila bicornis Hampe et Gottsche, *Linnaea* 25(3): 338, 1853 (Hampe and Gottsche 1852). Type: Puerto Rico.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotope Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (**Freire et al. 2005**). **EL PROGRESO**: San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de

Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007). **ZACAPA**: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007).

Also reported from the Caribbean.

Plagiochila bicuspidata Gottsche, *Mexik. Leverm.*: 43, 1863 (Gottsche 1863). Lectotype: Mexico.

≡ *Plagiochila cuneata* var. *bicuspidata* (Gottsche) Herzog, *Hedwigia* 74(2): 87, 1934 (Herzog 1934).

COSTA RICA. S. loc. (Vaña and Engel 2013; Gradstein and Benitez 2017; Gradstein 2021); S. loc., *Holz* CR 99-787 (GOET, Groth et al. 2004a; Heinrichs et al. 2005a, 2006b); S. loc., *Holz* (Groth et al. 2002, 2004b; Dauphin 2005; Heinrichs et al. 2006a); Cordillera de Talamanca (*Holz* and Gradstein 2005b; *Holz* 2006). **ALAJUELA**: Alajuela cantón, Fraijanes, 1,500–1,700 m, *Standley* 47469 (*Carl* 1931b as *Plagiochila cuneata* var. *bicuspidata*; *Herzog* 1938 as *Plagiochila cuneata* var. *bicuspidata*). **CARTAGO**: La Estrella, *Standley* 39174 (*Herzog* 1938 as *Plagiochila cuneata* var. *bicuspidata*). **SAN JOSÉ**: Dota cantón, San Gerardo, *Holz* (*Holz* 2003); Los Santos Forest Reserve, ~2,900 m (*Holz* and Gradstein 2005a); Vásquez de Coronado cantón, Las Nubes, 1,500–1,900 m, *Standley* 38379 (*Herzog* 1938 as *Plagiochila cuneata* var. *bicuspidata*).

Also reported from Mexico, Northern South America, Western South America, Southern South America, Subantarctic Islands(?).

Plagiochila bifaria (Sw.) Lindenb. *Sp. Hepat. (Lindenberg)* 5: 127, 1843 (Lindenberg 1843) var. *bifaria*.

≡ *Jungermannia bifaria* Sw., *Prodr. (Swartz)*: 145, 1788 (Swartz 1788). Type: Jamaica.

≡ *Jungermannia compressula* Nees, *Enum. Pl. Crypt. Javae*: 75, 1830 (Nees 1830), syn. fide Heinrichs et al. (2004a). Type: Mexico.

≡ *Plagiochila compressula* (Nees) Lindenb., *Sp. Hepat. (Lindenberg)* 5: 128, 1843 (Lindenberg 1843).

≡ *Plagiochila geniculata* Lindenb., *Sp. Hepat. (Lindenberg)* 5: 131, 1843 (Lindenberg 1843), syn. fide Gradstein (2015a). Type: Barbados.

≡ *Plagiochila implexa* Lindenb. et Gottsche, *Syn. Hepat.* 5: 651, 1847 (Gottsche et al. 1847), syn. fide Heinrichs et al. (1998b). Lectotype: Mexico.

≡ *Plagiochila exesa* Lindenb. et Gottsche, *Syn. Hepat.* 5: 629 (Gottsche et al. 1847), syn. fide Gradstein (2015a). Type: Mexico. Note: Reports from Panama were rejected as *Plagiochila eggersii* by Gradstein (2016).

≡ *Plagiochila spinifera* Ångstr., *Öfvers. Kongl. Vetensk.-Akad. Förh.* 30(5): 113, 1873 (Ångström 1873), syn. fide Gradstein (2015a). Lectotype: Galápagos.

≡ *Plagiochila pinnata* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 485, 1885 (Spruce 1885), syn. fide Heinrichs et al. (1998b). Type: Ecuador.

≡ *Plagiochila arnelliana* Steph., *Bull. Herb. Boissier*, sér. 2, 2(10): 861 (= *Sp. Hepat. [Stephani]* 2: 230), 1902 (Stephani 1902a), syn. fide Gradstein (2021). Type: Ecuador.

≡ *Plagiochila implexa* f. *minor* Herzog ex Carl, *Ann. Bryol., Suppl.* 2: 54, 1931 (Carl 1931b), nom. inval. (ICN2018 Art. 38.1(a); no description).

Original material: Costa Rica, *Standley* 37827. Note: No original material seen. It is possible that Carl's collector number is a mistake and should actually be 37825 and thus the same as in Herzog (1938).

≡ *Plagiochila implexa* f. *minor* Herzog, *Rev. Bryol. Lichénol.* 11(1/2): 12, 1939 (Herzog 1938), nom. inval. (ICN2018 Art. 38.1(a); no description).

Original material: Costa Rica, La Hondura, province of San José, altitude 1,300 to 1,700 m, Mar 16, 1924, *Standley* 37825 (US-04627174 <http://n2t.net/ark:/65665/35a936d22-c5c6-4fc0-8552-cbcacfa8d9a>).

≡ *Plagiochila jaramilloi* H. Rob., *Bryologist* 70(1): 48, 1967 (Robinson 1967), syn. fide Gradstein (2016). Type: Colombia.

≡ *Plagiochila panamensis* Inoue, *Bull. Natl. Sci. Mus. Tokyo, B* 15(3): 94, 1989 (Inoue 1989a), syn. fide Gradstein (2021). Holotype: Panama, Chiriquí, Fortuna, 1,150 m, on living tree in forest, *Spörle & Aranda* 1.33 (TNS-179297 <http://www.type.kahaku.go.jp/TypeDB/bryophyta/1171>, isotype PMA).

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotope Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). **EL PROGRESO**: San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007). **IZABAL**: Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007). **ZACAPA**: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007).

COSTA RICA. Cordillera de Talamanca (*Holz* 2003 as *Plagiochila jaramilloi*; *Holz* and Gradstein 2005b also as *Plagiochila jaramilloi*; *Holz* 2006); S. loc. (Gradstein 1999a as *Plagiochila jaramilloi*; Dauphin 2005 as *Plagiochila jaramilloi*; Gradstein and *Holz* 2005 also as *Plagiochila jaramilloi*; Mandl 2007). **CARTAGO**: Pococí cantón, La Georgina, *Griffin et al.* 426 (FLAS, *Morales* 1991 as *Plagiochila jaramilloi*; *Kappelle* 1996 as *Plagiochila 'jaramillii'*; Dauphin 2005 as *Plagiochila jaramilloi*). **HEREDIA**: San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley* 50262 (*Carl* 1931b as *Plagiochila implexa*; *Herzog* 1938 as *Plagiochila implexa*). **SAN JOSÉ**: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, *Holz* et al. 2002); Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, 2,000 m, *Heinrichs et al.* 4394 (GOET, CR, *Heinrichs et al.* 2004a, 2004d, 2005a, 2005b, 2006a; *Lindner et al.* 2004; Dauphin 2005; Davison et al. 2006; Patzak et al. 2016; Renner et al. 2017b); Dota cantón, San Gerardo, *Holz* (*Holz* 2003); Los Santos Forest Reserve, ~2,900 m (*Holz* and Gradstein 2005a); Moravia cantón, Bajo de La Hondura, *Standley* 37825 (*Morales* 1991 as *Plagiochila implexa*; Dauphin 2005); Moravia cantón, La Hondura, 1,300–1,700 m, *Standley* 37641 (*Carl* 1931b as *Plagiochila implexa*; *Herzog* 1938 as *Plagiochila implexa*; *Morales* 1991 as *Plagiochila implexa*; Dauphin 2005); Moravia cantón, La Hondura, *Standley* 37825 (JE, *Herzog* 1938 as *Plagiochila implexa* f. *minor*); Moravia cantón, La Hondura, *Standley* 37827 (*Morales* 1991 as *Plagiochila implexa*; Dauphin

2005); Moravia cantón, La Palma, *Valerio* 36 (Carl 1931b as *Plagiochila arnelliana*; Herzog 1938 as *Plagiochila arnelliana*); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 2,600–3,000 m (Dauphin 2005); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,100 m, 30 Nov 1999, *Heinrichs et al.* AHH-134 (GOET, Holz et al. 2001); Pérez Zeledón cantón, Chirripó National Park, Río Talari, 3,000 m, *Dauphin* 1264 (USJ, Gradstein et al. 1994 as *Plagiochila compressula*; Kappelle 1996 as *Plagiochila compressula*; Dauphin 2005).

PANAMA. S. loc., 1906, *Hélion* (PC, Dugas 1928 as *Plagiochila pinnata*). CHIRIQUÍ: Boquete distrito, WNW of Boquete, Chiriquí volcano, 1,900–2,000 m, *Davidse & D'Arcy* 10160G (GOET, U, *Heinrichs et al.* 2004a); Gualaca distrito, Fortuna (Stotler et al. 1998 as *Plagiochila panamensis*); Gualaca distrito, Fortuna Forest Reserve, Cerro Hornito, 1,670–2,300 m (*Salazar Allen et al.* 2021); Gualaca distrito, Fortuna Forest Reserve, foothills of Cerro Pinola, 1,280–2,000 m (*Salazar Allen et al.* 2021); Gualaca distrito, Fortuna, 1,150 m, *Spörle & Aranda* 1.33 (TNS-179297 <http://www.type.kahaku.go.jp/TypeDB/bryophyta/1171>, PMA, TYPE of *Plagiochila panamensis*, *Inoue* 1989a as *Plagiochila panamensis*; *Stotler et al.* 1998 as *Plagiochila panamensis*; *Crosby and Engel* 2006 as *Plagiochila panamensis*; *Gradstein* 2021 as *Plagiochila panamensis*); Gualaca distrito, Fortuna, *Spörle* 1.33 (PMA, *Spörle* 1990 as *Plagiochila panamensis*); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,370 m, *Schäfer-Verwimp & Verwimp* 34358 (JE, *Schäfer-Verwimp* 2014); Barú Volcano National Park (*Rodríguez-Quiel et al.* 2022). †DARIÉN: Cerro Pirre, 400–500 m, *Salazar Allen & Gradstein* 9239 (GOET, PMA, U, *Stotler et al.* 1998 as *Plagiochila exesa*) Note: The report from Darién is rejected as *Plagiochila eggersii* by *Gradstein* (2016). PANAMA WEST: Capira distrito, Campana National Park, 800 m, *Salazar Allen et al.* 6430, 6431a, 6431b (PMA, *Stotler et al.* 1998 as *Plagiochila spinifera*). PANAMA: Panamá distrito, Cerro Jefe (Stotler et al. 1998 as *Plagiochila geniculata* and *Plagiochila spinifera*); Panamá distrito, Cerro Jefe, *Salazar Allen & Chung* 5215 (PMA, *Stotler et al.* 1998 as *Plagiochila geniculata*); Panamá distrito, Cerro Jefe, *Spörle* (PMA, *Spörle* 1990 as *Plagiochila geniculata* and *Plagiochila spinifera*; *Stotler et al.* 1998 as *Plagiochila geniculata* and *Plagiochila spinifera*); Panamá distrito, Cerro Jefe, forest behind INTEL tower, 900–1,000 m, *Salazar Allen & Chung* 5194a, 5194b, 5223 (PMA, *Stotler et al.* 1998 as *Plagiochila geniculata*).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Macaronesia, Western Indian Ocean, Indian subcontinent, Malesia Australia, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Plagiochila breuteliana Lindenb., *Sp. Hepat.* (Lindenberg) 5: 150, 1843 (Lindenberg 1843). Type: St. Kitts.

=*Plagiochila breuteliana* var. *γ novo-granatensis* Gottsche, *Ann. Sci. Nat. Bot.*, sér. 5, 1: 110, 1864 (Gottsche 1864), syn. fide *Heinrichs* (2002). Type: Colombia.

=*Plagiochila ruficaulis* Steph., *Sp. Hepat.* 6: 205, 1921 (Stephani 1921), syn. fide *Heinrichs* (2002). Lectotype (*Heinrichs* 2002: 76): Costa Rica, Río Naranjo, 200–250 m, Mar 1893, *Tonduz* 15640 (G-00113006 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=145969&lang=en>, synlectotype G-00113005 <https://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=145968&lang=en>).

=*Plagiochila exalata* Herzog ex Carl, *Ann. Bryol., Suppl.* 2: 62, 1931 (Carl 1931b), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide *Heinrichs* (2002). Original material: Costa Rica, Yerba Buena, NE of San Isidro, Prov. de Heredia, 2,000 m, on tree, *Standley & Valerio* 49877 (JE-04001601 <https://je.jacq.org/JE04001601>, US-00073041 <http://n2t.net/ark:/65665/3fae69d29-ffa-44ab-8f09-ef3c301548ae>), *Standley & Valerio* 49826 (JE-04001602 <https://je.jacq.org/JE04001602>, US-00073040 <http://n2t.net/ark:/65665/31be1a165-34f3-44bc-8598-cd02e03329ea>); Costa Rica, Heredia, Cerro de Caricias, N of San Isidro, 2,000–2,400 m, 11 Mar 1926, *Standley & Valerio* 52164 (US-04627148 <http://n2t.net/ark:/65665/3ae4cb7bb-072c-4f47-935b-a060d158bb85>).

=*Plagiochila exalata* Herzog, *Hedwigia* 72(6): 200, 1932 (*Herzog* 1932), syn. fide *Heinrichs* (2002). Lectotype (*Söderström and Hentschel* 2023: 18): Costa Rica, Heredia, Yerba Buena (not “Cerro de Caricias” as stated in the protologue), NE of San Isidro, ~2,000 m, 1926, *Standley & Valerio* 49877 (JE-04001601 <https://je.jacq.org/JE04001601>, US-00073041 <http://n2t.net/ark:/65665/3fae69d29-ffa-44ab-8f09-ef3c301548ae>, B-13058, FH, PC).

=*Plagiochila exalata* Herzog f. *brevifolia* Herzog, *Hedwigia* 72(6): 200, 1932 (*Herzog* 1932), syn. fide *Heinrichs* (2002). Lectotype (*Söderström and Hentschel* 2023: 27): Costa Rica, Heredia, Yerba Buena (not “Cerro de las Caricias” as stated in the protologue), NE of San Isidro, ~2,000 m, 1926, *Standley & Valerio* 49826 (JE-04001602 <https://je.jacq.org/JE04001602>, US-00073040 <http://n2t.net/ark:/65665/31be1a165-34f3-44bc-8598-cd02e03329ea>, FH).

COSTA RICA. S. loc. (Pagán 1939a, 1942b; *Fulford* 1987; *Morales* 1991; *Dauphin* 2005; *Schäfer-Verwimp and Pócs* 2009; *Schuster* 2021); S. loc., *Tonduz* (*Stephani* 1905a, 1921 as *Plagiochila ruficaulis*; *Bonner* 1962b as *Plagiochila ruficaulis*; *Geissler and Bischler* 1989 as *Plagiochila ruficaulis*). CARTAGO: Jiménez cantón, Río Naranjo, 200–250 m, Mar 1893, *Tonduz* 15640 (G-00113006 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=145969&lang=en>, TYPE of *Plagiochila ruficaulis*, *Heinrichs* 2002); Paraíso cantón, Tapantí National Park, Sendero Árboles Caídos, 1,300 m, 9 Oct 1999, *Heinrichs et al.* 4271 (GOET, Holz et al. 2001; *Heinrichs* 2002; *Dauphin* 2005). HEREDIA: San Isidro cantón, Cerro de Caricias, *Standley* 52164 (*Geissler and Bischler* 1989 as *Plagiochila exalata*; *Morales* 1991 as *Plagiochila exalata*; *Heinrichs* 2002); San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, *Standley* 52164a (hb. *Herzog*, Carl 1931b as *Plagiochila exalata*); San Isidro cantón, Yerba Buena, NE of San Isidro, 2,000–2,400 m, 22–28 Feb 1926, *Standley* 49826 (JE-04001602 <https://je.jacq.org/JE04001602>, US, FH, TYPE of *Plagiochila exalata* f. *brevifolia*, Carl 1931b as *Plagiochila exalata*; *Herzog* 1932, 1938, both as *Plagiochila exalata* f. *brevifolia*; *Geissler and Bischler* 1989 as *Plagiochila exalata* and its f. *brevifolia*; *Morales* 1991 as *Plagiochila exalata*;

Heinrichs 2002; Dauphin 2005); San Isidro cantón, Yerba Buena, NE of San Isidro, 2,000–2,400 m, 22–28 Feb 1926, *Standley* 49877 (JE-04001601, US-00073041, B-13058, FH, PC, TYPE of *Plagiochila exalata*, Carl 1931b as *Plagiochila exalata*; Herzog 1932, 1938, both as *Plagiochila exalata*; Bonner 1962b as *Plagiochila exalata*; Geissler and Bischler 1989 as *Plagiochila exalata*; Morales 1991 as *Plagiochila exalata*; Heinrichs 2002; Dauphin 2005). PUNTARENAS: Monteverde cantón, Checo Trail near Adono clearing, 3 Aug 1968, James, W. (US, R, Holz et al. 2001; Heinrichs 2002); Monteverde cantón, Checo Trail near Adorno clearing, 4,300 ft (1,310 m), Feb 1969, James, W. (R, Dauphin 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a); Monteverde, *Gradstein* 9552a (GOET, Holz et al. 2001; Dauphin 2005). SAN JOSÉ: Dota cantón, Alto de Pito, San Marcos, *Tonduz* 15641 p.p. (G, Heinrichs 2002).

PANAMA. S. loc. (Schäfer-Verwimp and Pócs 2009). CHIRIQUÍ: Boquete distrito, Holcomb Trail, *Cornman* 3064 (F, Stotler et al. 1998); Lawler's coffee tile, *Cornman* 3084 (F, Stotler et al. 1998); Tierras Altas distrito, Volcán, 9 Aug 1950, *Chickering* (MICH, Crum and Arzeni 1953; Stotler et al. 1998). COCLÉ: La Pintada distrito, Cerro Tife, trail from Caño Sudio to the waterfall of the Rio Tife, 400–500 m, *Knapp* 3759 (MO, NY, Stotler et al. 1998). NGÄBE-BUGLÉ COMARCA: Kankintú distrito, Rio Hacha, *Schlim* (G, Bonner 1962b as *Plagiochila breuteliana* var. *novo-granatensis*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Southern South America.

Plagiochila canelensis Steph. *Bull. Herb. Boissier*, sér. 2, 5(10): 926 (=Sp. *Hepat.* [Stephani] 2: 576), 1905 (Stephani 1905c). Type: Ecuador.

=*Plagiochila subturgida* Herzog ex Carl, *Ann. Bryol.*, Suppl. 2: 63, 1931 (Carl 1931b), syn. fide Heinrichs (2002), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Costa Rica, Cartago, Vicinity of Pejivalle, 900 m, *Standley & Valerio* 47126 (JE-04010812 <https://je.jacq.org/JE04010812>).

COSTA RICA. CARTAGO: Jiménez cantón, Pejivalle, 900 m, *Standley* 47126 (JE, Carl 1931b as *Plagiochila subturgida*; Geissler and Bischler 1989 as *Plagiochila subturgida*; Morales 1991 as *Plagiochila subturgida*; Heinrichs 2002; Dauphin 2005).

Also reported from Western South America.

Plagiochila cleefii Inoue, *Stud. Cryptog. S. Peru*: 95, 1987 (Inoue 1987). Type: Peru.

PANAMA. CHIRIQUÍ: Barú Volcano National Park (Rodríguez-Quiel et al. 2022).

Also reported from Northern South America, Western South America.

Plagiochila corrugata (Nees) Nees et Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 5: 52, 1836 (Nees and Montagne 1836).

=*Jungermannia corrugata* Nees, *Fl. Bras. (Martius)* 1(1): 378, 1833 (Nees 1833b). Type: Brazil.

=*Plagiochila crispula* Nees, *Syn. Hepat.* 1: 59, 1844 (Gottsche et al. 1844), syn. fide Stephani (1905d). TYPE: Brazil.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotope Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). IZABAL: Los Amates municipio, Caserio El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007).

PANAMA. S. loc. (Mitten 1854b as *Plagiochila crispula*).

Also reported from West Tropical Africa, East Tropical Africa, South Tropical Africa, Western Indian Ocean, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Plagiochila costariensis Horik., *Acta Phytotax. Geobot.* 13: 213, 1943 (Horikawa 1943), nom. nov. pro *Plagiochila pinnata* Steph., *Bull. Herb. Boissier*, sér. 2, 5: 749 (Sp. *Hepat.* [Stephani] 2: 548), 1905 (Stephani 1905f), hom. illeg. (ICN2018 Art. 53.1; non Spruce 1885). Lectotype (Söderström et al. 2023a: 154) if not holotype: Costa Rica, Alajuela, Montana de Poás, 2,400 m, 1888, *Pittier*, ex hb. *Bescherelle* (G-00061461 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=126749&lang=en>).

COSTA RICA. ALAJUELA: Poás, 2,400 m, 1888, *Pittier* (G, TYPE of *Plagiochila pinnata*, Bonner 1962b as *Plagiochila pinnata*). SAN JOSÉ: Montaña de Poás, *Pittier* (Stephani 1905f as *Plagiochila pinnata*; Horikawa 1943; Geissler and Bischler 1989 also as *Plagiochila pinnata*).

PANAMA. S. loc., 1906, *Hélión* (PC, Stotler et al. 1998).

Not found outside Central America.

Plagiochila crispabilis Lindenb., *Sp. Hepat. (Lindenberg)* 1: 15, 1839 (Lindenberg 1839). Lectotype: Brazil.

=*Plagiochila patentissima* Lindenb., *Sp. Hepat. (Lindenberg)* 2–4: 64, 1840 (Lindenberg 1840), syn. fide Gradstein (2015a). Lectotype: Brazil.

=*Plagiochila jovoënsis* Steph., *Bull. Herb. Boissier*, sér. 2, 2(8): 87 (=Sp. *Hepat.* [Stephani] 2: 224), 1902 (Stephani 1902b), syn. fide Heinrichs et al. (2001c). Type: Mexico.

GUATEMALA. ALTA VERAPAZ: Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, 2,000 m, Pérez 317 (USCG, Pérez 2009 as *Plagiochila patentissima*); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Plagiochila* cf. *patentissima*).

COSTA RICA. CARTAGO: Alto de La Estrella, *Standley* 39144 (Herzog 1938 as *Plagiochila jovoënsis*; Morales 1991 as *Plagiochila jovoënsis*; Dauphin 2005 as *Plagiochila jovoënsis*). PUNTARENAS: Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a).

Also reported from Northeastern Pacific, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Plagiochila cristata (Sw.) Lindenb., *Spec. Hepat. (Lindenberg)* 1: 33, 1839 (Lindenberg 1839).

≡ *Jungermannia cristata* Sw., *Prodr. (Swartz)*: 143, 1788 (Swartz 1788). Type: Jamaica.

≡ *Plagiochila secundifolia* Lindenb. et Hampe, *Linnaea* 24: 302, 1851 (Hampe 1851b), syn. fide Stephani (1905e). Types: Costa Rica, 1845–1848, *Oersted* 10336 (C); Costa Rica, 1,500–2,450 m, *Oersted* s.n. (BM).

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

COSTA RICA. S. loc., up to 2,500 m (Pagán 1942b; Arnell 1956b; Fulford and Sharp 1990; Holz et al. 2001; Schäfer-Verwimp and Pócs 2009; Schäfer-Verwimp 2014; Schuster 2021); S. loc., *Endres* (Stephani 1905e); S. loc., *Oersted* (S-B58739, G-00282693, Hampe 1851b as *Plagiochila secundifolia*; Polakowsky 1879 as *Plagiochila secundifolia*; Stephani 1905e; Bonner 1962b as *Plagiochila secundifolia*; Heinrichs 2002). **CARTAGO:** Alto de La Estrella (Dauphin 2005); Alto de La Estrella, *Standley* 39050 (JE, Bonner 1962b; Morales 1991); El Guarco cantón, Cañón (Dauphin 2005); El Guarco cantón, Cañón, 2,200 m, 2000, Holz CR 00-775 (Heinrichs 2002). **HEREDIA:** Barva cantón, Volcán Barva, 1,950 m (Dauphin 2005); Heredia cantón, Vertiente Atlántica del Volcán Barva, *Woodruff* (FLAS, Morales 1991); San Isidro cantón, Cerro Caricias, ~2,000 m (Dauphin 2005); San Isidro cantón, Cerro Caricias, *Standley* (Haupt 1942); San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, *Standley* 52160 (Carl 1931b; Herzog 1938; Morales 1991); San Isidro cantón, Cerro Zurquí (Dauphin 2005); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley* 50578 (Carl 1931b; Herzog 1938; Morales 1991); San Isidro cantón, Cerro Zurquí, *Standley* (Haupt 1942); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, 1926, *Standley* 50645 (B, JE, M, NY, US, Herzog 1938; Morales 1991; Heinrichs 2002). **PUNTARENAS:** S. loc. (Merwin et al. 2001); Monteverde, <1,500 m (Morales 1991; Dauphin 2005); Monteverde cantón, along South Line, 16 Mar 1969, James, W. 1969-110 (R, Reed and Robinson 1971); Monteverde cantón, Checo Trail near Adorno clearing, 4,300 ft (1,310 m), Feb 1969, James, W. (R, Reed and Robinson 1971); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995); Monteverde, 10–17 Mar 1965, James, W. & James, M. 26, 35 (R, Reed and Robinson 1971); Monteverde, 1,550 m, 1993, *Gradstein* 9568, 9599 (GOET, Heinrichs 2002). **SAN JOSÉ:** Aserrí cantón, Tablazo Mountains, SW of Cartago, 5,500 ft (1,676 m), 9 Aug 1940, Haupt (Haupt 1942); Braulio Carrillo National Park, Zurquí, 1999, *Heinrichs et al.* 4192 (B, BM, CBG, hb. Drehwald, E, hb. Frahm, G, GOET, hb. Heinrichs, JE, KRAM, MO, NICH, NY, S, hb. Schäfer-Verwimp, W. Further, Heinrichs and Anton 2001; Heinrichs 2002; Heinrichs et al. 2004d, 2005a, 2006b; Groth et al. 2004a; Dauphin 2005; Schäfer-Verwimp et al. 2006; Patzak et al. 2016; Renner et al.

2017a); División, Monte Carmelo (Dauphin 2005); División, Monte Carmelo, 2,080 m, 1986, *Kappelle et al.* 722 (U, Heinrichs 2002); Montes de Tablazo, Zurquí, 2,000–2,500 m, *Standley* 48187 (Carl 1931b; Herzog 1938; Morales 1991); Moravia cantón, Braulio Carrillo National Park, Sector Zurquí (Dauphin 2005); Moravia cantón, Cerro Zurquí, *Standley* (Haupt 1942); Moravia cantón, La Hondura, 1,300–1,700 m, 1924, *Standley* 36212 (JE-04009193 <https://je.jacq.org/JE04009193>, US-00073025, Morales 1991); Moravia cantón, La Palma, 1,600 m, *Standley* 38338 (JE, Bonner 1962b; Morales 1991).

PANAMA. S. loc. (Schuster 2021). **CHIRIQUÍ:** Boquete distrito, along road to summit of Volcán Barú, 8°48'N, 82°31'W, 2,260 m, 4 Apr 2006, *Schäfer-Verwimp & Verwimp* 31025 (JE, Schäfer-Verwimp 2014); Gualaca distrito, Fortuna Forest Reserve, Cerro Hornito, 1,670–2,300 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quijada del Diablo, 1,200–1,600 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna, 1,150 m, 1988, *Spörle & Aranda* PAN4059 (SAAR, Heinrichs 2002); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,700 m, *Schäfer-Verwimp & Verwimp* 34443 (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, *Schäfer-Verwimp & Verwimp* 34564 (JE, Schäfer-Verwimp 2014).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Subantarctic Islands.

Plagiochila cristata var. *minor* Herzog, *Rev. Bryol. Lichénol.* 11(1): 14, 1939 (Herzog 1938). Lectotype (Söderström and Hentschel 2023: 17): Costa Rica, Alto de la Estrella, prov. Cartago, on tree, *Standley* 39050 (JE-04010983 <https://je.jacq.org/JE04010983>, isolecotype F-C0000334F ex US <https://collections-botany.fieldmuseum.org/catalogue/58348>).

Note: The identity of *Plagiochila cristata* var. *minor* is unclear, but it is not *Plagiochila cristata* (Heinrichs et al. 1998a).

COSTA RICA. CARTAGO: Alto de La Estrella, *Standley* 39050 (JE, Herzog 1938; Geissler and Bischler 1989). **SAN JOSÉ:** Moravia cantón, La Palma, 1,600 m, *Standley* 38338 (JE, Herzog 1938; Geissler and Bischler 1989).

Also reported from Western South America, Brazil(?).

Plagiochila cucullifolia J.B.Jack et Steph., *Hedwigia* 31(1): 24, 1892 (Jack and Stephani 1892) var. *cucullifolia*. Lectotype: Colombia.

≡ *Szweykowskia cucullifolia* (J.B.Jack et Steph.) Gradst. et M.E.Reiner, *Fragm. Florist. Geobot.* 40(1): 31, 1995 (Gradstein and Reiner-Drehwald 1995).

COSTA RICA. S. loc. (Gradstein et al. 2001b as *Szweykowskia cucullifolia*; Gradstein and Uribe 2016; Gradstein 2021; Schuster 2021); S. loc., *Heinrichs* 4402 (GOET, Patzak et al. 2016); S. loc., *Heinrichs et al.* 4202 (GOET, Heinrichs 2002); S. loc., *Heinrichs et al.* 4402 (Groth et al. 2003; Heinrichs et al. 2003a, 2004d, 2005a; Dauphin 2005); Cordillera de

Talamanca (Engel and Gradstein 2003). **CARTAGO:** El Guarco cantón, 3 de Junio (Dauphin 2005); El Guarco cantón, 3 de Junio, 2,650 m, 15 Sep 1994, *Gradstein 9685* (U, USJ, *Gradstein and Reiner-Drehwald 1995* as *Szweykovskia cucullifolia*); El Guarco cantón, 3 de Junio, Pan-American Highway km 67, 2,600 m, 1994, *Gradstein & Mues 9685* (GOET, *Heinrichs et al. 2000b* as *Szweykovskia cucullifolia*, 2003a; *Heinrichs 2002*; *Dauphin 2005*); El Guarco cantón, 3 de Junio, Pan-American Highway km 67, 2,600 m, 3 Oct 1999, *Heinrichs et al. 4156* (CR, B, BM, CBG, hb. Drehwald, E, hb. Frahm, G, GOET, hb. Heinrichs, JE, KRAM, MO, NICH, NY, S, hb. Schäfer-Verwimp, W. Further, *Heinrichs 2002*; *Heinrichs et al. 2003a*); El Guarco cantón, 3 de Junio, Pan-American Highway km 67, 2,600 m, 2000, *Holz & Schäfer-Verwimp CR 00-104* (GOET, *Heinrichs 2002*; *Heinrichs et al. 2003a*); El Guarco cantón, Reserva de 3 de Junio, Pan-American Highway (km 67), 2,650 m, 14 Aug 1994, *Chacón* (GOET, *Gradstein and Reiner-Drehwald 1995* as *Szweykovskia cucullifolia*; *Heinrichs 2002*; *Heinrichs et al. 2003a*); Paraíso cantón, Orosi, Tapantí National Park (Dauphin 2005); Paraíso cantón, Tapantí National Park, 2,200 m, 14 Jun 1986, *Arrocha* (GOET, *Gradstein and Reiner-Drehwald 1995* as *Szweykovskia cucullifolia*; *Heinrichs et al. 2001a* as *Szweykovskia cucullifolia*, 2003a; *Heinrichs 2002*). **HEREDIA:** San Isidro cantón, Cerro Zurquí (Dauphin 2005); San Isidro cantón, Cerro Zurquí, *Standley 50533* (*Gradstein and Reiner-Drehwald 1995* as *Szweykovskia cucullifolia*); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley 50553* (*Carl 1931b*; *Herzog 1938*; *Morales 1991*). **LIMÓN:** Parque Internacional La Amistad Caribe, Fila Matama, *Herrera 2753* (CR, *Dauphin 2005*); Talamanca cantón, San José Cabécar, *Fernández 678* (CR, *Dauphin 2005*). **PUNTARENAS:** Coto Brus cantón, Parque Internacional La Amistad, Valle del Silencio, 1,600–2,650 m, *Quesada 1198* (CR, *Dauphin 2005*).

PANAMA. S. loc. (Gradstein et al. 2001b as *Szweykovskia cucullifolia*; *Schuster 2021*). **BOCAS DEL TORO:** Almirante distrito, headwaters of Río Colubre, 2,400–2,550 m, 1984, *Gómez-Pignataro et al. 22420* (CR, MO, U, GOET, *Gradstein and Reiner-Drehwald 1995* as *Szweykovskia cucullifolia*; *Stotler et al. 1998* as *Szweykovskia cucullifolia*; *Heinrichs et al. 2001a* as *Szweykovskia cucullifolia*, 2003a; *Heinrichs 2002*). **CHIRIQUÍ:** Tierras Altas distrito, Cerro Punta, 2,470 m, *van der Werff 6290* (MO, *Stotler et al. 1998* as *Szweykovskia cucullifolia*); Tierras Altas distrito, Parque Internacional La Amistad, along trail to Cerro Punta, 2,462 m, *Stotler & Crandall-Stotler 3405* (ABSH, *Stotler et al. 1998* as *Szweykovskia cucullifolia*); Tierras Altas distrito, Parque Internacional La Amistad, Sendero Valle Libre, 1994, *Salazar Allen P123* (GOET, PMA, *Gradstein and Reiner-Drehwald 1995* as *Szweykovskia cucullifolia*; *Stotler et al. 1998* as *Szweykovskia cucullifolia*; *Heinrichs 2002*; *Heinrichs et al. 2003a*).

Also reported from Northern South America, Western South America.

Plagiochila deflexa Mont. and Gottsche, *Ann. Sci. Nat. Bot.*, sér. 4, 6: 192, 1856 (Montagne 1856c). Lectotype: Hawaii.

=*Plagiochila subtrinitensis* Herzog, *Hedwigia* 72(6): 198, 1932 (Herzog 1932), syn. fide Heinrichs et al. (2002b). Lectotype (Heinrichs et al. 2002b: 105): Costa Rica, San José, La Palma, ~1,600 m, 1924, *Standley 38198* (JE-04010977 <https://je.jacq.org/JE04010977>, isoelectotypes JE-04010975 <https://je.jacq.org/JE04010975>, B-13443, FH, PC, US).

HONDURAS. S. loc. (Schäfer-Verwimp and Pócs 2009). **CORTÉS:** Santa Cruz de Yojoa municipio, Agua Azul, Lake Yojoa, 600 m, 1951, *Morton 7205* (B, US, *Heinrichs et al. 2002b*).

NICARAGUA. S. loc. (Schäfer-Verwimp and Pócs 2009). **RIVAS:** Altagracia municipio, Isla Ometepe, Volcán Maderas, Balgüe, 1,000–1,260 m, 1984, *Nee & Robleto 28112* (U, *Heinrichs et al. 2002b*); Altagracia municipio, Isla Ometepe, Volcán Maderas, Balgüe, 1,200–1,260 m, 1984, *Robleto 492* (U, *Heinrichs et al. 2002b*).

COSTA RICA. S. loc. (Holz et al. 2001 as *Plagiochila subtrinitensis*; Gradstein and Holz 2005 as *Plagiochila subtrinitensis*; Schäfer-Verwimp and Pócs 2009; Schuster 2021); S. loc., *Heinrichs 4160* (*Heinrichs 2002*; *Heinrichs et al. 2006a*); S. loc., *Heinrichs et al.* (GOET, *Heinrichs et al. 2005a*, 2006a; Patzak et al. 2016); Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b). **ALAJUELA:** Poás National Park (Dauphin 2005); Poás Volcano, 2,700 m, 1977, *Griffin & Araya 34*, det. H. Inoue (USJ, FLAS, *Heinrichs et al. 2002b*); San Ramón (Dauphin 2005). **CARTAGO:** Road Cartago–Cerro de la Muerte, Reserva Forestal de Río Macho, 2,500 m, 1993, *Gradstein & Morales 9382* (GOET, *Heinrichs et al. 2002b*). **GUANACASTE:** Liberia cantón, Guanacaste National Park, Sector Pitilla (Dauphin 2005); Liberia cantón, Guanacaste National Park, Sector Volcán Cacao, 10°55'43"N, 85°28'10"W (Dauphin 2005); Liberia cantón, Guanacaste National Park, Volcán Cacao, 1,600 m, *Hammel 17647* (MO, *Heinrichs et al. 2002b*). **HEREDIA:** Barva cantón, Braulio Carrillo National Park, Sector Volcán Barva (Dauphin 2005); Barva cantón, Braulio Carrillo National Park, Sector Volcán Barva, 2,650–2,900 m, 1994, *Gradstein & Mues 5670/9637* (GOET, SAAR, *Heinrichs et al. 2002b*); San Isidro cantón, Cerro Zurquí (Dauphin 2005); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley 50500* (*Herzog 1938* as *Plagiochila subtrinitensis*; *Bonner 1962b* as *Plagiochila subtrinitensis*; *Morales 1991* as *Plagiochila subtrinitensis*); San Isidro cantón, Cerro Zurquí, NE of San Isidro, 2,000–2,400 m, 3 Mar 1926, *Standley & Valerio 50500* (B-13441, FH, JE, M, US, *Herzog 1932* as *Plagiochila subtrinitensis*; *Geissler and Bischler 1989* as *Plagiochila subtrinitensis*; *Heinrichs et al. 2002b*). **LIMÓN:** Chirripó Grande (Dauphin 2005); Chirripó Grande, 2,500 m, 1932, *Kupper 1271* (M, *Heinrichs et al. 2002b*). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002 as *Plagiochila subtrinitensis*); Dota cantón, Finca La Cima (Dauphin 2005); Dota cantón, Finca La Cima, N de El Copey, 2,100–2,400 m, 21–22 Dec 1925, *Standley 42689* (FH, JE, US, *Herzog 1932*, 1938, both as *Plagiochila subtrinitensis*; *Bonner 1962b* as *Plagiochila subtrinitensis*; *Geissler and Bischler 1989* as *Plagiochila subtrinitensis*; *Morales 1991* as *Plagiochila subtrinitensis*; *Kappelle 1996* as *Plagiochila subtrinitensis*; *Heinrichs et al. 2002b*); Dota cantón, Los Quetzales National Park

(Amengual et al. 2007 as *Plagiochila subtrinitensis*); Dota cantón, N de El Copey (Dauphin 2005); Dota cantón, Río Savegre, *Heinrichs et al.* 4160 (B, BM, CBG, hb. Drehwald, E, hb. Frahm, G, GOET, hb. Heinrichs, JE, KRAM, MO, NICH, NY, S, hb. Schäfer-Verwimp, W. Further, *Heinrichs and Anton* 2001 as *Plagiochila subtrinitensis*; *Groth et al.* 2002, 2003, 2004a, 2004b; *Heinrichs* 2002; *Heinrichs et al.* 2002b, 2003a, 2004a, 2004d, 2005a, 2005b, 2006b; *Lindner et al.* 2004; *Rycroft et al.* 2004; *Dauphin* 2005; *Davison et al.* 2006; *Patzak et al.* 2016; *Renner et al.* 2017a); Dota cantón, Río Savegre, *Heinrichs et al.* 4170 (B, BM, CBG, hb. Drehwald, E, hb. Frahm, G, GOET, hb. Heinrichs, JE, KRAM, MO, NICH, NY, S, hb. Schäfer-Verwimp, W. Further, *Heinrichs and Anton* 2001 as *Plagiochila subtrinitensis*; *Dauphin* 2005); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, Río Savegre valley, holiday camp Chacon, trail “Los Robles,” 2,300 m, 1999, *Heinrichs et al.* 4161 (B, BM, CBG, hb. Drehwald, E, hb. Frahm, G, GOET, hb. Heinrichs, JE, KRAM, MO, NICH, NY, S, hb. Schäfer-Verwimp, W. Further, *Heinrichs and Anton* 2001 as *Plagiochila subtrinitensis*; *Heinrichs et al.* 2002b; *Dauphin* 2005); Moravia cantón, La Palma (Dauphin 2005); Moravia cantón, La Palma, ~1,600 m, 24 Mar 1924, *Standley* 38198 (JE, B-13443, FH, PC, US, TYPE of *Plagiochila subtrinitensis*, *Herzog* 1932, 1938, both as *Plagiochila subtrinitensis*; *Bonner* 1962b as *Plagiochila subtrinitensis*; *Geissler and Bischler* 1989 as *Plagiochila subtrinitensis*; *Morales* 1991 as *Plagiochila subtrinitensis*; *Heinrichs et al.* 2002b).

PANAMA. S. loc. (Schuster 2021). CHIRIQUÍ: Boquete distrito, Palo Alto NE of Boquete, 2,000 m, 1979, *Hammel* 7517 (U, *Heinrichs et al.* 2002b); Boquete distrito, Palo Alto NE of Boquete, 2,000 m, 1979, *Hammel* 7518 (U, *Heinrichs et al.* 2002b).

Also reported from Southeastern Pacific(?), Northeastern Pacific, Mexico, the Caribbean, Western South America.

Plagiochila deflexirama Taylor, *London J. Bot.* 5: 262, 1846 (Taylor 1846b). Type: Ecuador (“Peru”).

=*Plagiochila bryopteroides* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 499, 1885 (Spruce 1885), syn. fide *Gradstein* (2015a). Type: Peru.

=*Plagiochila viridis* Steph., *Sp. Hepat.* 6: 239, 1921 (Stephani 1921), syn. fide *Söderström and Hagborg* (2023b). Lectotype (*Bonner* 1962b: 331) if not holotype: Guatemala, Alta Verapaz, Cobán, 1907, *Türckheim s.n.*, hb. Levier 5573 (G-00282940 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=222185&lang=en>).

=*Plagiochila bryopteroides* var. *ecuadoriensis* *Herzog*, *Rev. Bryol. Lichénol.* 11(1): 13, 1939 (*Herzog* 1938), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide *Morales* (1991). Original material: Costa Rica: Zurquí, prov. S. José, 2,000–2,500 m, *Standley* 48284/a (F?, JE?).

=*Plagiochila bryhnii* var. *ecuadoriensis* *Herzog* ex *Bonner*, *Index Hepat.* 1: 47, 1962 (*Bonner* 1962b), nom. inval. (ICN2018 Art. 38.1(a); no description, apparent error for *Plagiochila bryopteroides* var. *ecuadoriensis*).

GUATEMALA. ALTA VERAPAZ: Cobán, 1907, *Türckheim* 5573 (G-00282940 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=222185&lang=en>), TYPE of *Plagiochila viridis*, *Stephani* 1921 as *Plagiochila viridis*; *Bonner* 1962b as *Plagiochila viridis*; *Geissler and Bischler* 1989 as *Plagiochila viridis*; Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, *Pérez*

174 (USCG, *Pérez* 2009 as *Plagiochila ‘bryopteroides’*); Tukurú municipio, Reserva Privada Chelemhá (*Pérez* 2006 as *Plagiochila* cf. *‘bryopteroides’*). QUICHÉ: S. loc., *Pérez* 2220 (USCG, *Pérez* 2009 as *Plagiochila ‘bryopteroides’*).

COSTA RICA. S. loc. (Schäfer-Verwimp 2014); S. loc., *Heinrichs* 11 (GOET, *Heinrichs et al.* 2004c, 2005a, 2006b; *Jamy et al.* 2016; *Patzak et al.* 2016; *Renner et al.* 2017a); S. loc., *Heinrichs* 4163 (GOET, *Heinrichs et al.* 2000b, 2002a; *Heinrichs* 2002); S. loc., *Heinrichs* 4165 (B, BM, CBG, hb. Drehwald, E, hb. Frahm, G, GOET, hb. Heinrichs, JE, KRAM, MO, NICH, NY, S, hb. Schäfer-Verwimp, W. Further, *Heinrichs and Anton* 2001); S. loc., *Heinrichs et al.* 11 (GOET, *Groth et al.* 2004a); Cordillera de Talamanca (Holz 2003; *Holz and Gradstein* 2005b); Cordillera de Talamanca, *Kappelle* 693 (CR, *Kappelle* 1996 as *Plagiochila bryopteroides*). CARTAGO: El Guarco cantón, Cañón, Refugio Génesis II, 2,200 m, 22 Jun 2000, *Holz* CR 00-776 (CR, GOET, *Holz et al.* 2001; *Dauphin* 2005). HEREDIA: Rancho Flores forest, *Pittier* 6076 (G 00112951, *Gradstein* 2015a). PUNTARENAS: S. loc. (*Merwin et al.* 2001); Monteverde, <1,500 m (Dauphin 2005 as *Plagiochila bryopteroides*); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, *Gradstein et al.* (U, *Sillett et al.* 1995 as *Plagiochila bryopteroides*). SAN JOSÉ: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, *Holz et al.* 2002); Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, Los Robles, 2,300 m, 28 Sep 1999, *Heinrichs et al.* 4165 (GOET, EGR, *Dauphin* 2005; *Pócs* 2006b); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, Río Savegre Valley between holiday camp Chacón and waterfall, 2,000 m, 27 Sep 1999, *Heinrichs et al.* AHH-4163, AHH-4165 (G, GOET, *Holz et al.* 2001); Dota cantón, Santa María, 1,500–1,800 m, 26 Dec 1925, *Standley* 43236 (US, JE, *Bonner* 1962b as *Plagiochila bryhnii* var. *ecuadoriensis*); Moravia cantón, Zurquí, 1,475–2,500 m, *Standley* 48284/a (*Carl* 1931b as *Plagiochila bryopteroides*; *Herzog* 1938 as *Plagiochila bryopteroides* var. *ecuadoriensis*; *Morales* 1991 as *Plagiochila bryopteroides*; *Dauphin* 2005 as *Plagiochila bryopteroides*); *Pérez Zeledón* cantón, Río Savegre, 7 Sep 1999, *Heinrichs et al.* 4163 (BEGP, B, BM, CBG, EGR, hb. Drehwald, E, hb. Frahm, G, GOET, hb. Heinrichs, JE, KRAM, MO, NICH, NY, S, hb. Schäfer-Verwimp, W. Further, *Heinrichs and Anton* 2001; *Groth et al.* 2002, 2003; *Heinrichs* 2002; *Heinrichs et al.* 2002b, 2003a, 2004b, 2004d; *Renner et al.* 2002; *Rycroft et al.* 2004; *Dauphin* 2005; *Pócs* 2006b; *Schäfer-Verwimp et al.* 2006).

PANAMA. CHIRIQUÍ: Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, *Schäfer-Verwimp & Verwimp* 34539 (JE, *Schäfer-Verwimp* 2014); Barú Volcano National Park (*Rodríguez-Quiel et al.* 2022).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Plagiochila demissa Gottsche, *Mexik. Leverm.*: 37, 1863 (Gottsche 1863). Type: Mexico.

COSTA RICA. S. loc., *Wercklé* (Carl 1931b). **PUNTARENAS:** Monteverde (Morales 1991); Monteverde, 10–17 Mar 1965, *James, W. & James, M.* 42a (R, Reed and Robinson 1971).

Also reported from Mexico, the Caribbean, Western South America.

Plagiochila densiflora Herzog, *Hedwigia* 72(6): 226, 1932 (Herzog 1932). Lectotype (Söderström and Hentschel 2023: 17): Costa Rica, Heredia, San Isidro, Yerba Buena, 1926, *Standley* 49134 (JE-04010971 <https://je.jacq.org/JE04010971>, US-00073032, PC-0103076 <https://science.mnhn.fr/institution/mnhn/collection/pc/item/pc0103076>, F-C0000333F <https://collections-botany.fieldmuseum.org/catalogue/1767914>).

COSTA RICA. HEREDIA: San Isidro cantón, Yerba Buena, 2,000 m, 22–28 Feb 1926, *Standley* 49134 (TYPE, Carl 1931b; Herzog 1932, 1938; Bonner 1962b; Geissler and Bischler 1989; Morales 1991).

Not found outside Central America.

Plagiochila dichotoma (P.Beauv.) Nees et Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 5: 53, 1836 (Nees and Montagne 1836).

≡ *Carpolepidum dichotomum* P.Beauv., *Fl. Oware* 1(3): 23, 1805 (Palisot de Beauvois 1805b). Type: Nigeria.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as *Plagiochila 'dicotoma'*).

COSTA RICA. Cordillera de Talamanca (Holz 2003). **LIMÓN:** Pococí cantón, Guápiles, 300–500 m, *Standley* 37087 (Herzog 1938; Morales 1991).

PANAMA. VERAGUAS: Isla Canales de Tierra, Sendero de los tanques de reserva de agua, 7°45'N, 81°35'W, Jan 2002, *Salazar Allen et al.* 19750 (PMA, Salazar Allen and Chung 2003, 2006).

Also reported from West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa(?), East Tropical Africa, Western Indian Ocean(?), New Zealand(?), the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Plagiochila disticha (Lehm. et Lindenb.) Lindenb., *Sp. Hepat. (Lindenberg)* 2–4: 107, 1840 (Lindenberg 1840).

≡ *Jungermannia disticha* Lehm. et Lindenb., *Nov. Stirp. Pug.* 6: 64, 1834 (Lehmann 1834). Lectotype: Guyana.

≡ *Plagiochila sinuata* Gottsche, *Mexik. Leverm.*: 55, 1863 (Gottsche 1863), syn. fide Inoue (1989b). Type: Mexico.

BELIZE. TOLEDO: S. loc., *Gentle* 7250 (MO, Whittemore and Allen 1996); S. loc., *Hoist* 4512 (MO, Whittemore and Allen 1996).

COSTA RICA. CARTAGO: Hacienda Aragón (Dauphin 2005); Turrialba cantón, Hacienda Aragón, 2,000 ft (610 m), 21 Aug 1940, *Haupt* (Morales 1991). **GUANACASTE:** Tilarán cantón, El Silencio, 750 m, *Standley* 44699 (Carl 1931b as

Plagiochila sinuata; Herzog 1938 as *Plagiochila sinuata*; Morales 1991 as *Plagiochila sinuata*). **LIMÓN:** Siquirres cantón, Cairo, Finca Hamburgo, on the Rio Reventazón below Cairo, ~85 m, *Standley* 48685, 48707, 48729, 48835 (Morales 1991; Dauphin 2005); Siquirres cantón, Cairo, Finca Hamburgo, on the Rio Reventazón, ~55 m, *Standley* 48887 (Morales 1991; Dauphin 2005); Siquirres cantón, Pinea Montecristo, on the Rio Reventazón, 25 m, *Standley* 48511 (Morales 1991; Dauphin 2005). **PUNTARENAS:** Osa cantón, Osa Peninsula, Rincón, Centro Boscosa, 150 m, Oct 1993, *Gradstein* (Gradstein 1999b). **SAN JOSÉ:** Pérez Zeledón cantón, El General forest, *Pittier* 6056 (Morales 1991; Dauphin 2005).

PANAMA. S. loc. (Gradstein 1993; Stotler et al. 1998). **CHIRIQUÍ:** Boquete distrito, Plateau above Boquete, Holcomb Trail, *Cornman* 3179 (F, Stotler et al. 1998); Gualaca distrito, Fortuna (Stotler et al. 1998); Gualaca distrito, Fortuna Forest Reserve (Salazar Allen et al. 2021). **PANAMA WEST:** Capira distrito, Altos de Campana National Park, *Salazar Allen & Gradstein* 9470 (PMA, MO, Stotler et al. 1998); Capira distrito, Campana National Park, 800 m, *Salazar Allen et al.* 6429, 6560, 6565 (PMA, Stotler et al. 1998); Capira distrito, Cerro Campana (Stotler et al. 1998); Capira distrito, Cerro Campana, *Spörle* 2.2 (PMA, Spörle 1990); La Chorrera distrito, Barro Colorado Island, *Gradstein & Salazar Allen* 15102 (Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Lake 2–3 and Big Tree Trail, *Salazar Allen* 4390, 4627 (PMA, Stotler et al. 1998; Dauphin et al. 2022).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Plagiochila distinctifolia Lindenb., *Sp. Hepat.* 1: 17, 1839 (Lindenberg 1839). Syntypes: Jamaica, Brazil.

≡ *Plagiochila miqueliana* Lehm. et Lindenb., *Sp. Hepat.* (Lindenberg) 2–4: 95, 1840 (Lindenberg 1840), syn. fide Gradstein (2015a). Lectotype: Mexico.

≡ *Plagiochila distinctifolia* f. *crassiretis* Herzog ex Carl, *Ann. Bryol., Suppl.* 2: 81, 1931 (Carl 1931b), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Costa Rica, Cerro de La Carpintera, province of Cartago; altitude 1,500 to 1,850 m, Feb 1924, *Standley* 35668 (JE, US-04627127 <http://n2t.net/ark:/65665/351388952-8f2d-4889-8fd5-596e4ecd5228>).

GUATEMALA. S. loc. (Fulford and Sharp 1990); S. loc., *Türckheim*, hb. Levier 5823 (G, NY, Stephani 1902a; Carl 1931b). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

COSTA RICA. S. loc. (Fulford and Sharp 1990); S. loc., 5,000–8,000 ft (1,524–2,438 m), *Oersted* 1169 (YU, G, S, Müller 1851; Hampe 1851b; Polakowsky 1879); S. loc., *Pittier* (G, Stephani 1902a); S. loc., *Standley* 51619 (Carl 1931b; Morales 1991). **CARTAGO:** Alto de La Estrella, *Standley* 39118 (Herzog 1938); La Unión cantón, Carpintera forest, 1,500–1,850 m, *Standley* 35668 (Carl 1931b as *Plagiochila distinctifolia* f. *crassiretis*; Herzog 1938; Geissler and Bischler 1989 as

Plagiochila distinctifolia f. *crassiretis*; Morales 1991). **HEREDIA**: San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, Standley 52164a (hb. Herzog, Herzog 1938). **PUNTARENAS**: S. loc. (Merwin et al. 2001 as *Plagiochila miqueliana*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a as *Plagiochila miqueliana*). **SAN JOSÉ**: Moravia cantón, La Palma, 1,600 m, Standley 38160 (Carl 1931b; Herzog 1938; Morales 1991).

Also reported from Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Plagiochila diversifolia Lindenb. et Gottsche, *Syn. Hepat.* 5: 640, 1847 (Gottsche et al. 1847). Lectotype: Mexico.

=*Plagiochila rhombifolia* Steph., *Bull. Soc. Roy. Bot. Belgique* 31: 181, 1893 (Stephani 1893c; not *Plagiochila rhombifolia* Steph. 1921), syn. fide Heinrichs et al. (2000c). Lectotype (Heinrichs et al. 2000c: 127 as “holotype”) or possibly holotype: Costa Rica, Heredia, Rancho Flores, Pittier 6077 (G-00061377 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=126632&lang=en>).

=*Plagiochila dilatata* Steph., *Bull. Herb. Boissier*, sér. 2, 5(9): 887 (=Sp. *Hepat.* [Stephani] 2: 553), 1905 (Stephani 1905d), syn. fide Gradstein (2015a). Lectotype: Venezuela.

=*Plagiochila dotensis* Herzog, *Hedwigia* 72(6): 211, 1932 (Herzog 1932), syn. fide Heinrichs et al. (2000c). Lectotype (Heinrichs et al. 2000c: 127): Costa Rica, San José, vicinity of Santa María de Dota, 1,500–1,800 m, Standley & Valerio 43141 (JE-04010961 <https://je.jacq.org/JE04010961>, isocototypes F, NY, US).

=*Plagiochila subglaucescens* Herzog, *Hedwigia* 72(6): 209, 1932 (Herzog 1932), syn. fide Heinrichs et al. (2000c). Lectotype (Heinrichs et al. 2000c: 127 as “holotype”): Costa Rica, San José, Vicinity of Santa Maria de Dota, 1,500–1,800 m, Standley & Valerio 43236 (JE-04010965 <https://je.jacq.org/JE04010965>, isocototype US-00072812 <http://n2t.net/ark:/65665/35f107180-dddb-4fd3-8c2b-adceaa45f0ed>).

≡*Plagiochila subglaucescens* Herzog ex Carl, *Ann. Bryol.*, *Suppl.* 2: 72, 1931 (Carl 1931b), nom. inval. (ICN2018 Art. 38.1(a); no description).

GUATEMALA. S. loc. (Bonner 1962b as *Plagiochila dilatata*); S. loc., Wurr (Stephani 1905d as *Plagiochila dilatata*; Geissler and Bischler 1989 as *Plagiochila dilatata*). **ALTA VERAPAZ**: Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, Pérez 239 (USCG, Pérez 2009); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Plagiochila* cf. *diversifolia*). **SACATEPÉQUEZ**: Volcán de Fuego, Godman (NY, Pérez 2009).

COSTA RICA. S. loc. (Bonner 1962b as *Plagiochila dilatata*); S. loc., 2,400 m, 1999, Holz (SAAR, Heinrichs et al. 2000c); Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Cole 1982, 1983, both as *Plagiochila dotensis*); S. loc., Pittier (Stephani 1902b as *Plagiochila rhombifolia*, 1905d as *Plagiochila dilatata*; Geissler and Bischler 1989 as *Plagiochila dilatata*). **HEREDIA**: Rancho Flores forest, Pittier 6077 (G-00061377 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=126632&lang=en>, TYPE of *Plagiochila rhombifolia*, Stephani 1893c as *Plagiochila rhombifolia*; Bonner 1962b

as *Plagiochila rhombifolia*; Geissler and Bischler 1989 as *Plagiochila rhombifolia*; Morales 1991 as *Plagiochila rhombifolia*; Heinrichs et al. 2000c). **PUNTARENAS**: S. loc. (Merwin et al. 2001); Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde cantón, Reserva Biologica Monteverde, 1,550 m, Gradstein 9454 (GOET, Heinrichs et al. 2000c); Monteverde cantón, Reserva Biologica Monteverde, 1,550 m, Gradstein 9505 (GOET, Heinrichs et al. 2000c). **SAN JOSÉ**: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, San Gerardo, 2,470 m, Kappelle 53, det. GOET, U (Heinrichs et al. 2000c); Dota cantón, San Gerardo, 2,400 m, 1999, Holz (GOET [https://gwdu64.gwdg.de/pls/herbar/moos\\$moos.QueryViewByKey?P_ID=1905&Z_CHK=4816](https://gwdu64.gwdg.de/pls/herbar/moos$moos.QueryViewByKey?P_ID=1905&Z_CHK=4816), Heinrichs et al. 2000c; Holz et al. 2001; Dauphin 2005); Dota cantón, Santa María, 1,500–1,800 m, 26 Dec 1925, Standley & Valerio 43141, 43145, 43235 (JE, F, NY, US, TYPE of *Plagiochila dotensis*, Herzog 1938, 1932, both as *Plagiochila dotensis*; Brinker 1948b as *Plagiochila dotensis*; Bonner 1962b as *Plagiochila dotensis*; Geissler and Bischler 1989 as *Plagiochila dotensis*; Morales 1991 as *Plagiochila dotensis*; Kappelle 1996 as *Plagiochila dotensis*; Heinrichs et al. 2000c); Dota cantón, Santa María, 1,500–1,800 m, 26 Dec 1925, Standley & Valerio 43236 (JE, US, TYPE of *Plagiochila subglaucescens*, Bonner 1962b as *Plagiochila subglaucescens*; Carl 1931b as *Plagiochila subglaucescens*; Herzog 1932, 1938, both as *Plagiochila subglaucescens*; Geissler and Bischler 1989 as *Plagiochila subglaucescens*; Morales 1991 as *Plagiochila subglaucescens*; Kappelle 1996 as *Plagiochila subglaucescens*; Heinrichs et al. 2000c; Dauphin 2005 as *Plagiochila subglaucescens*).

PANAMA. **CHIRIQUÍ**: Tierras Altas distrito, Parque Nacional Volcán Barú, Paso Ancho, Camino de ascenso a la cima, ladera Occidental, Bosque de las Brujas, 8°48'54.0"N, 82°34'33.9"W, 2,038 m, 11 Aug 2017, Guerra (Arrocha et al. 2020); Tierras Altas distrito, Parque Nacional Volcán Barú, Paso Ancho, 8°48'55.13"N, 82°34'33.50"W, 2,047 m, Guerra Batista et al. (UCH, Guerra et al. 2020).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Plagiochila dominicensis Taylor, *London J. Bot.* 5: 270, 1846 (Taylor 1846b). Type: Dominica.

=*Plagiochila virens* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 474, 1885 (Spruce 1885), syn. fide Heinrichs (2002). Type: Ecuador.

GUATEMALA. **BAJA VERAPAZ**: Purhulhá municipio, Biotope Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

COSTA RICA. S. loc. (Schäfer-Verwimp and Pócs 2009). **HEREDIA**: San Isidro cantón, Yerba Buena, 2,000 m, 1926, Standley & Valerio 49849 (JE, US, Heinrichs 2002). **LIMÓN**:

Pococí cantón, Braulio Carrillo National Park, Quebrada González, Las Palmas trail, 425 m, 8 Oct 1999, *Heinrichs et al.* 4330, 4331, 4332 (CR, GOET, *Heinrichs* 2002); Pococí cantón, Braulio Carrillo National Park, Quebrada González, Las Palmas trail, 425 m, 8 Oct 1999, *Heinrichs et al.* AHH 232 (GOET, *Holz et al.* 2001 as *Plagiochila virens*; *Dauphin* 2005). **PUNTARENAS**: Coto Brus cantón, Fila Casteñas, Rio Java, 1,200–1,400 m, 1995, *Dauphin & Chacón* 1711 (GOET, *Heinrichs* 2002); Coto Brus cantón, Río Java (*Dauphin* 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, 1,500 m, 1992, *Lyon* 205, 427 (MO, *Heinrichs* 2002).

PANAMA. S. loc. (*Schäfer-Verwimp* and *Pócs* 2009). **CHIRIQUÍ**: Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, *Schäfer-Verwimp & Verwimp* 34566 (JE, *Schäfer-Verwimp* 2014). **PANAMA**: S. loc. (*Schäfer-Verwimp* 2014); Panamá distrito, on road to Pacora, 800 m, *Valdespino et al.* 765 (PMA, *Stotler et al.* 1998).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Plagiochila dussiana Steph., *Symb. Antill. (Urban)* 3(2): 277, 1902 (Stephani 1902d).

COSTA RICA. **ALAJUELA**: Poás Volcano, *Griffin & Araya* 40 (FLAS, USJ, *Morales* 1991; *Dauphin* 2005).

Also reported from the Caribbean, Northern South America.

Plagiochila echinella Gottsche, *Ann. Sci. Nat. Bot.*, sér. 4, 8: 332, 1857 (Gottsche 1857). Type: Colombia.

COSTA RICA. Cordillera de Talamanca, *Van Dunné* 120 (AMD, *Kappelle* 1996). **SAN JOSÉ**: Dota cantón, San Gerardo, 9°35'40"N, 83°44'30"W, 3,000 m, Aug 1992, *Van Dunné* (*Van Dunné* and *Kappelle* 1998); Río Tiribí, nido de vencejos, *Stiles* (*Morales* 1991).

Also reported from Northern South America, Western South America, Brazil.

Plagiochila ecuadorica (Inoue) L.Söderstr., *Phytotaxa* 208(1): 84, 2015 (*Söderström et al.* 2015).

≡ *Steereochila ecuadorica* Inoue, *Mem. New York Bot. Gard.* 45: 279, 1987 (Inoue 1987). Type: Ecuador.

≡ *Plagiochila dimorpha* Lindenb. et Gottsche var. *ecuadorica* (Inoue) *Heinrichs*, *Bryophyt. Biblioth.* 58: 87, 2002 (*Heinrichs* 2002).

COSTA RICA. S. loc. (*Gradstein* 1999a as *Steereochila ecuadorica*; *Gradstein et al.* 2001b as *Steereochila ecuadorica*; *Dauphin* 2005 as *Plagiochila dimorpha* var. *ecuadorica*; *Gradstein and Holz* 2005 as *Steereochila ecuadorica*; *Gradstein* 2021); S. loc., *Heinrichs et al.* 4172 (*Heinrichs et al.* 2000b as *Steereochila ecuadorica*; *Dauphin* 2005 as *Plagiochila dimorpha* var. *ecuadorica*); S. loc., *Holz* CR 00-499 (GOET, *Heinrichs* 2002 as *Plagiochila dimorpha* var. *ecuadorica*; *Groth et al.* 2003 as *Plagiochila dimorpha* var. *ecuadorica*; *Heinrichs et al.*

2003a, 2004d, 2005a, all as *Plagiochila dimorpha* var. *ecuadorica*; *Schäfer-Verwimp et al.* 2006 as *Plagiochila dimorpha* var. *ecuadorica*; *Patzak et al.* 2016 as *Plagiochila dimorpha* var. *ecuadorica*); Cordillera de Talamanca (*Heinrichs et al.* 2003b as *Plagiochila dimorpha* var. *ecuadorica*; *Holz and Gradstein* 2005b as *Plagiochila dimorpha* var. *ecuadorica*). **CARTAGO**: El Guarco cantón, 3 de Junio, 2,600 m, *Gradstein & Morales* 9396 (U, USJ, *Gradstein et al.* 1994 as *Steereochila ecuadorica*; *Kappelle* 1996 as *Steereochila ecuadorica*; *Heinrichs* 2002 as *Plagiochila dimorpha* var. *ecuadorica*; *Dauphin* 2005 as *Plagiochila dimorpha* var. *ecuadorica*); Pococí cantón, Pan-American Highway South, La Georgina, *Eggers* CR 6/36 (TNS, *Inoue* 1988 as *Steereochila ecuadorica*; *Dauphin* 2005 as *Plagiochila dimorpha* var. *ecuadorica*); road from Cartago to Cerro de La Muerte, 5 km S of Reserva 3 de Junio, 2,700 m, *Gradstein & Dauphin* 9699 (B-280967, U, USJ, GOET, *Gradstein et al.* 1994 as *Steereochila ecuadorica*; *Heinrichs* 2002 as *Plagiochila dimorpha* var. *ecuadorica*; *Dauphin* 2005 as *Plagiochila dimorpha* var. *ecuadorica*). **SAN JOSÉ**: Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,200 m, *Heinrichs et al.* 4155 (USJ, *Gradstein et al.* 1994 as *Steereochila ecuadorica*; *Heinrichs et al.* 2001a as *Steereochila ecuadorica*; *Dauphin* 2005 as *Plagiochila dimorpha* var. *ecuadorica*); Pérez Zeledón cantón, Cerro de La Muerte km 84 of Pan-American Highway, 26 Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0190/B, det. *Pócs* (EGR!, *Lüth and Schäfer-Verwimp* 2004 as *Steereochila ecuadorica*); Pérez Zeledón cantón, Cerro de La Muerte, Páramo Buena Vista, 3,200 m, 1994, *Gradstein & Mues* 4343, 9739 (GOET, *Heinrichs* 2002 as *Plagiochila dimorpha* var. *ecuadorica*).

Also reported from Western South America, Brazil.

Plagiochila eggersii Inoue, *Bull. Natl. Sci. Mus. Tokyo*, B 14(4): 138, 1988 (Inoue 1988). Type: Dominica.

≡ *Plagiochila exesa* auct. (cf. *Gradstein* 2016).

PANAMA. S. loc. (*Gradstein and Bastos* 2019; *Gradstein* 2021; *Sierra et al.* 2021). **DARIÉN**: Cerro Pirre, 400–500 m, *Salazar Allen & Gradstein* 9239 (GOET, PMA, U, *Gradstein* 2016; *Stotler et al.* 1998 as *Plagiochila exesa*); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992 as *Plagiochila exesa*).

Also reported from the Caribbean, Western South America, Brazil.

Plagiochila eurydictyon Herzog, *Hedwigia* 72: 207, 1932 (Herzog 1932). Lectotype (*Müller et al.* 1999: 741 as “holotype”): Costa Rica, Heredia, Cerro de las Caricias, N of San Isidro, on wet rocks, 2,000–2,400 m, *Standley* 51956 (JE-04007587 <https://je.jacq.org/JE04007587>, isolectotype US-00073039 <http://n2t.net/ark:/65665/30560bc17-f420-46ef-a3f9-955f3f03a7b5>).

COSTA RICA. S. loc., *Heinrichs* 4400 (*Dauphin* 2005). **HEREDIA**: Barva cantón, Cerro de Las Caricias, 2,000–2,400 m, 11 Mar 1926, *Standley* 51956 (JE-04007587, TYPE, *Herzog*

1932, 1938; Bonner 1962b; Geissler and Bischler 1989; Morales 1991; Müller et al. 1999; Dauphin 2005).

Not found outside Central America.

Plagiochila excisa Steph., *Sp. Hepat. (Stephani)* 6: 153, 1918 (Stephani 1918). Lectotype (Söderström et al. 2023a: 153): Costa Rica, Talamanca, *Tonduz* (G-00061387 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=127443&base=img&lang=en>, isolectotypes G-00061386 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=127447&lang=en>, G-00061388 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=127441&lang=en>).

COSTA RICA. S. loc. (Bonner 1962b); S. loc., *Tonduz* (Stephani 1918; Bonner 1962b; Geissler and Bischler 1989).

Also reported from Western South America.

Plagiochila exigua (Taylor) Taylor, *London J. Bot.* 5: 264, 1846 (Taylor 1846b).

≡ *Jungermannia exigua* Taylor, *Trans. Bot. Soc. Edinburgh* 1: 179, 1844 (Taylor 1844). Lectotype: Ireland.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotope Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). EL PROGRESO: San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007).

COSTA RICA. S. loc. (Gradstein 2013b); S. loc., *Heinrichs et al.* 4177 (Heinrichs et al. 2000b; Dauphin 2005).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Macaronesia, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, China, Eastern Asia, Indian Subcontinent, Papuasia, Southwestern Pacific, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Plagiochila expansa Gottsche, *Mexik. Leverm.*: 18, 1863 (Gottsche 1863). Type: Mexico.

GUATEMALA. S. loc. (Fulford and Sharp 1990); S. loc., *Türkheim*, in hb. Levier 5823 (G, NY, Stephani 1905f).

Also reported from Mexico, the Caribbean.

Plagiochila fastigiata Lindenb. et Gottsche, *Syn. Hepat.* 5: 657, 1847 (Gottsche et al. 1847). Type: Mexico.

COSTA RICA. S. loc. (Gradstein 2021). SAN JOSÉ: Pérez Zeledón cantón, Talari Lodge between San Isidro de El General and Rivas, 700–800 m, 12 Feb 1998, *Arts CR 4/78* (GOET, Holz et al. 2001; Dauphin 2005).

Also reported from Mexico, Western South America, Southern South America.

Plagiochila fuscolutea Taylor, *London J. Bot.* 5: 263, 1846 (Taylor 1846b). Type: Ecuador (“Peru”).

= *Plagiochila jelskii* Loitl., in Szyszylowicz, *Diagn. pl. nov.*: 237, 1894 (Loitlesberger 1894), syn. fide Gradstein (1993). Type: Peru.

COSTA RICA. Cordillera de Talamanca (Holz and Gradstein 2005b); Cordillera de Talamanca, 3,325 m, *Cleef et al.* (USJ, Gradstein et al. 1977 as *Plagiochila jelskii*); S. loc. (van Zanten and Gradstein 1987 as *Plagiochila jelskii*; Gradstein 1999a; Dauphin 2005; Gradstein and Holz 2005; Schäfer-Verwimp et al. 2013; Schuster 2021); S. loc., *Heinrichs et al.* 4400 (GOET, Groth et al. 2002, 2003, 2004a, 2004b; Heinrichs 2002; Heinrichs et al. 2002b, 2003a, 2004a, 2004b, 2004d, 2005a, 2005b, 2006a, 2006b; Lindner et al. 2004; Rycroft et al. 2004; Dauphin 2005; Schäfer-Verwimp et al. 2006; Patzak et al. 2016; Renner et al. 2017a). SAN JOSÉ: Cerro Asunción, 3,390 m, 1983, *Chaverri & López* 1441 (U, Heinrichs 2002); Cerro Asunción (Dauphin 2005); Dota cantón, Río Savegre, Jaboncillo, 2,900 m, 4 Oct 1999, *Heinrichs et al.* 4312 (GOET, Holz et al. 2001; Heinrichs 2002; Dauphin 2005); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,390 m, *Cleef & Fournier* 10199c (USJ, U, Morales 1991 as *Plagiochila jelskii*; Heinrichs 2002; Dauphin 2005); Pérez Zeledón cantón, Páramo Buena Vista, *Dauphin* 1694 (CR, Dauphin 2005).

PANAMA. S. loc. (Schuster 2021). CHIRIQUÍ: Barú Volcano National Park (Rodríguez-Quiel et al. 2022). NASO TJÉR DI COMARCA: 2 km NW of Cerro Fábrega, 3,150–3,200 m, 1984, *Davidse et al.* 25323 (U, Heinrichs 2002); 2 km NW of Cerro Fábrega, 3,150–3,200 m, 1984, *Davidse et al.* 25340 (U, Heinrichs 2002).

Also reported from Mexico(?), the Caribbean, Northern South America, Western South America, Brazil.

Plagiochila grandicrista Steph., *Bull. Herb. Boissier*, sér. 2, 5(10): 931 (= *Sp. Hepat. [Stephani]* 2: 581), 1905 (Stephani 1905c). Type: Colombia.

= *Plagiochila integricrista* Herzog, *Rev. Bryol. Lichénol.* 11(1): 14, 1939 (Herzog 1938), syn. fide Heinrichs (2002). Lectotype (Söderström and Hentschel 2023: 19): Costa Rica, San José, La Hondura, 1,300–1,700 m, 1924, *Standley* 36212 (JE-04009193 <https://je.jacq.org/JE04009193>, US-00073025 <http://n2t.net/ark:/65665/31fbb9d83-2e20-49c4-8b5b-46222ae85a5a>).

≡ *Plagiochila cristata* var. *integracrista* Herzog, *Rev. Bryol. Lichénol.* 11(1): 14, 1939 (Herzog 1938), nom. inval. (ICN2018 Art. 36.1(c); publ. in syn. [sub *Plagiochila integracrista*]).

COSTA RICA. S. loc. (Geissler and Bischler 1989 as *Plagiochila cristata* var. *integracrista*; Schuster 2021). CARTAGO: Paraíso cantón, Tapantí National Park, Sendero Arboles Caídos, 1,300 m, 9 Oct 1999, *Heinrichs et al.* 4273 (GOET, Holz et al. 2001; Heinrichs 2002; Dauphin 2005). SAN JOSÉ: Dota cantón, San Gerardo, Río Savegre Valley between holiday camp Chacón and waterfall, 2,000 m, 27 Sep 1999, *Heinrichs et al.* 4183 (B, BM, CBG, hb. Drehwald, E, hb. Frahm, G, GOET, hb. Heinrichs, JE, KRAM, MO, NICH, NY, S, hb. Schäfer-Verwimp, W. Further, Heinrichs and Anton 2001; Holz et al. 2001; Heinrichs 2002; Dauphin 2005; Patzak et al. 2016); Moravia cantón, La Hondura (Dauphin 2005); Moravia cantón, La Hondura,

1,300–1,700 m, 1924, *Standley* 36212 (JE-04009193 <https://je.jacq.org/JE04009193>, US-00073025, **TYPE** of *Plagiochila integricrista*, **Herzog 1938** as *Plagiochila integricrista*; **Bonner 1962b** as *Plagiochila integricrista*; **Geissler and Bischler 1989** as *Plagiochila integricrista*; **Heinrichs 2002**).

Also reported from Mexico, Western South America.

Plagiochila guatemalensis Steph., *Sp. Hepat.* 6:163, 1918 (Stephani 1918). Lectotype (Bonner 1962b: 130): Guatemala, Alta Verapaz, *Türckheim s.n.*, hb. Levier 5427 (G-00067835 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=133524&lang=en>, islectotype NY-00648116).

GUATEMALA. S. loc., *Türckheim*, hb. Levier 5823 (G, NY, **Stephani 1918**; **Geissler and Bischler 1989**). **ALTA VERAPAZ:** S. loc., *Türckheim* 5422 (NY, Pérez 2009); S. loc., *Türckheim* (G, **Bonner 1962b**).

Also reported from Northern South America.

Plagiochila gymnocalycina (Lehm. et Lindenb.) Mont. et Nees, *Voy. Amér. Mérid.* 7(2): 81, 1839 (Montagne 1839b).

≡ *Jungermannia gymnocalycina* Lehm. et Lindenb., *Nov. Stirp. Pug.* 5: 28, 1833 (Lehmann 1833). Type: Brazil.

= *Plagiochila contorta* Lindenb. et Hampe, *Linnaea* 24(3): 301, 1851 (Hampe 1851b), syn. fide Gradstein (2015a). Lectotype (Bonner 1962b: 70): Nicaragua ("Costa Rica"), Segovia, Matagalpa, 4,000 ft, *Oersted*, ex hb. Lindenb. (G-00282695 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=269504&lang=en>, islectotypes PC, S).

NICARAGUA. S. loc., *Oersted* (hb. Montagne, **Dugas 1928** as *Plagiochila contorta*); Segovia, 4,000 ft (1,219 m), *Oersted* (G, F, **Hampe 1851b** as *Plagiochila contorta*). **MATAGALPA:** Matagalpa in Segovia, 4,000 ft (1,219 m), *Oersted* (G, PC, **Müller 1851** as *Plagiochila contorta*; **Bonner 1962b** as *Plagiochila contorta*; **Gradstein 2015a** as *Plagiochila contorta*).

COSTA RICA. S. loc. (Schäfer-Verwimp 2014); S. loc., *Oersted* (YU, G, S, **Stephani 1904** as *Plagiochila contorta*). **PUNTARENAS:** S. loc. (**Merwin et al. 2001**); Coto Brus cantón, San Vito, 1998, *Arts CR* 8/37 (hb. Heinrichs, **Heinrichs et al. 2001c**); Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, **Gradstein et al. 2001a**); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995).

PANAMA. **CHIRIQUÍ:** Gualaca distrito, Fortuna (Stotler et al. 1998 as *Plagiochila contorta*); Gualaca distrito, Fortuna Forest Reserve, Quebrada Alemán, 1,200–1,400 m (**Salazar Allen et al. 2021**); Gualaca distrito, Fortuna, 1,150 m, *Spörle & Aranda* 1.37 (PMA, **Stotler et al. 1998** as *Plagiochila contorta*); Gualaca distrito, Fortuna, *Spörle* 1.37 (PMA, **Spörle 1990** as *Plagiochila contorta*). **COCLÉ:** Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8°N, 80°06.9–7.0°W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34311 (JE, Schäfer-Verwimp 2014).

COCOS I. S. loc. (Dauphin 2005); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 510 m, 14 Feb 1994, *Dauphin* 987, det. S. R. Gradstein (USJ, U, **Dauphin 1995, 1999**).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Plagiochila heteromalla (Lehm. et Lindenb.) Lindenb., *Sp. Hepat. (Lindenberg)* 2–4: 83, 1840 (Lindenberg 1840).

≡ *Jungermannia heteromalla* Lehm. et Lindenb., *Nov. Stirp. Pug.* 6: 62, 1834 (Lehmann 1834). Type: Peru.

= *Plagiochila oresitropha* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 467, 1885 (Spruce 1885), syn. fide Gradstein (2015a). Type: Peru.

= *Plagiochila sylvicultrix* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 486, 1885 (Spruce 1885), syn. fide Gradstein (2015b). Type: Venezuela.

= *Plagiochila oresitropha* f. *minor* Herzog ex Carl, *Ann. Bryol., Suppl.* 2: 74, 1931 (Carl 1931b), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Morales (1991). Original material: Costa Rica, vicinity of Santa María de Dota, Provincia de San José, altitude 1,500–1,800 m, 26 Dec 1925–3 Jan 1926, *Standley & Valerio* 43428 (US-04627216 <http://n2t.net/ark:/65665/3d5466a95-48ba-4d72-b1e1-5bc0e7f9b8c>).

GUATEMALA. S. loc. (Pagán 1939a, 1942b, both as *Plagiochila sylvicultrix*); S. loc., *Türckheim*, hb. Levier 5823 (G, NY, **Stephani 1905f** as *Plagiochila sylvicultrix*). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (**Freire et al. 2005** as *Plagiochila sylvicultrix*). **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez (USCG, BIGU, Ramírez 2007* as *Plagiochila sylvicultrix*).

COSTA RICA. S. loc. (Pagán 1939a, 1942b, both as *Plagiochila sylvicultrix*; Gradstein and Uribe 2016 as *Plagiochila oresitropha*; Gradstein 2021); S. loc., *Oersted* (YU, G, S, **Stephani 1905d** as *Plagiochila sylvicultrix*); S. loc., *Standley* 41629a, 43428 (Carl 1931b as *Plagiochila oresitropha* f. *minor*); S. loc., *Standley* 46969 (Carl 1931b as *Plagiochila oresitropha*); Cordillera de Talamanca (**Holz and Gradstein 2005b** as *Plagiochila oresitropha*; Holz 2006 as *Plagiochila oresitropha*). **PUNTARENAS:** Monteverde, <1,500 m (Morales 1991 as *Plagiochila oresitropha*; Dauphin 2005 as *Plagiochila oresitropha*); Monteverde, May 1966, *James, M. (R, Reed and Robinson 1971* as *Plagiochila oresitropha*). **SAN JOSÉ:** Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, *Standley* 43945a (**Herzog 1938** as *Plagiochila oresitropha*; **Morales 1991** as *Plagiochila oresitropha*; **Dauphin 2005** as *Plagiochila oresitropha*); Dota cantón, Finca La Cima, N de El Copey, 2,100–2,400 m, *Standley* 42794 (Carl 1931b as *Plagiochila oresitropha*; **Herzog 1938** as *Plagiochila oresitropha*; **Morales 1991** as *Plagiochila oresitropha*; **Dauphin 2005** as *Plagiochila oresitropha*); Dota cantón, San Gerardo, Holz (**Holz 2003** as *Plagiochila oresitropha*); Dota cantón, Santa María, 1,500–1,800 m, *Standley* 41860b (US, Carl 1931b as *Plagiochila oresitropha*; **Herzog 1938** as *Plagiochila oresitropha*; **Morales 1991** as *Plagiochila oresitropha*; **Kappelle 1996** as *Plagiochila oresitropha*; **Dauphin 2005** as *Plagiochila oresitropha*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Plagiochila husnotii Steph., *Bull. Herb. Boissier*, sér. 2, 5(2): 178 (=Sp. *Hepat. [Stephani]* 2: 506), 1905 (Stephani 1905a). Lectotype: Guadeloupe.

COSTA RICA. LIMÓN: Pococí cantón, Braulio Carrillo National Park, Quebrada González, Las Palmas trail, 425 m, 8 Oct 1999, *Heinrichs et al.* 4193 (GOET, Holz et al. 2001; Heinrichs 2002; Dauphin 2005).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Plagiochila laetevirens Lindenb. *Sp. Hepat. (Lindenberg)* 2–4: 101, 1840 (Lindenberg 1840). Type: Ecuador (“Colombia”).

=*Plagiochila bonplandii* Gottsche, *Ann. Sci. Nat. Bot.*, sér. 4, 8: 332, 1857 (Gottsche 1857), syn. fide Söderström et al. (2023a). Lectotype (Söderström et al. 2023a: 153): “Herbier de l’Amérique équatoriale, donné par M. A. Bonpland” (PC-0098175 <https://science.mnhn.fr/institution/mnhn/collection/pc/item/pc0098175/listIndex=1&listCount=2>, isolecotype G-00282668 <https://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=270768&lang=en>).

=*Plagiochila micropteryx* Gottsche, *Ann. Sci. Nat. Bot.*, sér. 5, 1: 107, 1864 (Gottsche 1864), syn. fide Gradstein (2015a). Type: Colombia.

=*Plagiochila tocarema* Gottsche, *Ann. Sci. Nat. Bot.*, sér. 5, 1: 106, 1864 (Gottsche 1864), syn. fide Gradstein (2015a). Type: Colombia.

=*Plagiochila kroneana* Steph., *Bull. Herb. Boissier*, sér. 2, 2(8): 678 (=Sp. *Hepat. [Stephani]* 2: 215), 1902 (Stephani 1902b), syn. fide Söderström and Hagborg (2023b). Lectotype: Brazil.

=*Plagiochila caudata* Steph., *Bull. Herb. Boissier*, sér. 2, 5: 741 (=Sp. *Hep. [Stephani]* 2: 540), 1905 (Stephani 1905f), syn. with *Plagiochila micropteryx* fide Inoue (1989b). Lectotype (Bonner 1962b: 55; see also Inoue 1989b: 38 as “type”) or possibly holotype: Guatemala, 31 May 1882, *Lehmann* 1498 (G-00128942 <https://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?lang=en&id=222345&lang=en>).

=*Plagiochila solox* Steph., *Sp. Hepat.* 6: 21, 1921 (Stephani 1921), syn. with *Plagiochila micropteryx* fide Inoue (1989b). Lectotype (Bonner 1962b: 281; see also Inoue 1989b: 38 as “type”) if not holotype: Guatemala, Alta Verapaz, *Türckheim s.n.* (G-00051328 <https://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?lang=en&id=284798&lang=en>).

GUATEMALA. S. loc., *Lehmann* (G, Stephani 1905f as *Plagiochila caudata*; Dugas 1928 as *Plagiochila caudata*; Freire 2006 as *Plagiochila ‘micropterys’*). **ALTA VERAPAZ:** Cobán, *Türckheim* 6060 bis (G-00051328, TYPE of *Plagiochila solox*, Freire 2006 as *Plagiochila ‘micropterys’*); Cobán, 1,350 m, *Türckheim* (NY, BM, Pérez 2009 as *Plagiochila micropteryx*); S. loc., *Türckheim* (G, Stephani 1921 as *Plagiochila solox*; Bonner 1962b as *Plagiochila solox*; Geissler and Bischler 1989 as *Plagiochila solox*). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30’N, 90°13’15”W (Freire et al. 2005 as *Plagiochila ‘micropterys’*). **SACATEPÉQUEZ:** An den oberen Nordwestgehängen des Vulkans de Agua, 2,500 m, 31 May 1882, *Lehmann* 1498 (G-00128942, TYPE of *Plagiochila caudata*, Bonner 1962b as *Plagiochila caudata*).

COSTA RICA. S. loc., *Heinrichs et al.* CR-199 (Groth et al. 2002, 2003, both as *Plagiochila tocarema*; Heinrichs 2002 as *Plagiochila tocarema*; Heinrichs et al. 2002a, 2002b, 2004b,

2004d, all as *Plagiochila tocarema*; Renker et al. 2002 as *Plagiochila tocarema*; Dauphin 2005 as *Plagiochila tocarema*; Schäfer-Verwimp et al. 2006 as *Plagiochila tocarema*; Patzak et al. 2016 as *Plagiochila tocarema*); Cordillera de Talamanca (Holz 2003 as *Plagiochila kroneana* and *Plagiochila tocarema*; Holz and Gradstein 2005b as *Plagiochila kroneana* and *Plagiochila tocarema*). **CARTAGO:** Jiménez cantón, Juan Viñas (Tonduz 1895b as *Plagiochila bonplandii*); Jiménez cantón, Juan Viñas, Pittier 6044 (Stephani 1893c as *Plagiochila bonplandii*; Morales 1991 as *Plagiochila bonplandii*). **PUNTARENAS:** S. loc. (Merwin et al. 2001 as *Plagiochila micropteryx*). **SAN JOSÉ:** Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, San Gerardo, Río Savegre Valley between holiday camp Chacón and waterfall, 2,000 m, 27 Sep 1999, *Heinrichs et al.* 4293 (GOET, Holz et al. 2001 as *Plagiochila tocarema*; Dauphin 2005 as *Plagiochila tocarema*); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a as *Plagiochila kroneana* and *Plagiochila tocarema*).

PANAMA. **CHIRIQUÍ:** Gualaca distrito, Fortuna (Stotler et al. 1998); Gualaca distrito, Fortuna Forest Reserve (Salazar Allen et al. 2021); Gualaca distrito, Fortuna, *Spörle & Aranda* 1.2 (PMA, Stotler et al. 1998); Tierras Altas distrito, Parque Nacional Volcán Barú, Localidad Paso Ancho, Camino de ascenso a la cima, ladera Occidental, Bosque de las Brujas, *Guerra* (Arrocha et al. 2020); Tierras Altas distrito, Parque Nacional Volcán Barú, Paso Ancho, 8°48’55.13”N, 82°34’33.50”W, 2,047 m, *Guerra Batista et al.* (UCH, Guerra et al. 2020); Barú Volcano National Park (Rodríguez-Quiel et al. 2022). **DARIÉN:** INRENARE station, foothills of Cerro Pirre, *Salazar Allen & Gradstein* 9217 (PMA, GOET, U, Stotler et al. 1998). **PANAMA WEST:** La Chorrera distrito, Barro Colorado Island, *Gradstein & Salazar Allen* 15112 (Dauphin et al. 2022).

Also reported from Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Plagiochila lingua Steph., *Bull. Herb. Boissier*, sér. 2, 2(8): 677 (=Spec. *Hepat. [Stephani]* 2: 214), 1902 (Stephani 1902b). Type: Brazil.

GUATEMALA. **EL PROGRESO:** San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03’30”N, 89°57’50”W, 1,380 m, 2007, *Ramírez* (USCG, BIGU, Ramírez 2007).

Also reported from Western South America(?), Brazil.

Plagiochila longispina Lindenb. et Gottsche, *Syn. Hepat.* 5: 642, 1847 (Gottsche et al. 1847). Lectotype: Mexico.

COSTA RICA. S. loc. (Gradstein 1999a, 2021; Dauphin 2005; Gradstein and Holz 2005; Gradstein and Uribe 2016); S. loc., *Heinrichs et al.* 4148 (BEGP, B, BM, CBG, hb. Drehwald, E, hb. Frahm, G, GOET, hb. Heinrichs, JE, KRAM, MO, NICH, NY, S, hb. Schäfer-Verwimp, W. Further, Heinrichs and Anton 2001; Groth et al. 2002, 2003; Heinrichs et al. 2002a, 2002b, 2003a, 2004d, 2006a; Renker et al. 2002; Rycroft et al. 2004; Dauphin 2005; Schäfer-Verwimp et al. 2006; Patzak et al. 2016);

Cordillera de Talamanca (Heinrichs et al. 2000a; Holz 2003; Holz and Gradstein 2005b); Cordillera de Talamanca, *Kappelle 5642a* (U, Kappelle 1996). *CARTAGO: Turrialba cantón, Turrialba National Park, *Dauphin et al. 3559* (CR!, this publication). HEREDIA: Barva cantón, Braulio Carrillo National Park, Sector Volcán Barva, *Gradstein 9649* (Dauphin 2005); Barva cantón, Braulio Carrillo National Park, Sector Volcán Barva, summit area, 2,850 m, *Gradstein & Solano 9649* (U, USJ, Gradstein et al. 1994). SAN JOSÉ: Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,200–3,300 m, *Gradstein 9670, 9673, 9737* (Gradstein et al. 1994; Heinrichs et al. 2000c; Dauphin 2005); Pérez Zeledón cantón, Cordillera de Talamanca, Cerros Cuericí, 3,160 m, *Davidse 24709 p.p.* (GOET, Heinrichs et al. 2000c); Pérez Zeledón cantón, Cuerecú (Dauphin 2005); Pérez Zeledón cantón, Páramo Buena Vista, *Dauphin 1695* (CR, Dauphin 2005).

PANAMA. PANAMA WEST: Capira distrito, Nature's Trail, Altos de Campana National Park, *Salazar Allen & Johnson 6550* (PMA, Stotler et al. 1998).

Also reported from Macaronesia, Mexico, Northern South America, Western South America.

Plagiochila loriloba Herzog ex Carl, *Ann. Bryol., Suppl. 2*: 47, 1931 (Carl 1931b). Type: Colombia.

≡ *Plagiochila cuneata* Lindenb. et Gottsche var. *loriloba* (Carl) Herzog, *Hedwigia* 72(6): 232, 1932 (Herzog 1932).

COSTA RICA. S. loc. (Schäfer-Verwimp 2014 as *Plagiochila cuneata* var. *loriloba*; Gradstein 2016, 2021; Gradstein and Uribe 2016); Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b). CARTAGO: Turrialba cantón, Villa Mills, CATIE Station Siberia, *Holz CR 00-476* (GOET, Groth et al. 2002; Patzak et al. 2016); Turrialba cantón, Villa Mills, CATIE Station Siberia, 2,700 m, 6 Mar 2000, *Holz CR 00-466* (GOET, Holz et al. 2001 as *Plagiochila cuneata* var. *loriloba*; Groth et al. 2004b; Dauphin 2005; Heinrichs et al. 2006a). SAN JOSÉ: Dota cantón, Río Savegre, Jaboncillo, 2,900 m, 4 Oct 1999, *Heinrichs et al. AHH-203* (GOET, Holz et al. 2001 as *Plagiochila cuneata* var. *loriloba*; Dauphin 2005); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a as *Plagiochila cuneata* var. *loriloba*); Los Santos, 2,950 m, 25 May 1999, *Kunz 54* (GOET, Holz et al. 2001 as *Plagiochila cuneata* var. *loriloba*; Dauphin 2005).

PANAMA. CHIRIQUÍ: Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, *Schäfer-Verwimp & Verwimp 34567* (JE, Schäfer-Verwimp 2014 as *Plagiochila cuneata* var. *loriloba*).

Also reported from the Caribbean(?), Western South America.

Plagiochila macra Taylor, *London J. Bot.* 7: 198, 1848 (Taylor 1848). Type: Ecuador.

≡ *Plagiochila heterophylla* Lindenb., *Nov. Stirp. Pug.* 10: 2, 1857 (Lehmann 1857), syn. fide Gradstein (2021). Lectotype (Bonner 1962b: 139): Costa Rica, 5–8,000 ft, *Oersted*, ex hb. Lindenberg (G-00282688

<http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=255339&lang=en>, isoelectotypes S).

= *Plagiochila beauverdii* Steph., *Biblioth. Bot.* 87(2): 191, 1916 (Stephani 1916b), syn. with *Plagiochila heterophylla* fide Gradstein (2016). Type: Bolivia.

≡ *Plagiochila heterophylla* Lindenb. ex Lehm. var. *beauverdii* (Steph.) Heinrichs, *Bryophyt. Biblioth.* 58: 148, 2002 (Heinrichs 2002).

= *Plagiochila trilaciniata* Herzog ex Carl, *Ann. Bryol., Suppl. 2*: 70, 1931 (Carl 1931b), syn. with *Plagiochila beauverdii* fide Heinrichs (2002). Lectotype (Söderström and Hentschel 2023: 22): Costa Rica, San José, Las Nubes, 1,500–1,900 m, 1924, *Standley 38470* (JE-04010841 <https://je.jacq.org/JE04010841>, isoelectotype US-00072819 <http://n2t.net/ark:/65665/37a0e7f9f-f7df-426e-9f77-3e7aeb21e878>).

= *Plagiochila crassiretis* Herzog ex Carl, *Ann. Bryol., Suppl. 2*: 70, 1931 (Carl 1931b), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Heinrichs (2002). Original material (Heinrichs 2002: 148): Costa Rica, Cartago, Alto de La Estrella, 1924, *Standley 39060* (JE-04010813 <https://je.jacq.org/JE04010813>).

= *Plagiochila funkiana* var. *trilaciniata* Herzog, *Hedwigia* 72: 238, 1932 (Herzog 1932), syn. with *Plagiochila beauverdii* fide Heinrichs and Renker (2001). Lectotype (Söderström and Hentschel 2023: 19): Costa Rica, Cerros de Zurquí, northeast of San Isidro, Provincia de Heredia, altitude 2,000–2,400 m, 3 Mar 1926, *Standley & Valerio 50664* (JE-04010831 <https://je.jacq.org/JE04010831>, isoelectotype US-04627152 <http://n2t.net/ark:/65665/3e3c0fa2c-72f4-44f6-bd11-dafb8de9150>).

GUATEMALA. S. loc. (Schäfer-Verwimp and Pócs 2009 as *Plagiochila heterophylla* var. *heterophylla*). ALTA VERAPAZ: Purulhá municipio, S of Purulhá, 1,500–1,600 m, 1977, *Croat 41769* (MO, Heinrichs 2002 as *Plagiochila heterophylla* var. *heterophylla*).

HONDURAS. CORTÉS: San Pedro Sula municipio, San Juancito Mts, Peña Blanca, 1,800–2,100 m, 1951, *Morton 7510* (US, Heinrichs 2002 as *Plagiochila heterophylla* var. *beauverdii*).

COSTA RICA. S. loc. (Lehmann 1857 as *Plagiochila heterophylla*; Herzog 1932 as *Plagiochila funkiana* var. *trilaciniata*; Cole 1982 as *Plagiochila trilaciniata*; Schäfer-Verwimp 1989 as *Plagiochila heterophylla*; Schäfer-Verwimp and Pócs 2009 as *Plagiochila heterophylla* var. *heterophylla*); S. loc., 5,000–8,000 ft (1,524–2,438 m), *Oersted 1169* (Müller 1851 as *Plagiochila heterophylla*); S. loc., 1,500–2,500 m, *Oersted* (ex hb. Lindenb. W, in hb. G, S-B58739, TYPE of *Plagiochila heterophylla*, Stephani 1905f as *Plagiochila heterophylla*; Bonner 1962b as *Plagiochila heterophylla*; Geissler and Bischler 1989 as *Plagiochila heterophylla*; Heinrichs 2002 as *Plagiochila heterophylla*; Gradstein 2015a, 2021, both as *Plagiochila heterophylla*); S. loc., Pittier (G, Stephani 1905f as *Plagiochila heterophylla*); Cordillera de Talamanca (Holz and Gradstein 2005b as *Plagiochila heterophylla*; Holz 2006 as *Plagiochila heterophylla*); Cordillera de Talamanca, *Kappelle 3391a* (U, Kappelle 1996 as *Plagiochila heterophylla*). CARTAGO: Alto de La Estrella, 1924, *Standley 39060* (JE, Carl 1931b as *Plagiochila crassiretis*; Morales 1991 as *Plagiochila crassiretis*; Heinrichs 2002 as *Plagiochila heterophylla* var. *heterophylla*; Dauphin 2005 as *Plagiochila heterophylla* var. *heterophylla*); Turrialba cantón, Volcán Turrialba (Dauphin 2005

as *Plagiochila heterophylla* var. *beauverdii*); Turrialba cantón, Volcán Turrialba, 2,000–2,400 m, 1924, *Standley* 35209 (JE, **Carl 1931b** as *Plagiochila beauverdii*; **Heinrichs 2002** as *Plagiochila heterophylla* var. *beauverdii*); Turrialba cantón, Volcán Turrialba, S slope near the Finca, 2,000–2,400 m, *Standley* 35309, det. JE (**Herzog 1938** as *Plagiochila beauverdii*; **Morales 1991** as *Plagiochila beauverdii*). **HEREDIA**: San Isidro cantón, Cerro Zurquí (Dauphin 2005 as *Plagiochila heterophylla* var. *beauverdii*); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley* 50514 (**Bonner 1962b** as *Plagiochila funkiana* var. *trilaciniata*); San Isidro cantón, Cerro Zurquí, 2,400 m, 1924, *Standley* 50664 (JE, **TYPE** of *Plagiochila funkiana* var. *trilaciniata*, **Bonner 1962b** as *Plagiochila funkiana* var. *trilaciniata*; **Heinrichs 2002** as *Plagiochila heterophylla* var. *beauverdii*); San Isidro cantón, Yerba Buena, 2,000 m, *Standley* 49919a (**Herzog 1938** as *Plagiochila heterophylla*; **Morales 1991** as *Plagiochila heterophylla*; **Dauphin 2005** as *Plagiochila heterophylla* var. *heterophylla*). **LIMÓN**: Cordillera de Talamanca, between Río Terbí and Río Siní, 2,300–2,500 m, 1984, *Davidse et al.* 28976 (U, **Heinrichs 2002** as *Plagiochila heterophylla* var. *beauverdii*); Cordillera de Talamanca, Río Terbi-Sini (Dauphin 2005 as *Plagiochila heterophylla* var. *beauverdii*). **SAN JOSÉ**: S. loc. (Markham and Fernández 2021 as *Plagiochila heterophylla*); Dota cantón, San Gerardo, *Heinrichs et al.* 4401 (GOET, **Patzak et al. 2016** as *Plagiochila heterophylla*); Dota cantón, San Gerardo, Holz (**Holz 2003** as *Plagiochila heterophylla*); Dota cantón, San Gerardo, Los Robles, Río Savegre (Dauphin 2005 as *Plagiochila heterophylla* var. *heterophylla*); Dota cantón, San Gerardo, Río Savegre valley, 2,300 m, 1999, *Heinrichs et al.* 4342, 4345 (GOET, **Heinrichs 2002** as *Plagiochila heterophylla* var. *heterophylla*); Los Santos Forest Reserve, ~2,900 m (**Holz and Gradstein 2005a** as *Plagiochila heterophylla*); Vásquez de Coronado cantón, Las Nubes (Dauphin 2005 as *Plagiochila heterophylla* var. *beauverdii*); Vásquez de Coronado cantón, Las Nubes, 1,500–1,900 m, 1924, *Standley* 38470 (JE, **TYPE** of *Plagiochila trilaciniata*, **Carl 1931b** as *Plagiochila trilaciniata*; **Herzog 1938** as *Plagiochila funkiana* var. *trilaciniata*; **Geissler and Bischler 1989** as *Plagiochila trilaciniata*; **Heinrichs 2002** as *Plagiochila heterophylla* var. *beauverdii*).

PANAMA. **CHIRIQUÍ**: Boquete, Los Naranjos, buffer zone of Parque Internacional La Amistad (PILA) along trail of El Pianista, 8°49'07.4"N, 82°25'20"W, 1,410 m, 5 Mar 2022, det. Á. Benítez, *Arrocha* 3295 (UCH, **Ellis et al. 2022b**); Barú Volcano National Park (**Rodríguez-Quiel et al. 2022** AS *Plagiochila heterophylla*).

Also reported from Northern Europe, Southwestern Europe, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Plagiochila macrostachya Lindenb., *Sp. Hepat.* (Lindenberg) 2–4: 75: 1840 (Lindenberg 1840). Lectotype: Jamaica.

=*Plagiochila contingens* Gottsche, *Ann. Sci. Nat. Bot.*, sér. 5, 1: 111, 1864 (Gottsche 1864), syn. fide **Heinrichs (2002)**. Lectotype: Colombia.

=*Plagiochila flaccida* Lindenb., *Sp. Hepat.* (Lindenberg) 2–4: 75, 1840 (Lindenberg 1840), syn. fide **Heinrichs (2002)**. Type: St. Vincent.

GUATEMALA. **ALTA VERAPAZ**: S. loc., *Pérez 100* (USCG, *Pérez 2009*); Panzós municipio, Cahabón and/or Senahú, 2012, *Pérez & López-Medina*, det. M. Pérez (**Pérez and López-Medina 2012**); Tukurú, *Pérez 100* (USCG, *Pérez 2006*). **BAJA VERAPAZ**: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 393, 511 (USCG, *Freire et al. 2013*); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al. 2005*). **EL PROGRESO**: Montaña Canahui, 1,600–2,300 m, 1942, *Steyermark 43790a* (US, **Heinrichs 2002**). **HUEHUETENANGO**: S. loc., *Pérez 1408* (USCG, *Pérez 2009*). **QUICHÉ**: S. loc., *Pérez 2347* (USCG, *Pérez 2009*).

COSTA RICA. S. loc., *Oersted* (YU, G, S, *Hampe 1851b*; *Polakowsky 1879*; **Heinrichs 2002**); S. loc., *Tonduz* (**Carl 1931b** as *Plagiochila contingens*). **CARTAGO**: Cartago cantón, El Muñeco, Río Navarro, 1,400–1,500 m, *Standley* 51029 (**Herzog 1938** as *Plagiochila contingens*; **Morales 1991** as *Plagiochila contingens*; **Dauphin 2005**); Jimenéz cantón, Pejibaye (Dauphin 2005); Jimenéz cantón, Pejibaye, 900 m, *Standley* 46871 (**Carl 1931b** as *Plagiochila contingens*; **Herzog 1938** as *Plagiochila contingens*; **Morales 1991** as *Plagiochila contingens*); Jimenéz cantón, Pejibaye, 900 m, *Standley* 46905 (**Carl 1931b** as *Plagiochila contingens*). **HEREDIA**: Barva cantón, Volcán Barva, 1,950 m (Dauphin 2005); San Isidro cantón, Cerro Caricias, ~2,000 m (Dauphin 2005); San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, 1926, *Standley* 52101 (JE, US, **Morales 1991** as *Plagiochila contingens*); San Isidro cantón, Cerro de Las Lajas (Dauphin 2005); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley* 50424 (B, **Carl 1931b** as *Plagiochila contingens*; **Herzog 1938** as *Plagiochila contingens*; **Morales 1991** as *Plagiochila contingens*); San Isidro cantón, Cerro Zurquí, 2,000–2,500 m, 1926, *Standley* 48088 (B, **Carl 1931b** as *Plagiochila contingens*; **Heinrichs 2002**); San Isidro cantón, Cerro Zurquí, 2,000 m, 1926, *Standley* 49875 (JE, US, **Morales 1991** as *Plagiochila contingens*); San Isidro cantón, Yerba Buena, 2,000 m, *Standley* 49875 (**Morales 1991** as *Plagiochila contingens*); San Isidro cantón, Yerba Buena, 2,000 m, *Standley* 49849 (**Carl 1931b** as *Plagiochila contingens*; **Morales 1991** as *Plagiochila contingens*; **Dauphin 2005**; **Herzog 1938** as *Plagiochila contingens*); San Isidro cantón, Yerba Buena, NE of San Isidro, 2,000 m, *Standley* 49780 (**Carl 1931b** as *Plagiochila contingens*). **PUNTARENAS**: Golfito cantón, Corcovado National Park, Esquinas, <100 m (Dauphin 2005); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 80–140 m (GOET, **Wanek and Pörtl 2008** as *Plagiochila flaccida*); Golfo Dulce (Umana and Wanek 2010 as *Plagiochila flaccida*); Monteverde, <1,500 m (**Morales 1991** as *Plagiochila contingens*; **Dauphin 2005**); Monteverde cantón, 2 km SW station, 1,500–1,550 m, 20 Feb 1992, *Ingram et al.* 1374 (FLAS-057604, **Holz et al. 2001** as *Plagiochila flaccida*; **Heinrichs 2002**; **Dauphin 2005**); Monteverde cantón, Checo Trail near Adorno clearing, 4,300 ft (1,310 m), Feb 1969, *James, W.* (R, **Reed and Robinson 1971** as *Plagiochila contingens*); Monteverde cantón, near Motas, 4 Apr 1969, *James, W.* 1969-89, 1969-94 (US, **Reed and Robinson 1971** as *Plagiochila*

contingens); Puerto Jimenez cantón, Parque Nacional Corcovado, Esquinas Sector, 146 m, 2001, *Pörtl K10* (GOET, **Heinrichs 2002**). **SAN JOSÉ**: Général (**Tonduz 1896** as *Plagiochila flaccida*); Moravia cantón, Cerros Zurquí, 2,000–2,500 m, *Standley 48688* (**Herzog 1938** as *Plagiochila contingens*; **Morales 1991** as *Plagiochila contingens*; **Dauphin 2005**); Moravia cantón, La Hondura, 1,300–1,700 m, *Standley 37802* (**Carl 1931b** as *Plagiochila contingens*); Moravia cantón, La Hondura, 1,300–1,700 m, *Standley 37812* (JE, US-00289477 <http://n2t.net/ark:/65665/32d5ebd32-07d4-4ad9-ac3b-6a4f88fccd2f>, **Morales 1991** as *Plagiochila contingens*); Pérez Zeledón cantón, El General forest, *Pittier 6057* (CR, **Stephani 1893c** as *Plagiochila flaccida*; **Morales 1991** as *Plagiochila flaccida*; **Kappelle 1996** as *Plagiochila flaccida*; **Dauphin 2005**).

PANAMA. VERAGUAS: Santa Fe distrito, along road to Guabal on the Caribbean coast, 8°31.9–33.9'N, 81°08.8–11.3'W, 330 m, 27 Mar 2009, *Schäfer-Verwimp & Verwimp 34296/A* (JE, **Schäfer-Verwimp 2014**); Santa Fe distrito, along road to Guabal on the Caribbean coast, 8°31.9–33.9'N, 81°08.8–11.3'W, 330 m, 27 Mar 2009, *Schäfer-Verwimp & Verwimp 34300/A* (JE, **Schäfer-Verwimp 2014**).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Plagiochila montagnei Nees, *Ann. Sci. Nat. Bot.*, sér. 2, 5: 53, 1836 (Nees and Montagne 1836). Type: Guiana.

=*Plagiochila hypnoides* Willd. ex Lindenb., *Sp. Hepat. (Lindenberg)* 2–4: 37, 1840 (Lindenberg 1840), syn. fide Heinrichs and Gradstein (2000). Type: Brazil.

=*Plagiochila florida* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 494, 1885 (Spruce 1885), syn. fide Heinrichs and Gradstein (2000). Lectotype: Brazil.

=*Plagiochila hypnoides* f. *minor* Herzog ex Carl, *Ann. Bryol., Suppl.* 2: 57, 1931 (Carl 1931b), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Heinrichs and Gradstein (2000). Original material (Heinrichs and Gradstein 2000: 170): Panama, Canal Zone, Las Cascadas Plantation, *Standley 25678* (JE-04010840 <https://je.jacq.org/JE04010840>, US-04627171 (<http://n2t.net/ark:/65665/39a449ff6-e5d6-4009-8339-e7ab3642785c>)).

=*Plagiochila hypnoides* var. *brevifolia* Herzog ex Carl, *Ann. Bryol., Suppl.* 2: 57, 1931 (Carl 1931b), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Heinrichs and Gradstein (2000). Original material (cf. Heinrichs and Gradstein 2000: 170): Costa Rica, Limón, Hamburg Finca on the Río Limón below Cairo, 55 m, *Standley & Valerio 48887* (JE-04010839 US-00073050 (<http://n2t.net/ark:/65665/30ba6dc67-9c4e-4caf-a778-9ac694efdef5>)).

=*Plagiochila hypnoides* f. *propagulifera* Herzog, *Rev. Bryol. Lichénol.* 11(1): 13, 1939 (Herzog 1938), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Heinrichs and Gradstein (2000). Original material (cf. Heinrichs and Gradstein 2000: 171): Costa Rica, Limón, Finca Montecristo on the Río Reventazón below Cairo, 25 m, *Standley & Valerio 48511* (JE, US-04627166 <http://n2t.net/ark:/65665/38bd0d15a-b00a-41e4-a81b-3f33b2d2a401>)).

=*Plagiochila hypnoides* var. *brevifolia* Herzog, *Rev. Bryol. Lichénol.* 11(1): 13, 1938 (Herzog 1938), syn. fide Heinrichs and Gradstein (2000).

Lectotype (Heinrichs and Gradstein 2000: 170 as “holotype”): Costa Rica, Limón, Hamburg Finca on the Río Limón below Cairo, 55 m, *Standley & Valerio 48887* (JE-04010839 <https://je.jacq.org/JE04010839>, isolectotype US-00073050 <http://n2t.net/ark:/65665/30ba6dc67-9c4e-4caf-a778-9ac694efdef5>).

GUATEMALA. S. loc. (**Stephani 1905a** as *Plagiochila florida*; Fulford and Sharp 1990 as *Plagiochila florida*). **BAJA VERAPAZ**: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 also as *Plagiochila hypnoides*). **ZACAPA**: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, **Ramírez 2007** as *Plagiochila hypnoides*).

COSTA RICA. S. loc. (Schuster 1980d as *Plagiochila hypnoides*; Fulford and Sharp 1990 as *Plagiochila hypnoides*; Oliveira-e-Silva and Yano 2000 as *Plagiochila hypnoides*); Cordillera de Talamanca (Holz 2003 as *Plagiochila* cf. *montagnei*; Holz and Gradstein 2005b as *Plagiochila* cf. *montagnei*). **CARTAGO**: Turrialba cantón, Hacienda Aragón, 2,000 ft (610 m), 21 Aug 1940, *Haupt* (**Haupt 1942** as *Plagiochila hypnoides*). **LIMÓN**: Finca Montecristo, Reventazón River, *Standley* (**Haupt 1942** as *Plagiochila hypnoides*); Guácimo cantón, Parismina, *Valerio 66* (JE, **Heinrichs and Gradstein 2000**; **Dauphin 2005**); Guácimo cantón, Parismina, 5 m, *Valerio 68* (JE, **Schuster 1960** as *Plagiochila hypnoides*; **Heinrichs and Gradstein 2000**; **Dauphin 2005**); Siquirres cantón, Cairo, Finca Hamburgo, *Standley & Valerio 48511* (**Geissler and Bischler 1989** as *Plagiochila hypnoides* f. *hypnoides*; **Heinrichs and Gradstein 2000**; **Dauphin 2005**); Siquirres cantón, Cairo, Finca Hamburgo, *Standley & Valerio 48887* (**Geissler and Bischler 1989** as *Plagiochila hypnoides* var. *brevifolia*; **Dauphin 2005**); Siquirres cantón, Cairo, Finca Hamburgo, *Standley* (**Haupt 1942** as *Plagiochila hypnoides*); Siquirres cantón, Cairo, Finca Hamburgo, on the Río Reventazón below Cairo, ~85 m, *Standley 48685*, 48707, 48729, 48835 (**Carl 1931b** as *Plagiochila hypnoides*; **Herzog 1938** as *Plagiochila hypnoides*; **Schuster 1960** as *Plagiochila hypnoides*; **Heinrichs and Gradstein 2000**); Siquirres cantón, Cairo, Finca Hamburgo, on the Río Reventazón, ~55 m, *Standley 48887*, det. JE (**TYPE** of *Plagiochila hypnoides* var. *brevifolia*, **Carl 1931b** as *Plagiochila hypnoides* var. *brevifolia*; **Herzog 1938** as *Plagiochila hypnoides* var. *brevifolia*; **Bonner 1962b** as *Plagiochila hypnoides* var. *brevifolia*; **Heinrichs and Gradstein 2000**); Siquirres cantón, Pinea Montecristo, on the Río Reventazón, 25 m, *Standley 48511* (**Herzog 1938** as *Plagiochila hypnoides* f. *propagulifera*). **PUNTARENAS**: Buenos Aires cantón, Boruca, ad Pacific, *Tonduz 15663* (**Schuster 1960** as *Plagiochila hypnoides*); Las Cascadas Plantation, *Standley 25678* (**Carl 1931b** as *Plagiochila hypnoides* f. *minor*; **Herzog 1938** as *Plagiochila hypnoides*; **Heinrichs and Gradstein 2000**); Osa cantón, Rincón, Puerto Escondido, 10 m, 1 Nov 1993, *Gradstein & Dauphin 9364 p.p.* (GOET, Holz et al. 2001; **Dauphin 2005**). **SAN JOSÉ**: Dota cantón, San Gerardo, Río Savegre Valley, holiday camp Chacón, Los Robles y Sendero La Quebrada, 2,300 m, 28 Sep 1999, *Heinrichs et al. 4176* (CR, GOET, **Heinrichs et al. 2000b**; **Heinrichs 2002**; **Dauphin 2005**); Général

(Tonduz 1896 as *Plagiochila hypnoides* f. *hypnoides*); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a as *Plagiochila* cf. *montagnei*); Pérez Zeledón cantón, El General forest, Pittier 6056 (Stephani 1893c as *Plagiochila hypnoides*); Pérez Zeledón cantón, Talari Lodge between San Isidro de El General and Rivas, 700–800 m, 12 Feb 1998, Arts CR 4/78 p.p. (Holz et al. 2001; Dauphin 2005).

PANAMA. S. loc. (Schuster 1980d as *Plagiochila hypnoides* f. *hypnoides*; Fulford and Sharp 1990 as *Plagiochila florida*; Oliveira-e-Silva and Yano 2000 as *Plagiochila hypnoides*; Schäfer-Verwimp 2014); S. loc., Wagner (G, Stephani 1905a as *Plagiochila florida*; Carl 1931b as *Plagiochila florida*); Canal Zone (Schäfer-Verwimp 2014); **CHIRIQUÍ:** Gualaca distrito, Fortuna, Spörle 4390 (PMA, Spörle 1990 as *Plagiochila hypnoides*); Tierras Altas distrito, Parque Internacional La Amistad, Las Nubes, sendero Panamá Verde, 8°53'37.4"N, 82°38'52.5"W, 2,218 m, Sep 2015–Jul 2016, Guerra-Batista et al. (Guerra-Batista et al. 2020). **COCLÉ:** Antón distrito, El Valle de Antón, Alto de La Mesa, 8°38.3'N, 82°07.6'W, 850–870 m, 3 Apr 2009, Schäfer-Verwimp & Verwimp 34743/B (JE, Schäfer-Verwimp 2014). **COLÓN:** Colón distrito, Río Chinilla above Nuevo Limón, Maxon 6869a (JE, Heinrichs and Gradstein 2000). **DARIÉN:** S. loc. (Schäfer-Verwimp 2014); Chepigana distrito, Río San Antonio upstream from Garachine, Hammel 7319, det. U (Heinrichs and Gradstein 2000). **LOS SANTOS:** Las Tablas distrito, Cerro Canajagua, Halbinsel Azuero, ~950 m, Troll Hep. Sel. Crit. 156 (JE-04001746, Heinrichs and Gradstein 2000). **PANAMA WEST:** Capira distrito, Cruces, Jan 1847 (Mitten 1854b as *Plagiochila hypnoides*; Schuster 1960 as *Plagiochila hypnoides*).

Also reported from Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Plagiochila naranjoënsis Steph., Bull. Herb. Boissier, sér. 2, 2(8): 687 (=Sp. Hepat. [Stephani] 2: 224), 1902 (Stephani 1902b). Lectotype (Bonner 1962b: 204) if not holotype: Costa Rica, Río Naranjo, Tonduz 3075 p.p. (G-00067796 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=128379&lang=en>).

COSTA RICA. **CARTAGO:** Jiménez cantón, Río Naranjo, Tonduz 3075 p.p. (G, Stephani 1902b; Bonner 1962b).

Not found outside Central America.

Plagiochila oerstediana Lindenb. et Hampe, Linnaea 24(3): 301, 1852 (Hampe 1851b). Type: Costa Rica, Oersted s.n. (G, PC, BM, S, C, JE-04010838 <https://je.jacq.org/JE04010838>).

COSTA RICA. S. loc. (Lehmann 1857); S. loc., Lehmann (hb. Montagne, Dugas 1928); S. loc., 5,000–8,000 ft (1,524–2,438 m), Oersted 1169 (Müller 1851); S. loc., 5,000–8,000 ft (1,524–2,438 m), Oersted (TYPE, Hampe 1851b; Stephani 1905a; Bonner 1962b; Geissler and Bischler 1989); S. loc., Pittier (Stephani 1905a). **ALAJUELA:** S. loc., Polakowsky (Polakowsky 1879); S. loc., Jun 1875, Polakowsky 127a (Polakowsky 1877; Morales 1991).

Not found outside Central America.

Plagiochila ovata Lindenb. et Gottsche, Syn. Hepat. 5: 656, 1847 (Gottsche et al. 1847). Lectotype: Mexico.

COSTA RICA. S. loc. (Gradstein 1999a; Dauphin 2005; Gradstein and Holz 2005; Gradstein and Uribe 2016; Gradstein 2021); S. loc., Gradstein & Mues 9718 (B, BM, CBG, hb. Drehwald, E, hb. Frahm, G, GOET, hb. Heinrichs, JE, KRAM, MO, NICH, NY, S, hb. Schäfer-Verwimp, W. Further, Heinrichs and Anton 2001; Dauphin 2005); S. loc., Heinrichs et al. 4148 (BEGP, B, BM, CBG, hb. Drehwald, E, hb. Frahm, G, GOET, hb. Heinrichs, JE, KRAM, MO, NICH, NY, S, hb. Schäfer-Verwimp, W. Further, Heinrichs 2002; Schäfer-Verwimp et al. 2006); S. loc., Heinrichs et al. 4158 (B, BM, CBG, hb. Drehwald, E, hb. Frahm, G, GOET, hb. Heinrichs, JE, KRAM, MO, NICH, NY, S, hb. Schäfer-Verwimp, W. Further, Heinrichs and Anton 2001; Heinrichs 2002; Groth et al. 2003, 2004a; Heinrichs et al. 2003a, 2004d, 2005a, 2006a, 2006b; Dauphin 2005; Groth and Heinrichs 2005; Patzak et al. 2016; Renner et al. 2017a); S. loc., Heinrichs et al. 4169 (B, BM, CBG, hb. Drehwald, E, hb. Frahm, G, GOET, hb. Heinrichs, JE, KRAM, MO, NICH, NY, S, hb. Schäfer-Verwimp, W. Further, Heinrichs and Anton 2001; Dauphin 2005); S. loc., 8,000 ft (2,438 m), Oersted (S, NY, Hampe 1851b; Müller 1851; Polakowsky 1879); Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b). **CARTAGO:** La Georgina (Dauphin 2005); La Georgina de Villa Mills, 2,990 m, Kappelle 655 (U, Müller et al. 1999). **HEREDIA:** Barva cantón, Braulio Carrillo National Park, Sector Volcán Barva (Dauphin 2005); Barva cantón, Braulio Carrillo National Park, Sector Volcán Barva, 2,650–2,900 m, Gradstein & Mues 9638 (GOET, SAAR, Müller et al. 1999). **SAN JOSÉ:** Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, Standley 43585 (B, JE, M, US, Carl 1931b; Herzog 1938; Morales 1991; Kappelle 1996; Müller et al. 1999; Dauphin 2005); Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte; Dauphin 2005).

PANAMA. **CHIRIQUÍ:** Barú Volcano National Park (Rodríguez-Quiel et al. 2022).

Also reported from Mexico, the Caribbean, Northern South America, Western South America.

Plagiochila pachyloma Taylor, London J. Bot. 5: 267, 1846 (Taylor 1846b). Type: Ecuador.

COSTA RICA. S. loc. (Schäfer-Verwimp et al. 2013; Gradstein 2021); Cordillera de Talamanca (Holz and Gradstein 2005b; Holz 2006). **SAN JOSÉ:** Dota cantón, San Gerardo, Holz (Holz 2003); Dota cantón, San Gerardo, 2,900 m, 29 Sep 1999, Heinrichs et al. 4290 (GOET, Holz et al. 2001; Dauphin 2005).

Also reported from Northern South America, Western South America.

Plagiochila papillifolia Steph., Biblioth. Bot. 87(2): 207, 1916 (Stephani 1916b). Type: Bolivia.

=*Plagiochila verruculosa* R.M.Schust., Amer. Midl. Naturalist 62(2): 295, 1959 (Schuster 1959), syn. fide Heinrichs et al. (2002c). Type: Colombia.

COSTA RICA. Cordillera de Talamanca (Holz and Gradstein 2005b; Holz 2006). **PUNTARENAS:** Monteverde (Morales

1991 as *Plagiochila verruculosa*); Monteverde, James, W. 23985 (Dauphin 2005); Monteverde, 4,300 ft (1,310 m), Feb 1969, James, W. 1969-09 (R, US, Reed and Robinson 1971 as *Plagiochila verruculosa*); Monteverde, 4,300 ft (1,310 m), Feb 1969, James, W. 1969-18b (R, US, Reed and Robinson 1971 as *Plagiochila verruculosa*; Dauphin 2005). SAN JOSÉ: Dota cantón, San Gerardo, Holz (Holz 2003); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a).

Also reported from Macaronesia, Northern South America, Western South America, Brazil.

Plagiochila patriciae Heinrichs et H. Anton, *Bryophyt. Biblioth.* 58: 107, 2002 (Heinrichs 2002). Holotype: Costa Rica, Cartago, Pan-American Highway (km 67), Reserva 3 de Junio, 2,600 m, 1999, Heinrichs et al. 4349 (GOET-11619 [https://gwdu64.gwdg.de/pls/herbar/moos\\$moos.QueryViewByKey?P_ID=11619&Z_CHK=2109](https://gwdu64.gwdg.de/pls/herbar/moos$moos.QueryViewByKey?P_ID=11619&Z_CHK=2109), isotypes G-00128925 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=285899&lang=en>, CR, G, JE, NY, MO-5381551 <https://www.tropicos.org/specimen/90158121>).

COSTA RICA. S. loc. (Gradstein and Uribe 2016; Gradstein 2021). CARTAGO: El Guarco cantón, 3 de Junio, Heinrichs et al. 4349 (GOET, Heinrichs 2002; Dauphin 2005); Pan-American Highway km 70, Holz 78 (Dauphin 2005); Pan-American Highway km 70, Entrada “Mirador de Quetzales,” 2,650 m, 2000, Holz CR 00-176 (GOET, Heinrichs 2002; Groth et al. 2003, 2004a; Heinrichs et al. 2003a, 2005a, 2006b; Dauphin 2005; Patzak et al. 2016; Renner et al. 2017a). LIMÓN: Talamanca cantón, Valle del Silencio, Río Terbi, 2,300–2,900 m, Davidse 28773 (GOET, U, Heinrichs 2002; Dauphin 2005). SAN JOSÉ: Pérez Zeledón cantón, Cerro de La Muerte, Páramo Buena Vista, 2,900 m, 1999, Heinrichs et al. 4338 (G, GOET, JE, MO, NY, Heinrichs 2002).

PANAMA. CHIRIQUÍ: Gualaca distrito, Quebrada Honda in Fortuna Forest Reserve (8°45'40"N, 82°14'22"W), 1,150 m, 15 Jul 2021, Rodríguez et al. 1102, 1103 (UCH, Ellis et al. 2022a).

Also reported from the Caribbean(?), Western South America.

Plagiochila patula (Sw.) Lindenb., *Sp. Hepat. (Lindenberg)* 1: 21, 1839 (Lindenberg 1839).

≡ *Jungermannia patula* Sw., *Fl. Ind. Occid.* 3: 1844, 1806 (Swartz 1806). Type: Jamaica.

≡ *Jungermannia martiana* Nees, *Linnaea* 6(4): 617, 1831 (Nees 1831), syn. fide Gradstein (2015a). Type: Brazil.

≡ *Plagiochila martiana* (Nees) Lindenb., *Sp. Hepat. (Lindenberg)* 1: 12, 1839 (Lindenberg 1839).

≡ *Plagiochila dubia* Lindenb. et Gottsche, *Syn. Hepat.* 5: 630, 1847 (Gottsche et al. 1847), syn. fide Heinrichs et al. (2002a). Lectotype: Mexico.

≡ *Plagiochila rigidula* Lindenb. et Gottsche, *Linnaea* 20: 323, 1847 (Hampe 1847), syn. fide Gradstein (2021). Type: Venezuela (“Colombia”).

≡ *Plagiochila fallax* Lindenb. et Hampe, *Linnaea* 24(3): 300, 1851 (Hampe 1851b), syn. fide Gradstein (2015a). Lectotype (Söderström et al. 2023a: 153): Costa Rica, Oersted s.n. (G-00282693 <http://www.ville-ge>

[.ch/musinfo/bd/cjb/chg/adetail.php?id=270160&lang=en](http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=270160&lang=en), S-B40261, S-B46262, S-B46263).

≡ *Plagiochila interjecta* Gottsche, *Ann. Sci. Nat. Bot.*, sér. 5, 1: 97, 1864 (Gottsche 1864), syn. fide Gradstein (2021). Type: Colombia.

GUATEMALA. S. loc., Wurr (Stephani 1905a as *Plagiochila fallax*). ALTA VERAPAZ: S. loc., Türckheim 5426 (NY, Pérez 2009 as *Plagiochila fallax*); Cobán, 1,350 m, Dec 1906, Türckheim 5424 (NY, Pérez 2009 as *Plagiochila rigidula*); Panzós municipio, Cahabón and/or Senahú, 2012, Pérez & López-Medina, det. M. Pérez (Pérez and López-Medina 2012 as *Plagiochila martiana*). BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 386 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as *Plagiochila dubia* and *Plagiochila martiana*). EL PROGRESO: San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007 as *Plagiochila martiana*). HUEHUETENANGO: S. loc., Pérez 1207 (USCG, Pérez 2009 as *Plagiochila martiana*). QUICHÉ: S. loc., Pérez 2363 (USCG, Pérez 2009).

HONDURAS. ATLÁNTIDA: Tela municipio, Lancetilla Valley, 20–600 m, Standley 54829 (BM, Heinrichs et al. 2002a).

COSTA RICA. S. loc. (Schäfer-Verwimp 2014); S. loc., 5,000–8,000 ft (1,524–2,438 m), Oersted 1169 (S, NY, Hampe 1851b as *Plagiochila fallax*; Müller 1851 as *Plagiochila fallax*; Polakowsky 1879 as *Plagiochila fallax*; Stephani 1905a as *Plagiochila fallax*; Bonner 1962b as *Plagiochila fallax*; Geissler and Bischler 1989 as *Plagiochila fallax*; Gradstein 2015a as *Plagiochila fallax*); Cordillera de Talamanca (Holz 2003 as *Plagiochila* cf. *patula*; Holz and Gradstein 2005b as *Plagiochila* cf. *patula*). CARTAGO: Oreamuno cantón, Río Reventado, N of Cartago, 1,460–1,650 m, Standley 49564 (Herzog 1938 as *Plagiochila dubia*; Morales 1991 as *Plagiochila dubia*; Dauphin 2005). GUANACASTE: La Cruz cantón, Guanacaste National Park, Cerros Santa Elena, 10°53'24"N, 85°50'55"W, Dauphin et al. 3333, 3345, 3352, 3358, 3366, det. Gradstein (CR, GOET, Dauphin 2005; Dauphin and Grayum 2005). PUNTARENAS: S. loc. (Merwin et al. 2001); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a as *Plagiochila martiana*). SAN JOSÉ: Cordillera de Talamanca, Fila Lleskia, 1,160 m, 4 Nov 1984, Gómez-Pignataro et al. 23080 (JE, Holz et al. 2001; Heinrichs et al. 2002a; Dauphin 2005); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a as *Plagiochila* cf. *patula*).

PANAMA. S. loc., 1906, Hélión (PC, Dugas 1928; Stotler et al. 1998). CHIRIQUÍ: Boquete distrito, Dexter's Brook, *Cornman* 3088 (F, Stotler et al. 1998); Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,620 m, Schäfer-Verwimp & Verwimp 34408 (JE, Schäfer-Verwimp 2014); Monnick's, *Cornman* 3057 (F, Stotler et al. 1998). DARIÉN: Cerro

Pirre (Stotler et al. 1998 as *Plagiochila dubia*); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen 1992* as *Plagiochila dubia*); Cerro Pirre, from camping site of Rancho Mojado, 800–1,150 m, *Salazar Allen & Gradstein 19257* (PMA, U, *Stotler et al. 1998* as *Plagiochila dubia*). PANAMA WEST: La Chorrera distrito, Barro Colorado Island, Camino Drayton 18–19, *Salazar Allen & Chung 4635* (PMA, *Stotler et al. 1998* as *Plagiochila dubia*; *Dauphin et al. 2022*).

COCOS I. S. loc. (Fosberg and Klawe 1966 as *Plagiochila martiana*; *Dauphin 1995, 1999* both as *Plagiochila martiana*); S. loc., 1966, *Fosberg & Klawe* (Morales 1991 as *Plagiochila martiana*); Chatham Bay, 28 Jun 1932, *Howell 225 p.p.* (CAS, *Clark 1953a* as *Plagiochila martiana*).

Also reported from North-Central USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Plagiochila paupercula Gottsche, *Mexik. Leverm.*: 22, 1863 (Gottsche 1863). Type: Mexico.

COSTA RICA. HEREDIA: Rancho Flores forest, *Pittier 6076* (G 00112951, *Morales 1991; Stephani 1893c*).

Also reported from Mexico.

Plagiochila pittieri Steph., *Bull. Herb. Boissier*, sér. 2, 2(8): 673 (= *Sp. Hepat. [Stephani]* 2: 210), 1902 (Stephani 1902b). Lectotype (Bonner 1962b: 234) if not holotype: Costa Rica, Montaña de Poás, 2,400 m, 1888, *Pittier s.n.*, ex hb. Beschereille 18 (G-00121457 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=183233&lang=en>).

= *Plagiochila prostrata* Steph., *Bull. Herb. Boissier*, sér. 2, 2(8): 668 (= *Sp. Hepat. [Stephani]* 2: 205), 1902 (Stephani 1902b), syn. fide Söderström and Hagborg (2023b). Lectotype (Bonner 1962b: 239): Costa Rica, Montaña de Poás, 2,400 m, *Pittier s.n.* (G-00121488 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=178993&lang=en>).

COSTA RICA. S. loc., *Pittier* (Geissler and Bischler 1989); Cordillera de Talamanca (Holz and Gradstein 2005b; Holz 2006). ALAJUELA: Poás, 2,400 m, 1888, *Pittier* (G, TYPE, *Stephani 1902b; Bonner 1962b*); Poás, 2,400 m, 1888, *Pittier* (G, TYPE of *Plagiochila prostrata*, *Stephani 1902b* as *Plagiochila prostrata*; *Bonner 1962b* as *Plagiochila prostrata*; *Geissler and Bischler 1989* as *Plagiochila prostrata*). SAN JOSÉ: Dota cantón, San Gerardo, Holz (Holz 2003); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a).

Also reported from Northern South America, Western South America.

Plagiochila platyphylla Herzog, *Hedwigia* 72(1): 223, 1932 (Herzog 1932). Lectotype (Söderström and Hentschel 2023: 21): Costa Rica, Cartago, Turrialba, S slope of V. Turrialba, ~2,000–2,400 m, 22 Feb 1924, *Standley 35100* (JE-04010832 <https://je.jacq.org/JE04010832>, isolectotypes US-00073070 <http://n2t.net/ark:/65665/3cb5211cd-14f7-4582-a39b-bb17aa14d55b>, F-C0000348F <https://collections>

-botany.fieldmuseum.org/catalogue/1767949, PC-0103081 <https://science.mnhn.fr/institution/mnhn/collection/pc/item/pc0103081?lis=Index=5&istCount=32>).

= *Plagiochila platyphylla* Herzog ex Carl, *Ann. Bryol., Suppl.* 2: 74, 1931 (Carl 1931b), nom. inval. (ICN2018 Art. 38.1(a); no description).

COSTA RICA. CARTAGO: Turrialba cantón, Volcán Turrialba, S slope near the Finca, 2,000–2,400 m, 2 Feb 1924, *Standley 35100* (US-00073070, F-0000348C, PC-0103081, TYPE, Carl 1931b; Herzog 1932, 1938; Bonner 1962b; Geissler and Bischler 1989; Morales 1991).

Not found outside Central America.

Plagiochila punctata (Taylor) Taylor, *London J. Bot.* 5: 261, 1846 (Taylor 1846b).

= *Jungermannia punctata* Taylor, *Trans. Bot. Soc. Edinburgh* 1: 179, 1844 (Taylor 1844). Type: Ireland.

= *Plagiochila stolonifera* Lindenb. et Gottsche, *Syn. Hepat.* 5: 655, 1847 (Gottsche et al. 1847), syn. fide Heinrichs et al. (2005b). Type: Mexico.

= *Plagiochila chinantlana* Gottsche, *Mexik. Leverm.*: 12, 1863 (Gottsche 1863), syn. fide Gradstein (2015a). Type: Mexico.

= *Plagiochila choachina* Gottsche, *Ann. Sci. Nat. Bot.*, sér. 5, 1: 95, 1864 (Gottsche 1864), syn. fide Gradstein (2015a). Type: Colombia.

= *Plagiochila patzschkei* Steph., *Biblioth. Bot.* 21(87): 207, 1916 (Stephani 1916b), syn. fide Heinrichs et al. (2005b). Type: Bolivia.

= *Plagiochila choachina* var. *plurispina* Herzog ex Carl, *Ann. Bryol., Suppl.* 2: 82, 1931 (Carl 1931b), nom. inval. (ICN2018 Art. 38.1(a); no description).

= *Plagiochila choachina* var. *plurispina* Herzog, *Rev. Bryol. Lichénol.* 11(1): 15, 1939 (Herzog 1938), syn. fide Morales (1991). Lectotype (Söderström and Hentschel 2023: 16): Costa Rica, Yerba Buena, Prov. Heredia, 2,000 m, on tree, *Standley 49889a* (JE-04010917 <https://je.jacq.org/JE04010917>, synlectotype *Standley 50627*, US-04627074 <http://n2t.net/ark:/65665/33b491946-552f-4f10-9c6a-a178f94d7d06>).

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotope Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as *Plagiochila chinantlana*). EL PROGRESO: San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez 2007* as *Plagiochila chinantlana*). ZACAPA: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez 2007* as *Plagiochila chinantlana*).

COSTA RICA. S. loc. (Fulford et al. 1970 as *Plagiochila chinantlana*; Cole 1982, 1983, both as *Plagiochila chinantlana*; Gradstein 1999a as *Plagiochila stolonifera*; Dauphin 2005 as *Plagiochila stolonifera*; Gradstein and Holz 2005 as *Plagiochila patzschkei* and *Plagiochila stolonifera*; Schuster 2021 as *Plagiochila choachina*); S. loc., *Standley 42346* (Carl 1931b as *Plagiochila choachina* var. *plurispina*); Cordillera de Talamanca (Holz 2003 as *Plagiochila stolonifera*; Holz and Gradstein 2005b as *Plagiochila patzschkei* and *Plagiochila stolonifera*; Holz 2006 as *Plagiochila patzschkei*). ALAJUELA: Alajuela cantón, Fraijanes, 1,500–1,700 m, *Standley 47457* (Carl 1931b as *Plagiochila choachina*; Herzog 1938 as *Plagiochila choachina*; Morales 1991 as

Plagiochila choachina; Dauphin 2005 as *Plagiochila choachina*). CARTAGO: S. loc., 1,500 m, 1900, Wercklé (G [Bryotheca Levier 6275], Heinrichs et al. 2005b). HEREDIA: San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, Standley 50627 (US, Bonner 1962b as *Plagiochila choachina* var. *plurispina*; Kappelle 1996 as *Plagiochila choachina*); San Isidro cantón, Yerba Buena, 2,000 m, Standley 49862 (Carl 1931b as *Plagiochila choachina*; Herzog 1938 as *Plagiochila choachina*; Morales 1991 as *Plagiochila choachina*; Dauphin 2005 as *Plagiochila choachina*); San Isidro cantón, Yerba Buena, 2,000 m, Standley 49889a (Carl 1931b as *Plagiochila choachina* var. *plurispina*; Herzog 1938 as *Plagiochila choachina* var. *plurispina*; Bonner 1962b as *Plagiochila choachina* var. *plurispina*; Geissler and Bischler 1989 as *Plagiochila choachina* var. *plurispina*; Morales 1991 as *Plagiochila choachina*). PUNTARENAS: S. loc. (Merwin et al. 2001 as *Plagiochila stolonifera*); Buenos Aires, Río de Volcán, Pittier 6067 (Stephani 1893c as *Plagiochila chinantlana*; Morales 1991 as *Plagiochila chinantlana*; Monteverde, <1,500 m (Morales 1991 as *Plagiochila chinantlana*; Dauphin 2005 as *Plagiochila stolonifera*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a as *Plagiochila stolonifera*); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, Gradstein et al. (U, Sillett et al. 1995 as *Plagiochila stolonifera*); Monteverde, 10 Jun 1966, James, M. 14 (R, Reed and Robinson 1971 as *Plagiochila chinantlana*). SAN JOSÉ: Dota cantón, Laguna de La Chonta, NE of Sta María de Dota, 1,500–2,000 m, Standley 50627 (US, Herzog 1938 as *Plagiochila choachina* var. *plurispina*; Geissler and Bischler 1989 as *Plagiochila choachina* var. *plurispina*; Morales 1991 as *Plagiochila choachina*; Dauphin 2005 as *Plagiochila choachina*); Dota cantón, San Gerardo, Holz (Holz 2003 as *Plagiochila patzschkei*); entre le Général et Buenos-Aires (Tonduz 1896 as *Plagiochila chinantlana*); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a as *Plagiochila patzschkei*); Pérez Zeledón cantón, Cordillera de Talamanca, Cerro de la Muerte, Páramo Buena Vista, 3,300 m, Heinrichs et al. 4174 (Heinrichs et al. 2000b as *Plagiochila patzschkei*; Holz et al. 2001 as *Plagiochila patzschkei*; Dauphin 2005 as *Plagiochila patzschkei*).

PANAMA. CHIRIQUÍ: Tierras Altas distrito, Volcán, road to Río Sereno, 8°49.5'N, 82°41.5'W, 1,580 m, 2 Apr 2009, Schäfer-Verwimp & Verwimp 34675 (JE, Schäfer-Verwimp 2014); Barú Volcano National Park (Rodríguez-Quiel et al. 2022).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Macaronesia, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa(?), Southern Africa(?), Western Indian Ocean, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Plagiochila raddiana Lindenb., *Sp. Hepat. (Lindenberg)* 1: 9, 1839 (Lindenberg 1839). Type: Brazil.

=*Plagiochila guilleminiana* Mont. ex Lindenb., *Sp. Hepat. (Lindenberg)* 5: 152, 1843 (Lindenberg 1843), syn. in Heinrichs and Gradstein (2000). Type: Brazil.

=*Plagiochila ludoviciana* Sull., *Amer. J. Sci. Arts*, ser. 2, 1(1): 73, 1846 (Gray 1846), syn. fide Heinrichs and Gradstein (2000). Type: USA.

=*Plagiochila speciosa* Lindenb. et Gottsche, *Syn. Hepat. (Lindenberg)* 5: 643, 1847 (Gottsche et al. 1847), syn. fide Heinrichs and Gradstein (2000). Lectotype: Mexico.

=*Plagiochila schlimiana* Gottsche, *Ann. Sci. Nat. Bot.*, sér. 4, 8: 330, 1857 (Gottsche 1857), syn. fide Heinrichs and Gradstein (2000). Type: Colombia.

=*Plagiochila aliena* Gottsche, *Mexik. Leverm.*: 22, 1863 (Gottsche 1863), syn. fide Gradstein (2015a). Type: Mexico.

=*Plagiochila subcristata* Gottsche, *Mexik. Leverm.*: 54, 1863 (Gottsche 1863), syn. fide Gradstein (2015a). Type: Mexico.

=*Plagiochila silvatica* Gottsche, *Ann. Sci. Nat. Bot.*, sér. 5, 1: 108, 1864 (Gottsche 1864), syn. fide Gradstein (2015a). Lectotype: Colombia.

=*Plagiochila anderssonii* Ångstr., *Öfvers. Kongl. Vetensk.-Akad. Förh.* 30(5): 114, 1873 (Ångström 1873), syn. fide León-Yáñez et al. (2006). Type: Ecuador.

=*Plagiochila funkiana* Steph., *Bull. Herb. Boissier*, sér. 2, 5(4): 354 (=Sp. *Hepat. [Stephani]* 2: 522), 1905 (Stephani 1905e), syn. fide Heinrichs and Renker (2001). Type: Venezuela.

=*Plagiochila confusa* Steph., *Sp. Hepat. (Stephani)* 6: 140, 1918 (Stephani 1918), syn. fide Heinrichs and Gradstein (2000). Lectotype (Heinrichs and Gradstein 2000: 175 as “holotype”) if not holotype: Guatemala, Alta Verapaz, Cobán, 1,350 m, *Türkheim s.n.*, Bryotheca Levier 5422 (G-00061623 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=131351&lang=en>).

=*Plagiochila subatra* Steph., *Sp. Hepat. (Stephani)* 6: 213, 1921 (Stephani 1921), syn. fide Heinrichs and Gradstein (2000). Type: Mexico.

=*Plagiochila aliena* f. *rupicola* Herzog ex Standl., *Field Mus. Nat. Hist., Bot. Ser.* 10: 62, 1931 (Standley 1931), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Honduras: Atlántida, Lancetilla Valley, Standley s.n.

=*Plagiochila caudatodecurrens* Herzog ex Carl, *Ann. Bryol., Suppl.* 2: 50, 1931 (Carl 1931b), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Morales (1991). Original material: Costa Rica, vicinity of Santa María de Dota, Provincia de San José, altitude 1,500–1,800 m, on tree, 26 Dec 1925, Standley & Valerio 43324 (JE-04008791 <https://je.jacq.org/JE04008791>). Note: This is a syntype of *Plagiochila subatra* var. *longidecurrens* and cited under both *Plagiochila subatra* and *Plagiochila caudatodecurrens* by Morales (1991).

=*Plagiochila crispatodecurrens* Herzog, *Hedwigia* 72(6): 214, 1932 (Herzog 1932), syn. fide Heinrichs and Gradstein (2000). Lectotype (Heinrichs and Gradstein 2000: 176 as “holotype”): Costa Rica, Cartago, Vicinity of Pejivalle, ~900 m, Standley & Valerio 46747 (JE-04010924 <https://je.jacq.org/JE04010924>, isoelectotypes US-00073027 <http://n2t.net/ark:/65665/3430205ff-0856-4560-b13c-f2297f8062e6>, F-C0000335F <https://collections-botany.fieldmuseum.org/catalogue/1767912>).

=*Plagiochila subatra* var. *longidecurrens* Herzog, *Rev. Bryol. Lichénol.* 11(1): 12, 1939 (Herzog 1938), syn. fide Morales (1991). Lectotype (Söderström and Hentschel 2023: 21): Costa Rica, vicinity of Santa María de Dota, Provincia de San José, altitude 1,500–1,800 m, on tree, Standley

♂ *Valerio* 43166 (JE-04008792 <https://je.jacq.org/JE04008792>, isolecotype US-00072811 <http://n2t.net/ark:/65665/332ade018-155b-4648-b644-ac04b1c6dcef>, synlectotypes *Standley* & *Valerio* 43324 JE-04008791 <https://je.jacq.org/JE04008791>, US-04627261 <http://n2t.net/ark:/65665/3af238638-9ce3-42ca-a64b-ddaf4f912711>).

=*Plagiochila aliena* f. *brevifolia* Herzog, *Rev. Bryol. Lichénol.* 11(1): 13, 1939 (Herzog 1938), nom. inval. (ICN2018 Art. 38.1(a), no description), syn. fide Morales (1991). Original material: Costa Rica, Yerba Buena, north-east of San Isidro, Provincia de Heredia, altitude about 2,000 m, 22–28 Febr. 1926, *Standley* & *Valerio* 49742 (US-04627019 <http://n2t.net/ark:/65665/3881cf4a9-4701-4566-8688-1146967a18ce>).

=*Plagiochila insularis* Steph., in Bartram and Arnell *Bryologist* 64(2/3): 249, 1961 (Bartram and Arnell 1961), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Leon-Yáñez et al. (2006). Original material: Galapagos. Note: The specimen from Guatemala is marked as sp. nov. in NY, and the material from Galapagos was not found by Gradstein (2021), who stated that the Guatemalan material is *Plagiochila raddiana*.

=*Frullania raddiana* Lindenb. ex G. Dauphin, *Trop. Bryol.* 26: 162, 2005 (Dauphin 2005), nom. inval. (ICN2018 Art. 38.1(c); no description, error for *Plagiochila raddiana*). Original material: Costa Rica, Puntarenas, Isla de Cocos, G. Dauphin 951 (USJ).

GUATEMALA. S. loc. (Herrera 1921, 1926, 1941, all as *Plagiochila guilleminiana*; Fulford and Sharp 1990 as *Plagiochila aliena* and *Plagiochila speciosa*); S. loc., *Lehmann* (G, Dugas 1928 as *Plagiochila interjecta*); S. loc., *Türkheim*, hb. Levier 5823 (G, NY, Stephani 1918 as *Plagiochila confusa*; Bonner 1962b as *Plagiochila confusa*; Geissler and Bischler 1989 as *Plagiochila confusa*; Gradstein 2021 as *Plagiochila insularis*); S. loc., Wurr (Stephani 1905c as *Plagiochila speciosa*, 1905d as *Plagiochila aliena*, 1905e as *Plagiochila guilleminiana*; Evans 1914b as *Plagiochila guilleminiana*). **ALTA VERAPAZ:** S. loc., *Türkheim* 5505 (NY, Pérez 2009 as *Plagiochila insularis*); Cobán, 1,350 m, 1907, *Türkheim*, hb. Levier 5826 (G, FI, Heinrichs and Gradstein 2000); Cobán, Las Victorias National Park, 2002 (Andersohn 2004); Panzós municipio, 6 km NE Panzós, Croat 41613b p.p. (U, Heinrichs and Gradstein 2000). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 380 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 also as *Plagiochila ludoviciana*). **IZABAL:** El Junquillo, 259 m, 1 Jun 1893, Wurr (HBG, JE, Heinrichs and Gradstein 2000). **SACATEPÉQUEZ:** An den oberen Nordwestgehängen des Vulkans de Agua, 2,500 m, 31 May 1882, *Lehmann* 1498 (G-00128942, Stephani 1894a as *Plagiochila interjecta*). **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007 as *Plagiochila ludoviciana* and *Plagiochila* aff. *ludoviciana*).

HONDURAS. **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, *Standley* (Standley 1931 as *Plagiochila aliena* f. *rupicola*). **CORTÉS:** San Francisco de Yojoa municipio, Pena Blanca, 19 Feb 1983, Tag 1983-2 (MO!, this publication as *Plagiochila ludoviciana*).

***EL SALVADOR.** ***SANTA ANA:** Metapán municipio, Calle Los Planes, 12 Nov 2014, *Búcaro* H323 p.p., det. Dauphin (MHES!, this publication).

NICARAGUA. **CHONTALES:** Villa Sandino municipio, 4.5 km S Highway 7 from ~3.6 km E La Gateada, 200 m, *Stevens* 2860e (U, Heinrichs and Gradstein 2000). **JINOTEGA:** Laguna Miraflores, 1,250–1,300 m, *Heinrich* & *Stevens* 285 (U, Heinrichs and Gradstein 2000).

COSTA RICA. S. loc. (Fulford and Sharp 1990 as *Plagiochila schlimiana*); S. loc., Breuer (Stephani 1904 as *Plagiochila schlimiana*); Cordillera de Talamanca (Holz 2003 also as *Plagiochila funkiana*; Holz and Gradstein 2005b); Cordillera de Talamanca, Van Durné 119 (AMD, Kappelle 1996 as *Plagiochila guilleminiana*). **ALAJUELA:** Poás Volcano, Aug 1977, Griffin et al. 90 (FLAS-020506, Morales 1991 as *Plagiochila schlimiana*; Dauphin 2005); San Ramón cantón, Nectandra Cloud Forest Reserve, Quebrada Verde, Norris 17138, 110191 (UC, Norris et al. 2017). **CARTAGO:** Jiménez cantón, Pejibaye, 900 m, 7–8 Feb 1926, *Standley* 46747 (JE, US, F, TYPE of *Plagiochila crispatodecurrens*, Herzog 1932, 1938, both as *Plagiochila crispatodecurrens*; Bonner 1962b as *Plagiochila crispatodecurrens*; Geissler and Bischler 1989 as *Plagiochila crispatodecurrens*; Morales 1991 as *Plagiochila crispatodecurrens*; Heinrichs and Gradstein 2000; Dauphin 2005); Jimenez cantón, Pejibaye, 500 m, 9 Sep 1999, *Heinrichs et al.* 4311 (GOET, Holz et al. 2001; Dauphin 2005); Paraíso cantón, Tapanti National Park, Griffin et al. 212, det. H. Inoue (FLAS, Morales 1991 as *Plagiochila schlimiana*). **GUANACASTE:** Tilarán cantón, El Arenal, 485–600 m, *Standley* 45302 (Carl 1931b as *Plagiochila subatra*; Herzog 1938 as *Plagiochila subatra*; Morales 1991 as *Plagiochila subatra*; Dauphin 2005); Tilarán, 500–650 m, *Standley* 46665 (Herzog 1938 as *Plagiochila aliena*; Morales 1991 as *Plagiochila aliena*). **HEREDIA:** Barva cantón, San José de la Montaña, Morales 258, det. Griffin (FLAS, USJ, Morales 1991 as *Plagiochila ludoviciana*; Dauphin 2005); San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, *Standley* 52017 (Herzog 1938 as *Plagiochila aliena*; Morales 1991 as *Plagiochila aliena*); San Isidro cantón, Cerro Zurquí (Dauphin 2005); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley* 50514 (Carl 1931b as *Plagiochila funkiana*; Herzog 1938 as *Plagiochila funkiana*; Morales 1991 as *Plagiochila funkiana*); San Isidro cantón, Cerro Zurquí, 2,400 m, 1924, *Standley* 50664 (JE, Carl 1931b as *Plagiochila funkiana* 'funkiana'); San Isidro cantón, Yerba Buena, 2,000 m, *Standley* 49742 (Herzog 1938 as *Plagiochila aliena* f. *brevifolia*; Geissler and Bischler 1989 as *Plagiochila aliena* f. *brevifolia*; Morales 1991 as *Plagiochila aliena*); San Isidro cantón, Yerba Buena, 2,000 m, *Standley* 49744, 49782 (Herzog 1938 as *Plagiochila aliena*; Morales 1991 as *Plagiochila aliena*). **PUNTARENAS:** S. loc. (Merwin et al. 2001); Coto Brus cantón, Fila Pittier, 1,770–2,040 m, 2 Feb 1995, *Dauphin* 1380 (GOET, Heinrichs and Gradstein 2000; Holz et al. 2001; Dauphin 2005); Coto Brus cantón, San Vito, Cerro Paraguas, 1,410–1,520 m, *Dauphin* 1808 (GOET, Holz et al. 2001; Dauphin 2005); Monteverde, <1,500 m (Morales 1991 as *Plagiochila ludoviciana*; Dauphin

2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, *Gradstein et al.* (U, *Sillett et al.* 1995 as *Plagiochila guilleminiana*); Monteverde, 10–17 Mar 1965, *James, W. & James, M.* 38, 40b, 89 (R, *Reed and Robinson* 1971 as *Plagiochila ludoviciana*); Osa cantón, Rincón, Boscosa trail to Cerro Chocuaco, Nov 1993, *Gradstein & Dauphin* 9307 (GOET, *Heinrichs and Gradstein* 2000; *Holz et al.* 2001; *Dauphin* 2005). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, *Holz et al.* 2002); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, “Los Robles,” 2,300 m, 28 Sep 1999, *Heinrichs et al.* 4147 (CR, GOET, *Holz et al.* 2001; *Dauphin* 2005); Dota cantón, San Gerardo, 9°35'40"N, 83°44'30"W, 3,000 m, Aug 1992, *Van Dunné* (*Van Dunné and Kappelle* 1998 as *Plagiochila guilleminiana*); Dota cantón, Santa María, 1,500–1,800 m, *Standley* 43166 (US, *Herzog* 1938 as *Plagiochila subatra* var. *longidecurrens*; *Bonner* 1962b as *Plagiochila subatra* var. *'longidecussens'*; *Geissler and Bischler* 1989 as *Plagiochila subatra* var. *longidecurrens*; *Morales* 1991 as *Plagiochila subatra*; *Kappelle* 1996 as *Plagiochila subatra*; *Dauphin* 2005); Dota cantón, Santa María, 1,500–1,800 m, *Standley* 43235a (US, *Herzog* 1938 as *Plagiochila aliena*; *Morales* 1991 as *Plagiochila aliena*; *Kappelle* 1996 as *Plagiochila aliena*); Dota cantón, Santa María, 1,500–1,800 m, *Standley* 43324 (US, *Herzog* 1938 as *Plagiochila subatra* var. *longidecurrens*; *Bonner* 1962b as *Plagiochila subatra* var. *'longidecussens'*; *Geissler and Bischler* 1989 as *Plagiochila subatra* var. *longidecurrens*; *Morales* 1991 as *Plagiochila subatra*; *Dauphin* 2005); La Cuesta de Bajo Tarrazu, 1,600 m, *Kappelle & Gutiérrez* MK 1832 (U, *Heinrichs and Gradstein* 2000); Pérez Zeledón cantón, San Gerardo de Rivas, path to Parque Nacional Chirripó, 1,550 m, 13 Feb 1998, *Arts* CR 4/43, CR 4/101, CR 4/102, CR 6/84 (GOET, *Holz et al.* 2001; *Dauphin* 2005); Pérez Zeledón cantón, Talari Lodge between San Isidro de El General and Rivas, 700–800 m, 12 Feb 1998, *Arts* CR 4/86 (GOET, *Holz et al.* 2001; *Dauphin* 2005); Vásquez de Coronado cantón, Las Nubes (Dauphin 2005); Vásquez de Coronado cantón, Las Nubes, 1,500–1,900 m, 1924, *Standley* 38470 (JE, *Morales* 1991 as *Plagiochila funkiana*).

PANAMA. S. loc. (*Schuster* 1980d as *Plagiochila ludoviciana*; *Stotler et al.* 1998 as *Plagiochila ludoviciana*); S. loc., 1906, *Hélion* (PC, *Stotler et al.* 1998 as *Plagiochila ludoviciana*); S. loc., 1907, *Hélion* (NY, *Dugas* 1928 as *Plagiochila subcrisitata*); Canal Zone (*Schäfer-Verwimp* 2014). **CHIRIQUÍ:** Boquete distrito, plateau above Boquete, Holcomb Trail, *Cornman* 3189 (F, *Stotler et al.* 1998 as *Plagiochila ludoviciana*); Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (*Salazar Allen et al.* 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,350 m, *Schäfer-Verwimp & Verwimp* 34345 (JE, *Schäfer-Verwimp* 2014); Gualaca distrito, Reserva Forestal

Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,600 m, *Schäfer-Verwimp & Verwimp* 34450 (JE, *Schäfer-Verwimp* 2014); Tierras Altas distrito, 2 mi (3.2 km) N of El Hato de Volcán, *Croat* 10647 (MO, *Stotler et al.* 1998); Tierras Altas distrito, 4 km from Cerro Punta, behind Florida State Camp, *Correa* 1270 (MO, *Stotler et al.* 1998); Tierras Altas distrito, Laguna de El Volcán, 8°46.1'N, 82°40.4'W, 1,370 m, 1 Apr 2009, *Schäfer-Verwimp & Verwimp* 34639 (JE, *Schäfer-Verwimp* 2014); Parque Nacional Volcán Barú, Paso Ancho, 8°48'55.13"N, 82°34'33.50"W, 2,047 m, *Guerra Batista et al.* (UCH, *Guerra et al.* 2020); Barú Volcano National Park (*Rodríguez-Quiel et al.* 2022). **COCLÉ:** Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, *Schäfer-Verwimp & Verwimp* 34151, det. A. Schäfer-Verwimp (JE, *Schäfer-Verwimp* 2014). **DARIÉN:** Pinogana distrito, ~20 km SSW of Boca de Cupé, ~200 m, *Allen* 8639 (MO, *Stotler et al.* 1998 as *Plagiochila ludoviciana*). **PANAMA WEST:** Capira distrito, Campana National Park, *Salazar Allen et al.* 6429 (PMA, *Stotler et al.* 1998 as *Plagiochila silvatica*); Capira distrito, Cerro Campana, *Porter et al.* 4173A (MO, *Stotler et al.* 1998); La Chorrera distrito, Barro Colorado Island, Drayton, *Salazar Allen & Chung* 6047 (*Dauphin et al.* 2022); La Chorrera distrito, Barro Colorado Island, Fairchild 12–13, *Salazar Allen & Chung* 4629, 4635, 6047 (PMA, *Stotler et al.* 1998). **PANAMA:** S. loc. (*Schäfer-Verwimp* 2014); Panamá distrito, Lago Alajuela, *Cornman* 3002 (F, *Stotler et al.* 1998 as *Plagiochila ludoviciana*); Panamá distrito, Pedro Miguel, *Cornman* 3040 (F, *Stotler et al.* 1998 as *Plagiochila ludoviciana*); Panamá distrito, Taboga, *Seemann* (NY, *Schuster* 1960 as *Plagiochila ludoviciana*). **VERAGUAS:** Santa Fe distrito, base of Cerro Tute, 8°30'N, 81°06'W, 710–890 m, 26 Mar 2009, *Schäfer-Verwimp & Verwimp* 34273 (JE, *Schäfer-Verwimp* 2014).

COCOS I. S. loc. (*Evans* 1902a as *Plagiochila anderssonii*; *Clark* 1953a as *Plagiochila anderssonii*; *Fosberg and Klawe* 1966 as *Plagiochila anderssonii* and *Plagiochila guilleminiana*; *Dauphin* 1995, 1999, both as *Plagiochila guilleminiana*, 2005); S. loc. (*Robinson* 1902 as *Plagiochila anderssonii*; *Fosberg and Klawe* 1966 as *Plagiochila anderssonii*); S. loc., 1966, *Fosberg & Klawe* (*Morales* 1991 as *Plagiochila anderssonii* and *Plagiochila guilleminiana*); Boca Río Genio, 5°32'57"N, 87°03'56"W, 0–5 m, 20 Feb 1994, *Dauphin* 951 (USJ-47250!, CR!, W!, this publication, *Dauphin* 1995 as *Frullania* cf. *raddiana* [error for *Plagiochila raddiana*], 2005 as *Frullania* cf. *raddiana* [error for *Plagiochila raddiana*]); Wafer Bay, 28 Jun 1932, *Howell* 232, 241 p.p. (CAS, *Clark* 1953a as *Plagiochila anderssonii*).

Also reported from North-Central USA, South-Central USA(?), Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Plagiochila retrorsa Gottsche, *Mexik. Leverm.*: 67, 1863 (Gottsche 1863). Lectotype: Mexico.

=*Plagiochila tricarinata* Carl, *Ann. Bryol., Suppl.* 2: 74, 1931 (Carl 1931b), syn. fide Rycroft et al. (2001). Lectotype (*Söderström and Hentschel*

2023: 22): Costa Rica, San José: Cerro de las Vueltas, 2,700–3,000 m, *Standley & Valerio* 43582 (JE-04008795 <https://je.jacq.org/JE04008795>, US-00072818 <http://n2t.net/ark:/65665/3bf25a3c9-e68b-4e6c-b864-42b1da78c1cf>, NY-1020838 <http://sweetgum.nybg.org/science/vh/specimen-details/?irn=1115877>).

=*Plagiochila permista* Spruce var. *subintegerrima* Herzog, *Rev. Bryol. Lichénol.* 11(1): 12, 1939 (Herzog 1938), syn. fide Rycroft et al. (2001). Lectotype (Söderström and Hentschel 2023: 20): Costa Rica, San José: Cerro de las Vueltas, 2,700–3,000 m, *Standley & Valerio* 43582 (JE-04009219 <https://je.jacq.org/JE04009219>, isolectotypes US-00072818 <http://n2t.net/ark:/65665/3bf25a3c9-e68b-4e6c-b864-42b1da78c1cf>, NY-1020838 <http://sweetgum.nybg.org/science/vh/specimen-details/?irn=1115877>).

COSTA RICA. S. loc. (Cole 1983 as *Plagiochila tricarinata*; Sim-Sim et al. 2004; Gradstein and Holz 2005); Cordillera de Talamanca (Holz et al. 2001; Holz and Gradstein 2005b; Holz 2006). **CARTAGO:** Behind hotel Georgina, 2,950 m, *Gradstein & Mues* 9717 (SAAR, Rycroft et al. 2001); Cerro de La Muerte, 2,600 m, *Gradstein & Mues* 9703 (SAAR, Rycroft et al. 2001); La Georgina, carretera Interamericana Sur, km 78 (Dauphin 2005); Pan-American Highway (km 78) between Cartago and Cerro de la Muerte, 2,900 m, *Heinrichs et al.* 4152 (GOET, CR, Rycroft et al. 2001); Pan-American Highway 1 km W of Hotel Georgina and 3 km W of villa Mills, 3,100 m, *Nee & Mori* 3532 (MO-2140379, Rycroft et al. 2001); Turrialba cantón, Chirripó National Park, Cerros Cuerec, 3,200 m, *Davidse* 24827, 24834 (GOET, U, Rycroft et al. 2001). ***PUNTARENAS:** Coto Brus cantón, Cerro Echandi, 3,200 m, Aug 1983, *Gómez-Pignataro et al.* 21805, det. J. Heinrichs (GOET [https://gwdu64.gwdg.de/pls/herbar/moos\\$moos.QueryViewByKey?P_ID=2371&Z_CHK=5326](https://gwdu64.gwdg.de/pls/herbar/moos$moos.QueryViewByKey?P_ID=2371&Z_CHK=5326), this publication). **SAN JOSÉ:** Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, *Standley & Valerio* 43536 (JE, Rycroft et al. 2001; Dauphin 2005); Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, *Standley* 43536 (JE-04009219, US-00073068, **TYPE** of *Plagiochila permista* var. *subintegerrima*, Herzog 1938 as *Plagiochila permista* var. ‘*subintergerima*’; Bonner 1962b as *Plagiochila permista* var. *subintegerrima*; Geissler and Bischler 1989 as *Plagiochila permista* var. *subintegerrima*); Dota cantón, Cerro de Las Vueltas, ~500 m E of Sitios Garrafa, *Kappelle* 2200 (GOET, U, Rycroft et al. 2001); Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, 29 Dec 1925–1 Jan 1926, *Standley & Valerio* 43582 (US, Brinker 1948a as *Plagiochila tricarinata*; Geissler and Bischler 1989 as *Plagiochila tricarinata*; Morales 1991 as *Plagiochila tricarinata*; Kappelle 1996 as *Plagiochila tricarinata*; Rycroft et al. 2001; Dauphin 2005); Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, 29 Dec 1925–1 Jan 1926, *Standley* 43582 (JE, NY-1020838, US-0007818, **TYPE** of *Plagiochila tricarinata*, Carl 1931b as *Plagiochila tricarinata*; Herzog 1932, 1938, both as *Plagiochila tricarinata*; Bonner 1962b as *Plagiochila tricarinata*); Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, Providencia de Dota, 2,880 m, *Kappelle & Gutiérrez* 1844 (GOET, U, Rycroft et al. 2001); Dota cantón, Rio Savegre valley, Jaboncillo, *Heinrichs et al.* 4146 (GOET, Rycroft et al. 2001); Dota cantón, road between

San Gerardo and Cerro de la Muerte, 2,900–2,920 m, *Heinrichs et al.* 4154 (GOET, CR, Rycroft et al. 2001, 2004; Groth et al. 2002; Heinrichs 2002; Groth et al. 2003, 2004a, 2004b; Heinrichs et al. 2003a, 2004a, 2004c, 2004d, 2005a, 2005b, 2006a, 2006b; Lindner et al. 2004; Dauphin 2005; Davison et al. 2006; Patzak et al. 2016; Renner et al. 2017a, 2017b); Dota cantón, San Gerardo, road between San Gerardo and Pan-American Highway, 2,900–2,920 m, *Heinrichs et al.* 1675, 4153 (GOET, U, Rycroft et al. 2001); Dota cantón, San Gerardo, *Holz* (Holz 2003); Dota cantón, Valle Río Savegre (Dauphin 2005); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a); Pérez Zeledón cantón, Cerro de La Muerte, Páramo Buena Vista at km 85 of Pan-American Highway, 3,100 m, *Heinrichs et al.* 4150, 4151 (G, GOET, CR, JE, Heinrichs et al. 2000b; Rycroft et al. 2001; Heinrichs 2002); Pérez Zeledón cantón, Chirripó National Park, Cerros Cuerec (Dauphin 2005).

PANAMA. S. loc., *Allen* 9175 (MO, Renner et al. 2017b).

Also reported from Southwestern Europe(?), Macaronesia, Eastern Asia, Indian Subcontinent, North-Central USA, North-eastern USA, Southeastern USA, Mexico.

Plagiochila rudischusteri H. Rob., *Beih. Nova Hedwigia* 90: 199, 1988 (Robinson 1988): Type: Venezuela.

COSTA RICA. S. loc. (Schäfer-Verwimp 2014; Gradstein 2021; Schuster 2021). **ALAJUELA:** San Ramón cantón, Nectandra Cloud Forest Reserve, Quebrada Verde, *Norris* 110197a, 110836, 110942, 111040e (UC, Norris et al. 2017). **CARTAGO:** Paraíso cantón, Orosi, Tapantí National Park, Sendero Arboles Caídos, 1,300 m, 9 Oct 1999, *Heinrichs et al.* 4272 (GOET, Holz et al. 2001; Heinrichs 2002; Dauphin 2005). **PUNTARENAS:** Monteverde cantón, forest road “El Camino,” 1,500 m, 28 Sep 1998, *Arts* CR 24/03 (GOET Holz et al. 2001; Heinrichs 2002; Dauphin 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde, 1,550 m, *Gradstein & Solano* 9581 (U, USJ, Gradstein et al. 1994; Dauphin 2005).

PANAMA. S. loc. (Gradstein 2021; Schuster 2021). **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, Quebrada Alemán, 1,200–1,400 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quijada del Diablo, 1,200–1,600 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°41.4'N, 82°13.7'W, 1,280 m, 30 Mar 2009, *Schäfer-Verwimp & Verwimp* 34480 (JE, Schäfer-Verwimp 2014). **COCLÉ:** Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 700–1,000 m, 31 Mar 2006, *Schäfer-Verwimp & Verwimp* 30790, det. A. Schäfer-Verwimp (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, Alto de La Mesa, 8°38.3'N, 82°07.6'W, 850–870 m, 3 Apr 2009, *Schäfer-Verwimp & Verwimp* 34742 (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8'N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34207, 34248, 34263/D (JE,

Schäfer-Verwimp 2014). **DARIÉN**: S. loc. (Schäfer-Verwimp 2014); Cerro Pirre (Stotler et al. 1998); Cerro Pirre, 1,200–1,300 m, *Salazar Allen & Gradstein 9290 p.p.* (PMA, U, Stotler et al. 1998); Cerro Pirre, 1,200–1,300 m, 1991, *Salazar Allen & Gradstein 9290, 9291 p.p.* (PMA, U, Stotler et al. 1998; Heinrichs 2002); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992). **PANAMA**: S. loc. (Schäfer-Verwimp 2014); Panamá distrito, Cerro Jefe, *Spörle 5200* (PMA, Spörle 1990); Panamá distrito, Cerro Jefe, 1,000 m, 1974, *Nee & Mori 14209* (U, Heinrichs 2002); Panamá distrito, Cerro Jefe, 1991, *Salazar Allen & Gradstein 9383* (U, Heinrichs 2002; Heinrichs et al. 2000b); Panamá distrito, Cerro Jefe, forest behind INTEL tower toward north, 900–1,000 m, *Salazar Allen & Chung 5200* (PMA, Stotler et al. 1998).

Also reported from Northern South America, Western South America.

Plagiochila rufoviridis Spruce, *Mem. Torrey Bot. Club* 1(3): 136, 1890 (Spruce 1890). Type: Bolivia.

COSTA RICA. **SAN JOSÉ**: Dota cantón, Santa María, 1,500–1,800 m, *Standley 41809* (US, Herzog 1938; Morales 1991; Kappelle 1996; Dauphin 2005).

Also reported from Western South America.

Plagiochila rutilans var. *moritziana* (Lindenb. et Gottsche) Heinrichs, *Bryologist* 105(2): 197, 2002 (Heinrichs et al. 2002b). = *Plagiochila moritziana* Lindenb. et Gottsche, *Linnaea* 20: 323, 1847 (Hampe 1847). Lectotype: Venezuela.

PANAMA. S. loc. (Salazar Allen et al. 2017 as *Plagiochila moritziana*); Central Panama (Spörle et al. 1989 as *Plagiochila moritziana*; Stotler et al. 1998 as *Plagiochila moritziana*). **CHIRIQUÍ**: Gualaca distrito, Fortuna Forest Reserve, Quebrada Arena, 920–1,100 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quijada del Diablo, 1,200–1,600 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna, Quebrada Arena, 1,100 m, *Spörle & Aranda 1.27* (PMA, Stotler et al. 1998 as *Plagiochila moritziana*). **PANAMA WEST**: Capira distrito, Cerro Campana (Stotler et al. 1998 as *Plagiochila moritziana*); Capira distrito, Cerro Campana, *Spörle 2.1* (PMA, Spörle 1990 as *Plagiochila moritziana*; Stotler et al. 1998 as *Plagiochila moritziana*).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Plagiochila rutilans Lindenb., *Sp. Hepat. (Lindenberg)* 2–4: 47, 1840 (Lindenberg 1840) var. *rutilans*. Type: Brazil.

= *Plagiochila cobana* Steph., *Sp. Hepat. (Stephani)* 6:138, 1918 (Stephani 1918), syn. fide Gradstein and Perez (2021). Type: Ecuador.

= *Plagiochila divaricata* Lindenb., *Sp. Hepat. (Lindenberg)* 5: 147, 1843 (Lindenberg 1843), syn. fide Gradstein (2015a). Type: St. Vincent.

= *Plagiochila distinctifolia* f. *linearifolia* Herzog, *Rev. Bryol. Lichénol.* 11(1): 15, 1939 (Herzog 1938), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Heinrichs et al. (2001c). Original material (cf. Heinrichs

et al. 2001c: 352): Costa Rica, Heredia, Cerro de Las Lajas N of San Isidro, 2,000–2,400 m, 7 Mar 1926, *Standley & Valerio 51512* (JE, US-04627125 <http://n2t.net/ark:/65665/3de3ecff1-4a20-4e8c-be69-4ef28172c70c>).

GUATEMALA. S. loc. (Heinrichs et al. 2001c; Pérez 2009).

ALTA VERAPAZ: S. loc., Pérez 206 (USCG, Pérez 2009); S. loc., *Türckheim 5506* (NY, Pérez 2009 as *Plagiochila cobana*); Cobán, Pérez 206 (USCG, Pérez 2006); Cobán, *Türckheim 13* (JE, Heinrichs et al. 2001c). **BAJA VERAPAZ**: Purhulhá municipio, Biotope Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 also as *Plagiochila divaricata*). **HUEHUETENANGO**: S. loc., Pérez 1401 (USCG, Pérez 2009). **ZACAPA**: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007 as *Plagiochila divaricata*).

COSTA RICA. S. loc. (Pagán 1939a; Arnell 1956b; Fulford 1987; Fulford and Sharp 1990; Fulford et al. 1970; Dauphin 2005); S. loc., *Tonduz* (Stephani 1902a); Cordillera de Talamanca, *Kappelle 1849* (CR, Kappelle 1996). **ALAJUELA**: Poás National Park, 10°12'N, 84°14'W, Aug 1973, *Griffin et al.* (Griffin et al. 1974); Poás Volcano, Aug 1977, *Griffin et al.* 90 (FLAS-020506, Morales and Griffin 1983; Dauphin 2005); San Ramón cantón, Nectandra Cloud Forest Reserve, Quebrada Verde, 2010, *Risk 17129* (UC, Norris et al. 2017). **CARTAGO**: Alto de La Estrella, *Standley 39118* (Dauphin 2005); Paraíso cantón, Orosi, Tapantí National Park, Sendero Arboles Caídos, 1,300 m, 9 Oct 1999, *Heinrichs et al.* 4195 (CR, GOET, Heinrichs et al. 2001c; Holz et al. 2001; Dauphin 2005). **GUANACASTE**: Tilarán cantón, Los Ayotes, 600–700 m, *Standley 45358* (Herzog 1938; Morales 1991; Dauphin 2005). **HEREDIA**: San Isidro cantón, Cerro Caricias, *Standley & Valerio 51512* (Dauphin 2005); San Isidro cantón, Cerro Caricias, 2,000–2,400 m, 11 Mar 1926, *Standley & Valerio 52164 p.p.* (FH, JE, US, Holz et al. 2001; Dauphin 2005); San Isidro cantón, Cerro de Las Lajas, 2,000–2,400 m, 7 Mar 1926, *Standley 51512* (JE, TYPE of *Plagiochila distinctifolia* f. *linearifolia*, Herzog 1938 as *Plagiochila distinctifolia* f. *linearifolia*; Geissler and Bischler 1989 as *Plagiochila distinctifolia* f. *linearifolia*; Holz et al. 2001); San Isidro cantón, Cerro de Las Lajas, N of San Isidro, 2,000–2,400 m, 7 Mar 1926, *Standley & Valerio 51619* (JE, Heinrichs et al. 2001c; Holz et al. 2001; Dauphin 2005); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley 50374, 50509* (Herzog 1938; Morales 1991; Dauphin 2005); San Isidro cantón, Yerba Buena, 2,000 m, *Standley 49700* (Herzog 1938; Morales 1991; Dauphin 2005). **PUNTARENAS**: Monteverde (Morales 1991); Monteverde, *James, W. 23832* (Dauphin 2005); Monteverde, 10 Mar 1965, *James, W. & James, M. 80* (R, Reed and Robinson 1971; Dauphin 2005); Monteverde, 4,300 ft (1,310 m), Feb 1969, *James, W. 1969-04* (R, Reed and Robinson 1971). **SAN JOSÉ**: Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, San Gerardo, 2,900 m, 14 Mar 2000, *Holz CR 00-654* (GOET, CR, Heinrichs et al. 2001c; Holz et al. 2001; Dauphin 2005); Dota cantón, Santa María, 1,500–1,800 m, *Standley 43330* (Herzog 1938; Morales 1991); Moravia cantón, La

Palma, ~1,600 m, *Standley* 38140 (Herzog 1938; Morales 1991; Dauphin 2005); Moravia cantón, La Palma, 1,600 m, 17 Mar 1924, *Standley* 38260 (JE, Holz et al. 2001; Dauphin 2005).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna (Stotler et al. 1998); Gualaca distrito, Fortuna Forest Reserve, Quijada del Diablo, 1,200–1,600 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna, *Spörle & Aranda* 1.34 (PMA, Stotler et al. 1998); Gualaca distrito, Fortuna, *Spörle* 1.32 (PMA, Spörle 1990); Gualaca distrito, Hornito, Fortuna, ~1,000 m, 20 May 1988, *Salazar Allen et al.* 6201 p.p. (U, Heinrichs et al. 2001c); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, near southern edge of storage lake, 8°44.0'N, 82°14.5'W, 1,215 m, 30 Mar 2009, *Schäfer-Verwimp & Verwimp* 34499 (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Parque Nacional Volcán Barú, Paso Ancho, 8°48'55.13"N, 82°34'33.50"W, 2,047 m, *Guerra Batista et al.* (UCH, Guerra et al. 2020). **DARIÉN:** S. loc. (Schäfer-Verwimp 2014); Cerro Pirre (Stotler et al. 1998); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992).

COCOS I. Río Genio, 5°32'57"N, 87°03'56"W, 130 m, 23 Jan 1990, *Dauphin* 1010, det. S. Gradstein Oct 1994 (USJ-47249!, CR-4468314!, W!, this publication); Río Genio, 5°32'57"N, 87°03'56"W, 5 m, 20 Feb 1994, *Dauphin* 925, det. S. R. Gradstein (USJ, U [https://gwdu64.gwdg.de/pls/herbar/moos\\$moos.QueryViewByKey?P_ID=1349&Z_CHK=4306](https://gwdu64.gwdg.de/pls/herbar/moos$moos.QueryViewByKey?P_ID=1349&Z_CHK=4306), Dauphin 1995, 1999); Río Genio, 5°32'57"N, 87°03'56"W, 5 m, 24 Feb 1994, *Dauphin* 1010, det. S. R. Gradstein (USJ, U [https://gwdu64.gwdg.de/pls/herbar/moos\\$moos.QueryViewByKey?P_ID=1348&Z_CHK=4305](https://gwdu64.gwdg.de/pls/herbar/moos$moos.QueryViewByKey?P_ID=1348&Z_CHK=4305), Dauphin 1995); Valle Wafer, 5°32'57"N, 87°03'56"W, 5 m, 20 Feb 1994, *Dauphin* 914, det. S. R. Gradstein (USJ, U [https://gwdu64.gwdg.de/pls/herbar/moos\\$moos.QueryViewByKey?P_ID=1347&Z_CHK=4304](https://gwdu64.gwdg.de/pls/herbar/moos$moos.QueryViewByKey?P_ID=1347&Z_CHK=4304), Dauphin 1995, 1999).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Plagiochila rutilans var. *standleyi* (Herzog ex Carl) Heinrichs et D.S.Rycroft, *Bryologist* 104(3): 357, 2001 (Heinrichs et al. 2001c).

≡ *Plagiochila standleyi* Herzog ex Carl, *Ann. Bryol.*, Suppl. 2: 80, 1931 (Carl 1931b). Lectotype (Herzog 1932: 232; see also Söderström and Hentschel 2023: 21): Costa Rica, La Hondura, Prov. de San Jose, altitude 1,300–1,700 m, on tree, 16 Mar 1924, *Standley* 37881 (JE-04008803 <https://je.jacq.org/JE04008803>, islectotype US-00072809 <http://n2t.net/ark:/65665/3e7f5f6d6-6d5f-41e2-8b3d-7dbff13d2335>).

COSTA RICA. S. loc. (Cole 1982, 1983, both as *Plagiochila standleyi*). **CARTAGO:** Jimenéz cantón, Pejibaye, *Standley* 47057 (Carl 1931b as *Plagiochila standleyi*; Geissler and Bischler 1989 as *Plagiochila standleyi*); Jimenéz cantón, Pejibaye, 900 m, 7–28 Feb 1926, *Standley & Valerio* 47057 (JE, Brinker 1948c as *Plagiochila standleyi*; Heinrichs et al. 2001c; Hässel and Rubies 2009). **PUNTARENAS:** Monteverde (Morales

1991 as *Plagiochila standleyi*); Monteverde, May 1966, *James, M. (R., Reed and Robinson 1971 as Plagiochila standleyi)*. **SAN JOSÉ:** Braulio Carrillo National Park, Zurquí, Sendero “Los Jilgueros,” Río Zurquí, *Heinrichs et al.* 4191, 4302 (GOET, CR, Heinrichs et al. 2001c); Moravia cantón, La Hondura, 1,300–1,700 m, 16 Mar 1924, *Standley* 37881 (JE, TYPE of *Plagiochila standleyi*, Carl 1931b as *Plagiochila standleyi*; Herzog 1932, 1938, both as *Plagiochila standleyi*; Brinker 1948c as *Plagiochila standleyi*; Bonner 1962b as *Plagiochila standleyi*; Geissler and Bischler 1989 as *Plagiochila standleyi*; Morales 1991 as *Plagiochila standleyi*; Heinrichs et al. 2001c; Hässel and Rubies 2009).

Also reported from Western South America, Southern South America(?).

Plagiochila sachapatensis Steph., *Bull. Herb. Boissier*, sér. 2, 2(8): 679 (=Sp. *Hepat. [Stephani]* 2: 216), 1902 (Stephani 1902b). Type: Peru.

COSTA RICA. CARTAGO: Jiménez cantón, Pejibaye, 900 m, *Standley* 47064 (Herzog 1938; Morales 1991). **LIMÓN:** Siquirres cantón, Finca La Colombiana, ~70 m, *Standley* 36908/a (Herzog 1938); Siquirres cantón, Finca La Colombiana, *Standley* 36908 (Morales 1991).

Also reported from Western South America.

Plagiochila salazariae Inoue, *Bull. Natl. Sci. Mus., Tokyo B* 15(3): 91, 1989, “*Salazarii*” (Inoue 1989a). Holotype: Panamá, Chiriquí, Fortuna, Hornito, Palo Seco trail, on the Continental Divide, 30 m from the guard post, 1,150–1,245 m, on branch of tree, *Salazar Allen et al.* 6414 (TNS-179301 <http://www.type.kahaku.go.jp/TypeDB/bryophyta/1177>, isotype PMA).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, Continental Divide, Trail Palo Seco, 900–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna, Hornito, Palo Seco trail, on the Continental Divide, 30 m from the guard post, 1,150–1,245 m, *Salazar Allen et al.* 6414 (TNS, PMA, TYPE, Inoue 1989a; Stotler et al. 1998; Crosby and Engel 2006).

Not found outside Central America.

Plagiochila simplex (Sw.) Lindenb., *Sp. Hepat. (Lindenberg)* 2–4: 54, 1840 (Lindenberg 1840).

≡ *Jungermannia simplex* Sw., *Prodr. (Swartz)*: 143, 1788 (Swartz 1788). Type: Jamaica.

≡ *Candollea simplex* (Sw.) Raddi, *Jungermanniogr. Etrusca*: 14, 1818 (Raddi 1818b).

= *Plagiochila distinctifolia* Lindenb. γ *latifolia* Lindenb., *Sp. Hepat. (Lindenberg)* 1: 17, 1839 (Lindenberg 1839), syn. fide Heinrichs et al. (1998b). Type: Guyana.

= *Plagiochila confundens* Lindenb. ex Hampe et Gottsche, *Linnaea* 25(3): 337, 1853 (Hampe and Gottsche 1852), syn. fide Heinrichs et al. (1998b). Type: Guiana.

= *Plagiochila confundens* var. *alpinoides* Herzog, *Ann. Bryol.* 4: 126, 1931 (Verdoorn 1931), syn. fide Söderström and Hentschel (2023). Lectotype (Söderström and Hentschel 2023: 17): Panamá, Peninsula Azuero,

Cerro Canajaque, *Troll, Hepat. Sel. Crit.* 9 (JE-04008925 <https://je.jacq.org/JE04008925>, islectotypes CANM-10526, MO, and other herbaria).

=*Plagiochila confundens* f. *densifolia* Herzog ex Carl, *Ann. Bryol., Suppl.* 2: 85, 1931 (Carl 1931b), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. with *Plagiochila confundens* in Morales (1991). Original material: Costa Rica, Alto de La Estrella, province of Cartago, 26–27 Mar 1924, *Standley* 39107 (US-04627078 <http://n2t.net/ark:/65665/3e3342ff0-bab5-40a6-bea7-ffa807f7be9>); Costa Rica, Yerba Buena, northeast of San Isidro, Provincia de Heredia, altitude about 2,000 m, 22–28 Feb 1926, *Standley & Valerio* 49859 (US-04627205 <http://n2t.net/ark:/65665/3498a17bb-863a-47c2-bbef-2785be1bd7b4>).

=*Plagiochila confundens* f. *bipinnata* Herzog, *Rev. Bryol. Lichénol.* 11(1): 15, 1939 (Herzog 1938), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. with *Plagiochila confundens* fide Morales (1991). Original material: Costa Rica, Zurquí, Provincia de San José, altitude 2,000–2,500 m, 13 Feb 1926, *Standley & Valerio* 48066 (US-04627077 <http://n2t.net/ark:/65665/300ab10e0-9686-42eb-9fe5-134a629156d5>).

=*Plagiochila confundens* f. *densifolia* Herzog, *Rev. Bryol. Lichénol.* 11(1): 15, 1939 (Herzog 1938), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. with *Plagiochila confundens* fide Morales (1991). Original material: Costa Rica, Alto de La Estrella, province of Cartago, 26–27 Mar 1924, *Standley* 39107 (US-04627078 <http://n2t.net/ark:/65665/3e3342ff0-bab5-40a6-bea7-ffa807f7be9>); Costa Rica, Yerba Buena, northeast of San Isidro, Provincia de Heredia, altitude about 2,000 m, 22–28 Feb 1926, *Standley & Valerio* 49859 (US-04627205 <http://n2t.net/ark:/65665/3498a17bb-863a-47c2-bbef-2785be1bd7b4>).

GUATEMALA. S. loc. (*Stephani* 1902a; *Bonner* 1963a as *Candollea simplex*; *Fulford and Sharp* 1990). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 321 (USCG, *Freire et al.* 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al.* 2005 also as *Plagiochila confundens*). **EL PROGRESO:** San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, *Ramírez* (USCG, *BIGU, Ramírez* 2007). **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, *BIGU, Ramírez* 2007 as *Plagiochila* aff. *simplex*). Note: We are not aware of any positively identified specimen from Zacapa.

COSTA RICA. S. loc. (*Pagán* 1939a as *Plagiochila confundens*; *Fulford* 1987 as *Plagiochila confundens*; *Dauphin* 2005; *Schäfer-Verwimp and Pócs* 2009); S. loc., *Pittier* (G, *Stephani* 1902b as *Plagiochila confundens*); S. loc., *Tonduz* (Carl 1931b as *Plagiochila confundens*). **CARTAGO:** Alto de La Estrella, *Standley* 39107 (Carl 1931b as *Plagiochila confundens*; *Herzog* 1938 as *Plagiochila confundens* f. *densifolia*; *Morales* 1991 as *Plagiochila confundens*; *Dauphin* 2005); Alto de La Estrella, *Standley* 39118 (*Dauphin* 2005); La Unión cantón, Carpintera forest, *Pittier* 6034 (*Stephani* 1893c as *Plagiochila confundens*; *Morales* 1991 as *Plagiochila confundens*); La Unión cantón, Carpintera forest, 1,500–1,850 m, *Standley* 35668 (*Dauphin* 2005). **HEREDIA:** San Isidro cantón, Cerro de Caricias, 2,000–2,400 m,

Standley 52164a (hb. *Herzog, Dauphin* 2005); San Isidro cantón, Cerro de Las Lajas, 2,000–2,400 m, 7 Mar 1926, *Standley* 51512 (JE, TYPE of *Plagiochila distinctifolia* f. *linearifolia*, *Herzog* 1938 as *Plagiochila distinctifolia* f. *linearifolia*; *Geissler and Bischler* 1989 as *Plagiochila distinctifolia* f. *linearifolia*; *Dauphin* 2005); San Isidro cantón, Yerba Buena, 2,000 m, *Standley* 49859 (Carl 1931b as *Plagiochila confundens* f. *densifolia*; *Herzog* 1938 as *Plagiochila confundens* f. *densifolia*; *Geissler and Bischler* 1989 as *Plagiochila confundens* f. *densifolia*; *Morales* 1991 as *Plagiochila confundens*; *Dauphin* 2005). **LIMÓN:** S. loc., 1998, *Arts* 17/08 (hb. *Heinrichs, Heinrichs et al.* 2001c). **SAN JOSÉ:** Dota cantón, Los Quetzales National Park (*Amengual et al.* 2007); Moravia cantón, Cerro Zurquí, 2,000–2,500 m, *Standley* 48066 (*Herzog* 1938 as *Plagiochila confundens* f. *bipinnata*; *Morales* 1991 as *Plagiochila confundens*; *Dauphin* 2005); Moravia cantón, La Palma, 1,600 m, *Standley* 38160 (*Dauphin* 2005).

PANAMA. S. loc. (*Bonner* 1962b as *Plagiochila confundens* var. *alpinoides*; *Geissler and Bischler* 1989 as *Plagiochila confundens* var. *alpinoides*; *Stotler et al.* 1998 as *Plagiochila confundens* var. *alpinoides*). **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve (*Salazar Allen et al.* 2021); Tierras Altas distrito, Parque Internacional La Amistad, Las Nubes, sendero Panamá Verde, 8°53'37.4"N, 82°38'52.5"W, 2,218 m, Sep 2015–Jul 2016, *Guerra-Batista et al.* (*Guerra-Batista et al.* 2020); Tierras Altas distrito, Parque Nacional Volcán Barú, Paso Ancho, 8°48'55.13"N, 82°34'33.50"W, 2,047 m, *Guerra Batista et al.* (UCH, *Guerra et al.* 2020). **LOS SANTOS:** Las Tablas distrito, Península de Azuero, Cerro Canajagua, *Troll* 10526 (CANM, *Ireland and Ley* 1984 as *Plagiochila confundens* var. *alpinoides*); Las Tablas distrito, Península de Azuero, Cerro Canajagua, *Troll* (Carl 1931b as *Plagiochila confundens*; *Verdoorn* 1931 as *Plagiochila confundens* var. *alpinoides*; *Stotler et al.* 1998 as *Plagiochila confundens* var. *alpinoides*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Plagiochila stricta Lindenb., *Sp. Hepat. (Lindenberg)* 1: 20, 1839 (Lindenberg 1839). Type: Jamaica.

=*Plagiochila acanthoda* Lindenb. et Gottsche, *Syn. Hepat.* 5: 633, 1847 (Gottsche et al. 1847), syn. fide *Heinrichs et al.* (1998a). Type: Mexico.

GUATEMALA. ALTA VERAPAZ: Puente de Nauatl, Oct 1906, *Türckheim* 5091 (NY, *Pérez* 2009). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al.* 2005).

COSTA RICA. S. loc., *Standley* 51619 (*Morales* 1991 as *Plagiochila acanthoda*); S. loc. (Cole 1982, 1983, both as *Plagiochila acanthoda*; *Sim-Sim et al.* 2004); S. loc., *Heinrichs* 4401 (GOET, *Dauphin* 2005; *Renner et al.* 2017b); S. loc., *Heinrichs et al.* CR 98 (*Heinrichs et al.* 2000b; *Heinrichs* 2002; *Dauphin* 2005); Cordillera de Talamanca (*Holz and Gradstein* 2005b; *Holz* 2006); Cordillera de Talamanca, *Kappelle* 3967a (U, *Kappelle* 1996 as *Plagiochila acanthoda*). **ALAJUELA:** Alajuela cantón, Viento Fresco, *Standley* 47718 (*Morales* 1991 as *Plagiochila acanthoda*); Alajuela cantón, Viento Fresco, 1,600–1,900 m, *Standley* 47788c

(Herzog 1938 as *Plagiochila acanthoda*; Dauphin 2005 as *Plagiochila acanthoda*). CARTAGO: Cartago cantón, El Muñeco, Río Navarro, 1,400–1,500 m, 1926, *Standley & Torres 51029* (FH, Holz et al. 2001; Dauphin 2005); La Unión cantón, Carpintera forest, 1,500–1,850 m, *Standley 35668* (Morales 1991 as *Plagiochila acanthoda*). HEREDIA: Barva cantón, Barva forest, *Pittier 6038* (Stephani 1893c as *Plagiochila acanthoda*; Morales 1991 as *Plagiochila acanthoda*); Barva cantón, Volcán Barva, 1,950 m (Dauphin 2005 as *Plagiochila acanthoda*); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley 50627* (US, Carl 1931b, 1932, both as *Plagiochila acanthoda*; Herzog 1938 as *Plagiochila acanthoda*; Morales 1991 as *Plagiochila acanthoda*; Dauphin 2005 as *Plagiochila acanthoda*). PUNTARENAS: S. loc. (Merwin et al. 2001); Monteverde, <1,500 m (Dauphin 2005 as *Plagiochila acanthoda*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al. 2001a*); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995 as *Plagiochila acanthoda*); Monteverde, 10–17 Mar 1965, *James, W. & James, M. 70* (R, *Reed and Robinson 1971* as *Plagiochila acanthoda*). SAN JOSÉ: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, Finca La Cima, N de El Copey, 1,300–2,400 m, *Standley 42813* (Carl 1931b as *Plagiochila acanthoda*; Herzog 1938 as *Plagiochila acanthoda*; Morales 1991 as *Plagiochila acanthoda*; Dauphin 2005 as *Plagiochila acanthoda*); Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, San Gerardo, *Heinrichs et al. 4401* (GOET, *Heinrichs 2002*; *Rycroft et al. 2002*; *Groth et al. 2003, 2004a*; *Heinrichs et al. 2004a, 2004c, 2004d, 2005a, 2005b, 2006a, 2006b*; *Lindner et al. 2004*; *Davison et al. 2006*; *Patzak et al. 2016*; *Renner et al. 2017a*); Dota cantón, San Gerardo, Holz (Holz 2003); Dota cantón, San Gerardo, Los Robles, Holz et al. *AHH-098* (Dauphin 2005); Dota cantón, San Gerardo, Río Savegre Valley between holiday camp Chacón and waterfall, 2,000 m, 2 Mar 1999, Holz CR 99-041 (CR, GOET, Holz et al. 2001; Dauphin 2005); Dota cantón, San Gerardo, Río Savegre Valley between holiday camp Chacón and waterfall, 2,300 m, 28 Sep 1999, *Heinrichs et al. AHH-98* (CR, GOET, Holz et al. 2001); Los Santos Forest Reserve, ~2,900 m (Holz and *Gradstein 2005a*); Moravia cantón, Braulio Carrillo National Park, Sector Zurquí, Sendero Los Jilgueros, 1,400 m, 8 Oct 1999, *Heinrichs et al. AHH-212* (CR, Holz et al. 2001; Dauphin 2005); Moravia cantón, La Hondura, 1,300–1,700 m, *Standley 36272* (Carl 1931b as *Plagiochila acanthoda*; Herzog 1938 as *Plagiochila acanthoda*; Morales 1991 as *Plagiochila acanthoda*; Dauphin 2005 as *Plagiochila acanthoda*); Moravia cantón, La Palma, 1,600 m, *Standley 38160* (Morales 1991 as *Plagiochila acanthoda*).

Also reported from Macaronesia, East Tropical Africa(?), Western Indian Ocean, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Plagiochila subdenudata Steph., *Bull. Herb. Boissier*, sér. 2, 2(8): 673 (=Sp. *Hepat. [Stephani]* 2: 210), 1902 (Stephani 1902b). Lectotype (Bonner 1962b: 294) if not holotype: Costa Rica, entre La Laguna de Barva et le Carrisal, 2,800 m, 1889, *Pittier 6012* (G-00064171 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=126690&lang=en>).

COSTA RICA. HEREDIA: Barva cantón, between Laguna de Barva and Carrizal, 2,800 m, 1889, *Pittier 6012* (G-00064171 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=126690&lang=en>, TYPE, Stephani 1902b; Bonner 1962b; Geissler and Bischler 1989).

Not found outside Central America.

Plagiochila subplana Lindenb., *Sp. Hepat. (Lindenberg)* 2–4: 73, 1840 (Lindenberg 1840). Type: Brazil.

=*Plagiochila kegeliana* Steph., *Bull. Herb. Boissier*, sér. 2, 2(8): 685 (=Sp. *Hepat. [Stephani]* 2: 222), 1902 (Stephani 1902b), syn. fide Herzog (1952). Lectotype: Surinam.

=*Plagiochila tuerckheimii* Steph., *Sp. Hepat. (Stephani)* 6: 231, 1921 (Stephani 1921), syn. fide Heinrichs et al. (1999). Lectotype (Bonner 1962b: 321; see also Heinrichs et al. 1999: 172 as “holotype”): Guatemala, Alta Verapaz, Samox, 400 m, *Türckheim s.n.*, hb. *Levier 5093* (G-00061565 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=127413&lang=en>, isoelectotype F-0000349C).

=*Plagiochila hondurensis* Herzog ex Carl, *Ann. Bryol., Suppl.* 2: 78, 1931 (Carl 1931b), syn. fide Heinrichs et al. (1999). Lectotype (Heinrichs et al. 1999: 172): Costa Rica, Limón, Guápiles, 300–500 m, *Standley 37139* (JE-04001523 <https://je.jacq.org/JE04001523>).

=*Plagiochila hondurensis* Herzog, *Hedwigia* 72: 204, 1932 (Herzog 1932), nom. superfl. (cf. Heinrichs et al. 2018).

=*Plagiochila leptodictyon* Herzog ex Carl, *Ann. Bryol., Suppl.* 2: 78, 1931 (Carl 1931b), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Heinrichs et al. (1999). Lectotype (Heinrichs et al. 1999: 172 as “holotype”): Costa Rica, Limón, La Colombiana Farm of the United Fruit Company, 70 m, *Standley 36815* (JE-04001539 <https://je.jacq.org/JE04001539>, isoelectotypes PC-0103079, US-00073053).

=*Plagiochila leptodictyon* Herzog, *Hedwigia* 72: 206, 1932 (Herzog 1932), nom. superfl. (cf. Heinrichs et al. 2018).

=*Plagiochila hondurae* Steph. ex M.C.Cole, *Brenesia* 21: 149, 1983 (Cole 1983), nom. inval. (ICN2018 Art. 38.1(a); no description, error(?) for *Plagiochila hondurensis*). Original material: Costa Rica.

GUATEMALA. S. loc. (Clark and Svihla 1948a; Arnell 1956b as *Plagiochila tuerckheimii*; *Fulford and Sharp 1990* as *Plagiochila tuerckheimii*; Schäfer-Verwimp and Pócs 2009 as *Plagiochila tuerckheimii*; Schuster 2021); S. loc., *Türckheim*, hb. *Levier 5823* (G, NY, Stephani 1921 as *Plagiochila tuerckheimii*; Bonner 1962b as *Plagiochila tuerckheimii*; Geissler and Bischler 1989 as *Plagiochila tuerckheimii*); S. loc., *Wurr (Stephani 1905f)*. ALTA VERAPAZ: Cobán municipio, Samox, 1,600 m, *Türckheim (hb. Levier 5093)* (G, Heinrichs et al. 1999); Cobán municipio, Samox, 400 m, *Türckheim 5093* (G-00061535 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=127413&lang=en>, F-C0000349F, TYPE of *Plagiochila tuerckheimii*); Tukurú municipio, Chelemlhá, 15°22'32"N, 90°05'05"W, 2,300–2,500 m, Pérez

279 (USCG, Pérez 2009); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Plagiochila* cf. *subplana*). **BAJA VERA-PAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

HONDURAS. S. loc. (Schuster 2021). **ATLÁNTIDA:** Tela municipio, La Fragua, ~20 m, Standley 55785 (JE, Herzog 1932, 1938, both as *Plagiochila hondurensis*; Geissler and Bischler 1989 as *Plagiochila hondurensis*; Heinrichs et al. 1999); Tela municipio, Lancetilla Valley, 20–600 m, Standley 54994 (Herzog 1938 as *Plagiochila hondurensis*); Tela municipio, Lancetilla Valley, 20–600 m, Standley 52948 (JE, Herzog 1932, 1938, both as *Plagiochila hondurensis*; Bonner 1962b as *Plagiochila hondurensis*; Geissler and Bischler 1989 as *Plagiochila hondurensis*; Heinrichs et al. 1999); Tela municipio, Lancetilla Valley, 20–600 m, Standley 53994 (JE, Herzog 1932 as *Plagiochila hondurensis*; Bonner 1962b as *Plagiochila hondurensis*; Geissler and Bischler 1989 as *Plagiochila hondurensis*; Heinrichs et al. 1999); Tela municipio, Lancetilla Valley, Standley (Standley 1931 as *Plagiochila hondurensis*); Tela municipio, Lancetilla Valley, 20–600 m, 6 Dec 1927, Standley 54564 (JE, Carl 1931b as *Plagiochila hondurensis*; Herzog 1932, 1938, both as *Plagiochila hondurensis*; Bonner 1962b as *Plagiochila hondurensis*; Geissler and Bischler 1989 as *Plagiochila hondurensis*; Heinrichs et al. 1999).

COSTA RICA. S. loc. (Clark and Svihla 1948a; Cole 1982, 1983, both as *Plagiochila 'hondurae'*; Geissler and Bischler 1989 as *Plagiochila hondurensis*; Schuster 2021); S. loc., Kegel (G-23724, Stephani 1902b as *Plagiochila kegeliana*; Dauphin 2005). **CARTAGO:** Paraíso cantón, Orosi, Tapantí National Park (Dauphin 2005); Paraíso cantón, Tapantí National Park, 1,400–1,700 m, Gómez-Pignataro 19383 (GOET, U, Heinrichs et al. 1999). **GUANACASTE:** Tilarán cantón, El Silencio, ~750 m, 13 Jan 1926, Standley 44590 (JE, Carl 1931b, 1932, both as *Plagiochila hondurensis*; Herzog 1932, 1938, both as *Plagiochila hondurensis*; Bonner 1962b as *Plagiochila hondurensis*; Geissler and Bischler 1989 as *Plagiochila hondurensis*; Morales 1991 as *Plagiochila hondurensis*; Heinrichs et al. 1999; Dauphin 2005). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, Quebrada González, Las Palmas trail, 2,000 m, 8 Oct 1999, Heinrichs et al. 4168 (GOET, Holz et al. 2001; Dauphin 2005); Pococí cantón, Guápiles, 300–500 m, 12–13 Mar 1924, Standley 37139 (JE-04001523 <https://je.jacq.org/JE04001523>, TYPE of *Plagiochila hondurensis*, Carl 1931b as *Plagiochila hondurensis*; Herzog 1932, 1938, both as *Plagiochila hondurensis*; Bonner 1962b as *Plagiochila hondurensis*; Geissler and Bischler 1989 as *Plagiochila hondurensis*; Morales 1991 as *Plagiochila hondurensis*; Heinrichs et al. 1999; Dauphin 2005); Siquirres cantón, Finca La Colombiana, ~70 m, 6–7 Mar 1924, Standley 36815 (JE-04001539 <https://je.jacq.org/JE04001539>, PC-0103079, US-00073053, TYPE of *Plagiochila leptodictyon*, Carl 1931b as *Plagiochila leptodictyon*; Herzog 1932, 1938, both as *Plagiochila leptodictyon*; Bonner 1962b as *Plagiochila leptodictyon*; Geissler and Bischler 1989 as *Plagiochila leptodictyon*; Morales 1991 as *Plagiochila leptodictyon*; Heinrichs et al. 1999; Dauphin 2005). **PUNTARENAS:** S. loc. (Merwin et al. 2001); Coto

Brus cantón, Las Cruces, Wilson Botanical Garden, 1,150 m, 14 Feb 1998, Arts CR 8/25 (GOET, Holz et al. 2001; Dauphin 2005); Coto Brus cantón, Las Cruces, Wilson Botanical Garden, 1,150 m, 14 Feb 1998, Arts CR 8/28 (GOET, Holz et al. 2001; Dauphin 2005); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 80–140 m (GOET, Wanek and Pörtl 2008); Golfo Dulce (Umana and Wanek 2010); Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, Gradstein et al. (U, Sillett et al. 1995).

PANAMA. S. loc. (Schäfer-Verwimp and Pócs 2009 as *Plagiochila tuerckheimii*); S. loc., 1906, Hélión (PC, Stotler et al. 1998 as *Plagiochila tuerckheimii*). **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, foothills of Cerro Pinola, 1,280–2,000 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna, Spörle 1.2 (U, Spörle 1990 as *Plagiochila hondurensis*). **COLÓN:** Colón distrito, near end of road past Salamanca, 300–400 m, Knapp & Sytsma 2419 (GOET, U, Heinrichs et al. 1999). **DARIÉN:** INRENARE station, foothills of Cerro Pirre, Salazar Allen & Gradstein 9217 (PMA, GOET, U, Heinrichs et al. 1999).

COCOS I. S. loc. (Bonner 1962b as *Plagiochila kegeliana*); between Wafer and Chatham, 100–232 m, Gómez-Pignataro 18006, 18025, 18031, 18106 (GOET, U, Heinrichs et al. 1999); Valle Wafer, 5°32'57"N, 87°03'56"W, 0–10 m, 9 Jan 1990, Dauphin 925, det. J. Heinrichs (USJ-47244, CR-4468315!, GOET [https://gwdu64.gwdg.de/pls/herbar/moos\\$moos.QueryViewByKey?P_ID=1349&Z_CHK=4306](https://gwdu64.gwdg.de/pls/herbar/moos$moos.QueryViewByKey?P_ID=1349&Z_CHK=4306), W! <https://w.jacq.org/W0207468>, this publication); Valle Wafer, 5°32'57"N, 87°03'56"W, 0–5 m, 19 Jan 1990, Dauphin 914, det. J. Heinrichs (USJ-47245, CR-4468316!, GOET [https://gwdu64.gwdg.de/pls/herbar/moos\\$moos.QueryViewByKey?P_ID=1347&Z_CHK=4304](https://gwdu64.gwdg.de/pls/herbar/moos$moos.QueryViewByKey?P_ID=1347&Z_CHK=4304), W <https://w.jacq.org/W0207469>, this publication); Wafer Bay, Weber B-14321 (JE, Heinrichs et al. 1999).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Plagiochila superba var. *macrotricha* (Spruce) Heinrichs, Bryophyt. Biblioth. 58: 114, 2002 (Heinrichs 2002).

≡ *Plagiochila macrotricha* Spruce, Trans. & Proc. Bot. Soc. Edinburgh 15: 476, 1885 (Spruce 1885). Lectotype: Peru.

COSTA RICA. **HEREDIA:** San Isidro cantón, Yerba Buena, 2,000 m, 1926, Standley & Valerio 49849 (JE, US, Heinrichs 2002; Dauphin 2005). **SAN JOSÉ:** Moravia cantón, Zurquí, 2,000–2,500 m, 1926, Standley & Valerio 48088 (B, US, Heinrichs 2002; Dauphin 2005).

Also reported from Northern South America, Western South America, Brazil.

Plagiochila superba (Nees ex Sprengel) Mont. et Nees, Voy. Amér. Mérid. 7(2): 81, 1839 (Montagne 1839b) var. *superba*.

≡*Jungermannia superba* Nees ex Sprengel, *Syst. Veg.* (ed. 16) [Sprengel] 4(2): 326, 1827 (Sprengel 1827a): Type: “Nova Hollandia” (probably old Nova Hollandia in Brazil, cf. Meagher 2008).

=*Plagiochila pichinchensis* Taylor, *London J. Bot.* 5: 259, 1846 (Taylor 1846b), syn. fide Heinrichs (2002). Type: Ecuador.

=*Plagiochila quelchii* Steph., *Bull. Herb. Boissier*, sér. 2, 5(4): 366 (=Sp. *Hepat.* [Stephani] 2: 534), 1905 (Stephani 1905e), syn. fide Dugas (1929). Lectotype: Guyana.

=*Plagiochila bradeana* Steph., *Sp. Hepat.* (Stephani) 6: 133, 1918 (Stephani 1918), syn. fide Heinrichs (2002). Lectotype (Söderström et al. 2023a: 152; cf. Heinrichs 2002 as “holotype”): Costa Rica, s. loc., 1903, *Brade s.n.* (G-00264683 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=241817&lang=en>).

=*Plagiochila verapazana* Steph., *Sp. Hepat.* (Stephani) 6: 240, 1921 (Stephani 1921), syn. fide Heinrichs (2002). Lectotype (Heinrichs 2002: 111): Guatemala, Alta Verapaz, Cobán, 1,550 m, *Türckheim s.n.*, Bryotheca Levier 6054 (G-00061615 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=127981&lang=en>, synlectotype Levier 6052 G-00061599 <https://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=127982&lang=en>).

=*Plagiochila contingens* Gottsche f. *longifolia* Herzog, *Rev. Bryol. Lichénol.* 11(1): 10, 1939 (Herzog 1938), nom. inval. (ICN2018 Art. 39.1; no Latin description), syn. fide Heinrichs (2002). Original material (cf. Heinrichs 2002: 111): Costa Rica, Heredia, Yerba Buena NE of San Isidro, 2,000 m, 1926, *Standley & Valerio* 49875 (JE, US-04627085 <http://n2t.net/ark:/65665/3edcfa105-f1fd-44f9-8611-692810f6b55b>), Cerro de las Caricias, N of San Isidro, 2,000–2,400 m, 1926, *Standley & Valerio* 52101 (JE, US-04627083 <http://n2t.net/ark:/65665/3d5b899cc-096b-459d-9c67-82139fef5d38>).

=*Plagiochila parispina* Herzog, *Beih. Bot. Centralbl.* 61B(3): 565, 1942 (Herzog 1942b), syn. fide Heinrichs (2002). Lectotype (Söderström and Hentschel 2023: 20): Costa Rica, San José, La Palma, 1,600 m, 1924, *Standley* 33196 (JE-04008940 <https://je.jacq.org/JE04008940>, US-00073067 <http://n2t.net/ark:/65665/36a18f1e8-3436-4b65-b745-5d836c8ff456>).

GUATEMALA. S. loc. (Pagán 1942b; Fulford and Sharp 1990 as *Plagiochila verapazana*); S. loc., 1841, *Friedrichstahl* (W, Heinrichs 2002). **ALTA VERAPAZ:** Cobán, 1,550 m, *Türckheim*, hb. Levier 6054 (G-00061615 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=127981&lang=en>, TYPE of *Plagiochila verapazana*, Stephani 1921 as *Plagiochila verapazana*; Bonner 1962b as *Plagiochila verapazana*; Geissler and Bischler 1989 as *Plagiochila verapazana*; Heinrichs 2002). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007).

COSTA RICA. S. loc. (Pagán 1942b; Bonner 1962b as *Plagiochila contingens* f. *longifolia*); S. loc., *Heinrichs et al.* 4173 (Heinrichs et al. 2000b; Dauphin 2005); S. loc., *Pittier* (G, Stephani 1905e as *Plagiochila pichinchensis*); S. loc., 1903, *Brade* (G-00264683 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=241817&lang=en>, TYPE of *Plagiochila*

bradeana, Stephani 1918, 1924, both as *Plagiochila bradeana*; Carl 1931b as *Plagiochila bradeana*; Bonner 1962b as *Plagiochila bradeana*; Geissler and Bischler 1989 as *Plagiochila bradeana*; Heinrichs 2002); Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); Cordillera de Talamanca, Kappelle 3859 (U, Kappelle 1996 as *Plagiochila pichinchensis*). **CARTAGO:** Jiménez cantón, Pejibaye, 900 m, *Standley* 46905 (Herzog 1938 as *Plagiochila bradeana*; Morales 1991 as *Plagiochila bradeana*); Jiménez cantón, Pejibaye, 3 de Junio, 2,600 m (Dauphin 2005); Paraíso cantón, Cordillera Talamanca, Tapanti, Sendero “Natural Arboles Caídos,” 1,500 m, 1999, *Heinrichs et al.* 4333 (Heinrichs 2002); Paraíso cantón, Orosi, Tapantí National Park, Sendero Arboles Caídos (Dauphin 2005). **HEREDIA:** San Isidro cantón, Cerro Caricias, ~2,000 m (Dauphin 2005); San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, 1926, *Standley* 52101 (JE, US, TYPE of *Plagiochila contingens* f. *longifolia*, Herzog 1938 as *Plagiochila contingens* f. *longifolia*; Geissler and Bischler 1989 as *Plagiochila contingens* f. *longifolia*; Heinrichs 2002); San Isidro cantón, Cerro Zurquí, 2,000 m, 1926, *Standley* 49875 (JE, US, TYPE of *Plagiochila contingens* f. *longifolia*, Geissler and Bischler 1989 as *Plagiochila contingens* f. *longifolia*; Heinrichs 2002); San Isidro cantón, Yerba Buena, 2,000 m (Dauphin 2005); San Isidro cantón, Yerba Buena, *Standley* 49870 (Morales 1991 as *Plagiochila bradeana*); San Isidro cantón, Yerba Buena, 2,000 m, *Standley* 49875 (Herzog 1938 as *Plagiochila contingens* f. *longifolia*); San Isidro cantón, Yerba Buena, NE of San Isidro, 2,000 m, *Standley* 49780 (Herzog 1938 as *Plagiochila bradeana*). **PUNTARENAS:** Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, Cerro Amigos, 10°18'N, 84°48'W, 1,830 m, 1992, *Lyon* 400 (MO, Heinrichs 2002). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo, Río Savegre (Dauphin 2005); Dota cantón, San Gerardo, Río Savegre valley, holiday camp Chacon, “Los Robles,” Sendero “La Quebrada,” 2,300 m, 28 Sep 1999, *Heinrichs et al.* 4175 (CR, B, BM, CBG, hb. Drehwald, E, hb. Frahm, G, GOET, hb. Heinrichs, JE, KRAM, MO, NICH, NY, S, hb. Schäfer-Verwimp, W. Further, Heinrichs and Anton 2001; Holz et al. 2001; Groth et al. 2002, 2003; Heinrichs 2002; Heinrichs et al. 2002b, 2003a, 2005a, 2006b; Groth and Heinrichs 2003; Dauphin 2005; Patzak et al. 2016; Renner et al. 2017a); Moravia cantón, La Hondura, 1,300–1,700 m, *Standley* 37802 (Herzog 1938 as *Plagiochila bradeana*; Morales 1991 as *Plagiochila bradeana*); Moravia cantón, La Palma, ~1,600 m, *Standley* 38152 (Herzog 1938 as *Plagiochila bradeana*; Morales 1991 as *Plagiochila bradeana*); Moravia cantón, La Palma, ~1,600 m, 1924, *Standley* 33196 (JE-04008940 <https://je.jacq.org/JE04008940>, TYPE of *Plagiochila parispina*, Herzog 1942b, 1951, both as *Plagiochila parispina*; Bonner 1962b as *Plagiochila parispina*; Geissler and Bischler 1989 as *Plagiochila parispina*; Morales 1991 as *Plagiochila parispina*; Heinrichs 2002; Dauphin 2005).

PANAMA. **CHIRIQUÍ:** Gualaca distrito, Fortuna (Stotler et al. 1998 as *Plagiochila quelchii*); Gualaca distrito, Fortuna

Forest Reserve, Quebrada Alemán, 1,200–1,400 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna, 1,040 m, *Spörle & Aranda* 1.38 (PMA, Stotler et al. 1998 as *Plagiochila quelchii*); Gualaca distrito, Fortuna, *Spörle* 1.38 (PMA, *Spörle* 1990 as *Plagiochila quelchii*). **DARIÉN:** Cerro Pirre, 1,200–1,300 m, 1991, Salazar Allen & Gradstein 9289 (U, Heinrichs 2002); Cerro Pirre, 1,200–1,300 m, 1991, Salazar Allen & Gradstein 9291 (U, Heinrichs 2002).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Plagiochila tabinensis Steph., *Bull. Herb. Boissier*, sér. 2, 2(10): 862 (*Sp. Hepat. [Stephani]* 2: 231), 1902 (Stephani 1902a). Type: Peru.

COSTA RICA. S. loc. (Gradstein and Holz 2005); Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b). **CARTAGO:** Chirripó National Park, Camino de Los Indios (Dauphin 2005); Chirripó National Park, Camino de los Indios, 2,800 m, *Kappelle* 5742 (CR, Heinrichs et al. 2001b; Heinrichs 2002); El Guarco cantón, 3 de Junio, Pan-American Highway km 67, 2,600 m, 3 Oct 1999, Heinrichs et al. 4156 (CR, B, BM, CBG, hb. Drehwald, E, hb. Frahm, G, GOET, hb. Heinrichs, JE, KRAM, MO, NICH, NY, S, hb. Schäfer-Verwimp, W. Further, Heinrichs et al. 2000b, 2001b, 2005a, 2006b; Heinrichs and Anton 2001; Holz et al. 2001; Heinrichs 2002; Groth and Heinrichs 2003; Groth et al. 2003, 2004a; Dauphin 2005); El Guarco cantón, 3 de Junio, Pan-American Highway km 67, 3 Jan 2000, Holz CR 00-001 (GOET, CR, Heinrichs et al. 2001b); El Guarco cantón, La Esperanza (Dauphin 2005); Pan-American Highway (km 78) between Cartago and Cerro de la Muerte, 2,900 m, 3 Oct 1999, Heinrichs et al. 4142 (GOET, JE, Heinrichs et al. 2000b, 2001b; Heinrichs 2002); Paraíso cantón, Tapanti National Park, Reserva “La Esperanza del Guarco,” 2,400 m, 25 Nov 1999, Holz & Sipman CR 99-771 (GOET, CR, Heinrichs et al. 2000b, 2001b; Heinrichs 2002); Turrialba cantón, Villa Mills, CATIE Station Siberia (Dauphin 2005); Turrialba cantón, Villa Mills, Pan-American Highway (km 100), CATIE Station Siberia, 1999, Holz CR 99-790 (GOET, CR, Heinrichs 2002); Turrialba cantón, Villa Mills, Pan-American Highway (km 100), CATIE Station Siberia, 29 Nov 1999, Holz et al. CR 99-790 (GOET, CR, Heinrichs et al. 2001b). **LIMÓN:** Cerros Tararia, Tres Picos (Dauphin 2005); Cordillera de Talamanca, Cerros Tararia, Tres Picos, 2,400–2,600 m, 10 Sep 1984, Davidse et al. 28876A (GOET, CR, Heinrichs et al. 2001b; Heinrichs 2002). **SAN JOSÉ:** Dota cantón, Rio Savegre valley, Jaboncillo, Heinrichs et al. 4146 (GOET, Patzak et al. 2016; Renner et al. 2017a); Moravia cantón, Cerro Zurquí (Dauphin 2005).

Also reported from Northern South America, Western South America.

Plagiochila tenera Steph., *Sp. Hepat. (Stephani)* 6: 231, 1921 (Stephani 1921). Lectotype (Bonner 1962b: 307): Costa Rica, Rio Naranjo, Mar 1893, *Tonduz* s.n., hb. Levier 15653 (G-00061487 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=126711&lang=en>, isoelectotypes JE s.n. <https://www.jacq.org/detail.php?ID=1296013>, MICH-514958). Note: J. Heinrichs stated in an annotation to the lectotype that it contains two species but did not say which species they are.

COSTA RICA. **CARTAGO:** Jiménez cantón, Rio Naranjo, Mar 1893, *Tonduz*, hb. Levier 15653 (G-00061487 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=126711&lang=en>, TYPE, Stephani 1921; Bonner 1962b).

Not found outside Central America.

Plagiochila tenuis Lindenb., *Sp. Hepat. (Lindenberg)* 2–4: 50, 1840 (Lindenberg 1840). Type: St. Vincent.

=*Plagiochila bidens* Gottsche, *Ann. Sci. Nat. Bot.*, sér. 4, 8: 322, 1857 (Gottsche 1857), syn. fide Gradstein (2015b). Type: Guadeloupe.

GUATEMALA. **BAJA VERAPAZ:** Purhulhá municipio, Biotope Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as ‘*Plagiochila*’ *tenuis*). **IZABAL:** Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007). **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007).

COSTA RICA. Cordillera de Talamanca, *Van Dunné* 129 (AMD, U, *Kappelle* 1996 as *Plagiochila bidens*). **PUNTARENAS:** S. loc. (Merwin et al. 2001 also as *Plagiochila bidens*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde, 1,550 m, Gradstein & Solano 9422, 9433 (U, Gradstein et al. 1994; Dauphin 2005). **SAN JOSÉ:** Dota cantón, Los Quetzales National Park (Amengual et al. 2007 as *Plagiochila bidens*); Dota cantón, San Gerardo, 9°35'40"N, 83°44'30"W, 3,000 m, Aug 1992, *Van Dunné* (Van Dunné and Kappelle 1998 as *Plagiochila bidens*).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Plagiochila tonduziana Steph., *Sp. Hepat. (Stephani)* 6: 227, 1921 (Stephani 1921). Lectotype (Söderström and Hagborg 2023a: 154): Costa Rica, Cartago, Rio Naranjo, 200–250 m, Mar 1893, *Tonduz* (G-00121258 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=170190&lang=en>, isoelectotypes G-00121234 <https://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=170191&lang=en>).

COSTA RICA. **CARTAGO:** Jiménez cantón, Rio Naranjo, 200–250 m, Mar 1893, *Tonduz*, hb. Boisser 2069 (G-00121258 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=170190&lang=en>, TYPE, Stephani 1921; Bonner 1962b; Geissler and Bischler 1989). ***PUNTARENAS:** Buenos Aires cantón, Boruca, *Tonduz* 15660 (G-00121233!, this publication).

Not found outside Central America.

Plagiochila trichostoma Gottsche, *Ann. Sci. Nat. Bot.*, sér. 5, 1: 113, 1864 (Gottsche 1864). Lectotype: Colombia.

=*Plagiochila granatensis* Gottsche, *Ann. Sci. Nat. Bot.*, sér. 5, 1: 111, 1864 (Gottsche 1864), syn. fide Gradstein (2015a). Type: Colombia.

=*Plagiochila permista* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 481, 1885 (Spruce 1885), syn. fide Heinrichs et al. (2002b). Type: Ecuador.

GUATEMALA. ALTA VERAPAZ: Cobán, 1,350–1,500 m, 1 Nov 1907, *Türckheim* 5571, det. Stephani (NY, Pérez 2009 as *Plagiochila granatensis*).

COSTA RICA. S. loc. (Gradstein 2021; Schuster 2021); S. loc., *Tonduz* (Carl 1931b; Morales 1991; Dauphin 2005); Cordillera de Talamanca (Holz and Gradstein 2005b; Holz 2006). **CARTAGO:** Cordillera de Talamanca, km 78 of Pan-American Highway between Cartago and Cerro de La Muerte, 2,900 m, 3 Oct 1999, *Heinrichs et al.* 4164 (GOET, Holz et al. 2001; Dauphin 2005); El Guarco cantón, La Esperanza, *Kappelle* 357 (Dauphin 2005); El Guarco cantón, La Esperanza, 2,700 m, 1985, *Kappelle* 357 (U, Heinrichs et al. 2002b). **PUNTARENAS:** Coto Brus cantón, Cerro Echandi, 3,200 m, 1983, *Gómez-Pignataro et al.* 21812, det. U (Heinrichs et al. 2002b; Dauphin 2005). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, Cerro de Las Vueltas (Dauphin 2005); Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, *Standley* 43536 (JE-04009219, US-00073068, Morales 1991 as *Plagiochila permista*); Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, *Standley* 43687 (US, Carl 1931b as *Plagiochila permista*; Herzog 1938 as *Plagiochila permista*; Morales 1991 as *Plagiochila permista*; Kappelle 1996 as *Plagiochila permista*); Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, *Standley* 43812 (Carl 1931b as *Plagiochila permista*; Herzog 1938 as *Plagiochila permista*; Morales 1991 as *Plagiochila permista*); Dota cantón, Los Quetzales National Park (Amengual et al. 2007 as *Plagiochila permista*); Dota cantón, Los Robles, *Heinrichs et al.* 4324 (GOET, Groth et al. 2002, 2003, 2004a, 2004b; Heinrichs 2002; Heinrichs et al. 2002b, 2004a, 2005a, 2005b, 2006a, 2006b; Lindner et al. 2004; Rycroft et al. 2004; Dauphin 2005; Patzak et al. 2016; Renner et al. 2017a); Dota cantón, San Gerardo, Holz (Holz 2003); Dota cantón, San Gerardo, Río Savegre Valley, 2,700 m, 29 Sep 1999, *Heinrichs et al.* 4234 (CR, GOET, Holz et al. 2001); Dota cantón, San Gerardo, Río Savegre, 2,700 m, 1999, *Heinrichs et al.* 4323 (GOET, CR, Heinrichs et al. 2002b; Dauphin 2005); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a).

PANAMA. CHIRIQUÍ: Barú Volcano National Park (Rodríguez-Quiel et al. 2022).

Also reported from Northern South America, Western South America, Southern South America(?).

Plagiochila truncata Gottsche, *Mexik. Leverm.*: 25, 1863 (Gottsche 1863). Type: Mexico.

PANAMA. PANAMA WEST: Capira distrito, Nature's Trail, Altos de Campana National Park, 850 m, *Spörle* (PMA, Stotler et al. 1998).

Also reported from Mexico, Western South America.

Plagiochila turgida Herzog ex Carl, *Ann. Bryol., Suppl.* 2: 63, 1931 (Carl 1931b). Lectotype (Söderström and Hentschel 2023: 22; cf. Heinrichs 2002: 116 as “holotype”): Costa

Rica, Cartago, El Muñeco, S of Navarro, ~1,400 m, 1924, *Standley* 33935 (JE-04001527 <https://je.jacq.org/JE04001527>, isoelectotypes B, US-00072821 <http://n2t.net/ark:/65665/3776a8154-9166-4419-a9a5-ac0a5e8c326f>).

=*Plagiochila longaeva* Herzog ex Carl, *Ann. Bryol., Suppl.* 2: 63, 1931 (Carl 1931b), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Costa Rica, *Standley* 52297. Note: We have not found any material corresponding to this collection number and think it is a misprint for “52292” and thus the same as in Herzog (1932).

=*Plagiochila longaeva* Herzog, *Hedwigia* 72(6): 201, 1932 (Herzog 1932), syn. fide Heinrichs (2002). Lectotype (Söderström and Hentschel 2023: 20; cf. Heinrichs 2002: 116 as “holotype”): Costa Rica, Heredia, Cerro de las Caricias, N of San Isidro, 2,000–2,400 m, 1926, *Standley* 52292 (JE-04008966 <https://je.jacq.org/JE04008966>, B, FH, PC-0097287, US-00073054).

=*Plagiochila contingens* Gottsche f. *minor* Herzog, *Rev. Bryol. Lichénol.* 11(1): 10, 1939 (Herzog 1938), nom. inval. (ICN2018 Art. 39.1; no Latin description), syn. fide Heinrichs (2002). Original material: Costa Rica, La Hondura, Prov. De S. José, 1,500–1,700 m, *Standley* 37812 (JE, US-00289477 <http://n2t.net/ark:/65665/32d5ebd32-07d4-4ad9-ac3b-6a4f88fcd2f>).

†**HONDURAS.** S. loc., *Standley* 37812 (Bonner 1962b as *Plagiochila contingens* f. *minor*). Note: This is a mistake for La Hondura in Costa Rica.

COSTA RICA. CARTAGO: Cartago cantón, El Muñeco, S of Navarro, ~1,400 m, 8–9 Feb 1924, *Standley* 33935 (JE-04001527 <https://je.jacq.org/JE04001527>, B, US-00072821, TYPE, Carl 1931b; Herzog 1932, 1938; Bonner 1962b; Geissler and Bischler 1989; Morales 1991; Heinrichs 2002; Dauphin 2005). **HEREDIA:** San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, 11 Mar 1926, *Standley* 52292 (JE-04008966 <https://je.jacq.org/JE04008966>, B, FH, PC-0097287, US-00073054, TYPE of *Plagiochila longaeva*, Carl 1931b as *Plagiochila longaeva*; Herzog 1932, 1938, both as *Plagiochila longaeva*; Bonner 1962b as *Plagiochila longaeva*; Geissler and Bischler 1989 as *Plagiochila longaeva*; Morales 1991 as *Plagiochila longaeva*; Heinrichs 2002; Dauphin 2005). **LIMÓN:** San Miguel cantón, Los Angeles (Dauphin 2005); San Miguel cantón, Los Angeles, Volcán Irazú, 1,300 m, 1990, *Chacón & Herrera* 770 (MO, Heinrichs 2002). **SAN JOSÉ:** Moravia cantón, La Hondura (Dauphin 2005); Moravia cantón, La Hondura, 1,300–1,700 m, *Standley* 37812 (JE, US-00289477 <http://n2t.net/ark:/65665/32d5ebd32-07d4-4ad9-ac3b-6a4f88fcd2f>, TYPE of *Plagiochila contingens* f. *minor*, Herzog 1938 as *Plagiochila contingens* f. *minor*; Bonner 1962b as *Plagiochila contingens* f. *minor*; Geissler and Bischler 1989 as *Plagiochila contingens* f. *minor*; Heinrichs 2002).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna, 1,050–1,150 m, 1988, *Spörle & Aranda* PAN4057, PAN4058 (GOET, Heinrichs 2002). **PANAMA WEST:** Capira distrito, Altos de Campana National Park, 850 m, 1991, *Salazar Allen* 9465 (U, Heinrichs 2002). **VERAGUAS:** Santa Fe distrito, W of Santa Fe, Cordillera de Tute, Cerro Tute, 950–1,250 m, 1981, *Knapp & Sytsma* 2614 (U, Heinrichs 2002).

Also reported from Western South America.

Plagiochila undata Sull., *Amer. J. Sci. Arts*, ser. 2, 1(1): 73, 1846 (Gray 1846). Type: USA.

COSTA RICA. ALAJUELA: San Ramón cantón, Nectandra Cloud Forest Reserve, Quebrada Verde, Norris 110390 (UC-2053173, Norris et al. 2017).

Also reported from North-Central USA, Northeastern USA(?), Southeastern USA, Mexico, the Caribbean.

Plagiochila vincentina Lindenb., *Sp. Hepat. (Lindenberg)* 2–4: 39, 1840 (Lindenberg 1840). Lectotype: St. Vincent.

=*Plagiochila diversispina* Steph., *Bull. Herb. Boissier*, sér. 2, 2(8): 675 (=Sp. *Hepat. [Stephani]* 2: 212), 1902 (Stephani 1902b), syn. fide Gradstein (2006a). Type: Venezuela.

=*Plagiochila vincentina* Lindenb. f. *minor* Herzog ex Carl, *Ann. Bryol., Suppl.* 2: 52, 1931 (Carl 1931b), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Heinrichs (2002). Original material (cf. Heinrichs et al. 2002: 119): Costa Rica, Limón, Finca Montecristo on the Rio Reventazón below Cairo, ~25 m, Standley & Valerio 48480 (B, JE, US-04627276 <http://n2t.net/ark:/65665/3293e026c-fdbe-41b3-8f3c-60ed70ce616e>).

=*Plagiochila vincentina* Lindenb. f. *minor* Herzog, *Rev. Bryol. Lichénol.* 11(1): 11, 1939 (Herzog 1938), nom. inval. (ICN2018 Art 38.1(a); no description).

GUATEMALA. IZABAL: Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007). QUICHÉ: S. loc., Pérez 2311 (USCG, Pérez 2009).

COSTA RICA. S. loc. (Pagán 1942b). ALAJUELA: San Ramón cantón, Nectandra Cloud Forest Reserve, Quebrada Verde, 2010, Risk 17210 (UC, Norris et al. 2017). CARTAGO: Jiménez cantón, Pejibaye, 900 m, 1926, Standley 47187 (Carl 1931b; Herzog 1938; Morales 1991; Heinrichs 2002; Dauphin 2005); Paraíso cantón, Tapanti National Park, 1,450 m, 1999, Holz CR 99-428 (GOET, Heinrichs et al. 2000b; Heinrichs 2002); Paraíso cantón, Tapanti National Park, Orosi Valley, Sendero "La Oropéndola," Pantanoso, 600 m, 30 Dec 1999, Holz & Schäfer-Verwimp CR 99-1406 (GOET, Holz et al. 2001; Heinrichs 2002; Dauphin 2005). LIMÓN: Finca Montecristo, Standley 48489 (Dauphin 2005); Pococí cantón, Braulio Carrillo National Park, Quebrada González, Las Palmas trail, 2,000 m, 8 Oct 1999, Heinrichs et al. 4162 (CR, B, BM, CBG, hb. Drehwald, E, hb. Frahm, G, GOET, hb. Heinrichs, JE, KRAM, MO, NICH, NY, S, hb. Schäfer-Verwimp, W. Further, Heinrichs and Anton 2001; Holz et al. 2001; Heinrichs 2002; Dauphin 2005); Pococí cantón, Braulio Carrillo National Park, Quebrada González, Las Palmas trail, 2,000 m, 8 Oct 1999, Heinrichs et al. 4166, 4167 (CR, GOET, Holz et al. 2001; Heinrichs 2002; Dauphin 2005); Pococí cantón, Braulio Carrillo National Park, Quebrada González, Las Palmas trail, 425 m, 8 Oct 1999, Heinrichs et al. 4331 (CR, GOET, Groth et al. 2003; Heinrichs et al. 2003a, 2004d, 2005a; Schäfer-Verwimp et al. 2006; Patzak et al. 2016; Renner et al. 2017a); Siquirres cantón, Pinea Montecristo, on the Rio Reventazón, below Cairo, 25 m, Standley 48480 (B, JE, US, TYPE of *Plagiochila vincentina* f. *minor*, Carl 1931b as

Plagiochila vincentina f. *minor*; Herzog 1938 as *Plagiochila vincentina* f. *minor*; Geissler and Bischler 1989 as *Plagiochila vincentina* f. *minor*; Morales 1991; Heinrichs 2002).

PANAMA. S. loc., Seemann (BM, NY, Heinrichs 2002). CHIRIQUÍ: Boquete distrito, Holcomb Trail, Cornman 3137 (PMA, Stotler et al. 1998); Tierras Altas distrito, Cerro Punta, Croat 13782c, det. Inoue as *Plagiochila diversispina* (PMA, Stotler et al. 1998 as *Plagiochila diversispina*). COCLÉ: La Pintada distrito, Cerro Tife, trail from Caño Sucio to the waterfall of the Rio Tife, 400–500 m, Knapp 3759 (MO, NY, Heinrichs 2002). DARIÉN: Cerro Pirre (Stotler et al. 1998); Cerro Pirre, above Rancho Mojado, 800–1,150 m, Salazar Allen & Gradstein 9256 (PMA, U, Stotler et al. 1998; Heinrichs 2002); Cerro Pirre, around INRENARE field station, ~100 m, 4–8 Jun 1991, Gradstein & Salazar Allen (PMA, U, Gradstein and Salazar Allen 1992 as *Plagiochila vincentina* f. *minor*).

COCOS I. S. loc. (Dauphin 2005); S. loc., Dauphin 1104 (USJ, Dauphin 1999); S. loc., Tonduz 6282 (G-25149, M, Heinrichs 2002); between Wafer and Chatham, 100–232 m, 1981, Gómez-Pignataro 17987, 18017, 18100 (U, Heinrichs 2002); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 21 Jan 1990, Dauphin 964, det. S. Gradstein Oct 1994 (USJ-47247, CR-4468317!, W!, U, Dauphin 1995); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 10 Mar 1990, Dauphin A9, det. G. Dauphin Mar 2021 (USJ!, CR-4468319!, this publication); Cutter Rockaway, 1967, Klawe (US, Heinrichs 2002); Sendero a Cerro Yglesias, 5°31'50.13"N, 87°03'57.05"W, 345 m, 26 Jun 2012, Estrada et al. 5872, det. G. Dauphin Jul 2016 (CR-281369!, this publication).

Also reported from the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Plagiochila vulcanica Steph., *Bull. Herb. Boissier*, sér. 2, 2: 671 (=Sp. *Hepat. [Stephani]* 2: 208), 1902 (Stephani 1902b). Lectotype (Bonner 1962b: 332) if not holotype: Costa Rica, Río del Volcán, Pittier 6067 (G-00061525 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=126620&lang=en>).

COSTA RICA. HEREDIA: San Isidro cantón, Yerba Buena, 2,000 m, Standley 49983 (Herzog 1938; Morales 1991; Dauphin 2005). PUNTARENAS: Buenos Aires cantón, Río del Volcán, Pittier (Stephani 1902b; Geissler and Bischler 1989); Buenos Aires, Río de Volcán, Pittier 6067 (Bonner 1962b).

Not found outside Central America.

***Pleurozia* Dumort., *Recueil Observ. Jungerm.*: 15, 1835 (Dumortier 1835).**

Pleurozia heterophylla Steph. ex Fulford, *Mem. New York Bot. Gard.* 23: 842, 1972 (Fulford 1972). Type: Venezuela.

HONDURAS. S. loc. (Rico and Pócs 2004; Mandl et al. 2008; Gradstein 2021). OLANCHO: S. loc., Allen 127018 (MO, Thiers 1993). SANTA BÁRBARA: S. loc., Allen 11663 (MO, Thiers 1993); S. loc., Allen 11680 (MO, Thiers 1993).

Also reported from Northern South America, Western South America.

***Porella* L., Sp. Pl. 1: 1106, 1753 (Linnaeus 1753).**

Porella brachiata (Taylor) Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 334 (Spruce 1885).

≡ *Madotheca brachiata* Taylor, *London J. Bot.* 6: 341, 1847 (Taylor 1847).

Type: Ecuador.

COSTA RICA. S. loc. (Cole 1982, 1983). **CARTAGO:** El Guarco cantón, La Georgina, *Griffin et al.* 423 (FLAS, Morales 1991; Kappelle 1996; Dauphin 2005). **SAN JOSÉ:** S. loc., 2,900 m, 3–5 Sep 1973, *Griffin et al.* 019955 (BR, L, NY, So 2005).

Also reported from Mexico, the Caribbean, Northern South America, Western South America.

Porella crispata (Hook.) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 407, 1877 (Trevisan 1877).

≡ *Jungermannia crispata* Hook., *Pl. crypt. (Hooker)*: tab. 4b, 1816 (Hooker 1816a). Type: Colombia.

≡ *Madotheca subciliata* Lehm. et Lindenb., *Nov. Stirp. Pug.* 7: 9, 1838 (Lehmann 1838), syn. fide So (2005). Type: Ecuador.

≡ *Madotheca arborea* Taylor, *London J. Bot.* 5: 379, 1864 (Taylor 1846a), syn. fide Swails (1970). Type: Ecuador.

≡ *Porella arborea* (Taylor) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 407, 1877 (Trevisan 1877).

≡ *Madotheca subciliata* var. *endiviifolia* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 127, 1951 (Herzog 1951), syn. fide Swails (1970). Lectotype (Swails 1970: 212): Costa Rica, San José, near Santa María de Dota, 1,500–1,800 m, 14–26 Dec 1925, *Standley* 42374, *hb.* Herzog (JE-04001320 <https://je.jacq.org/JE04001320>, *isolectotypes* US-00072952 <http://n2t.net/ark:/65665/3f47db749-f76c-40e4-907c-67c176bf6ec8>).

GUATEMALA. ALTA VERAPAZ: Cobán, 1,350 m, Jul 1906, *Türckheim* (NY, So 2005).

COSTA RICA. S. loc. (Fulford and Sharp 1990). **SAN JOSÉ:** Dota cantón, San Gerardo, Río Savegre, 2,400 m, 10 Nov 1999, *Holz* CR 99-545 (CR, GOET, Holz et al. 2001; Dauphin 2005); Dota cantón, Santa María, 1,500–1,800 m, *Standley* 42374 (JE-04001320 <https://je.jacq.org/JE04001320>, US-00072952, B22084, M-0063707, **TYPE** of *Madotheca subciliata* var. *endiviifolia*, Herzog 1951 as *Madotheca subciliata* var. *‘endiviaefolia’*; Swails 1970; Geissler and Bischler 1985 as *Madotheca subciliata* var. *endiviifolia*; Morales 1991; Kappelle 1996; Dauphin 2005; So 2005).

PANAMA. S. loc. (Fulford and Sharp 1990; Fuertes and Prada 2020). **CHIRIQUÍ:** Boquete, 3–5 Sep 1940, *Svihla* 40-408, 40-423 (Clark and Svihla 1944c as *Porella arborea*; Swails 1970; Stotler et al. 1998 as *Porella crispata* var. *crispata*); David, Hé lion (NY, PR, Swails 1970; Stotler et al. 1998 as *Porella crispata* var. *crispata*; So 2005); Tierras Altas distrito, El Volcán, road to Río Sereno, near Santa Clara, 8°49.8'N, 82°44.0'W, 1,200 m, 2 Apr 2009, *Schäfer-Verwimp & Verwimp* 34711 (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Parque Nacional

Volcán Barú, Paso Ancho, 8°48'54.0"N, 82°34'33.9"W, 2,038 m, 11 Aug 2017, *Guerra* (Arrocha et al. 2020); Tierras Altas distrito, Parque Nacional Volcán Barú, Paso Ancho, 8°48'55.13"N, 82°34'33.50"W, 2,047 m, *Guerra Batista et al.* (UCH, Guerra et al. 2020); Tierras Altas distrito, Volcán, road to Río Sereno, 8°49.67'N, 82°42.85'W, 1,220 m, 2 Apr 2009, *Schäfer-Verwimp & Verwimp* 34692 (JE, Schäfer-Verwimp 2014); Barú Volcano National Park (Rodríguez-Quiel et al. 2022).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Porella leiboldii (Lehm. et Lindenb.) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 407, 1877 (Trevisan 1877).

≡ *Madotheca leiboldii* Lehm. et Lindenb., *Nov. Stirp. Pug.* 8: 11, 1844 (Lehmann 1844). Type: Mexico.

≡ *Madotheca liebmaniana* Lindenb. et Gottsche, *Syn. Hepat.* 1: 731, 1844 (Gottsche et al. 1844), syn. in So (2005). Type: Mexico.

≡ *Porella liebmaniana* (Lindenb. et Gottsche) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 408, 1877 (Trevisan 1877).

≡ *Madotheca alpina* Lindenb. et Gottsche, *Syn. Hepat.* 5: 732 (Gottsche et al. 1847), syn. in So (2005). Type: Mexico.

≡ *Porella alpina* (Lindenb. et Gottsche) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 407, 1877 (Trevisan 1877).

≡ *Madotheca muenchiana* Steph., *Akad. Wiss. Wien, Math.-Naturwiss. Kl., Denkschr.* 85: 264, 1910 (Stephani 1910b), syn. with *Porella liebmaniana* fide Swails (1970). Type: Mexico.

≡ *Madotheca maxonii* Herzog, *Beih. Bot. Centralbl.* 61B(3): 569, 1942 (Herzog 1942b), syn. in So (2005). Lectotype (Swails 1970: 229 as “type”) or possibly holotype: Costa Rica, Vara Blanca, 1,600–1,700 m, 22 Jul 1923, *Maxon & Harvey* 8277 (JE-04001321 <https://je.jacq.org/JE04001321>).

≡ *Porella maxonii* (Herzog) Swails, *Nova Hedwigia* 19: 228, 1970 (Swails 1970).

≡ *Madotheca swartziana* (F. Weber) Lindenb. var. *decurrenti-spinulosa* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 128, 1951 (Herzog 1951), syn. with *Porella maxonii* fide Swails (1970). Lectotype (Swails 1970: 229): Costa Rica: Prov. Cartago, La Estrella, on tree, *Standley* 39553 (JE-04010855 <https://je.jacq.org/JE04010855>).

GUATEMALA. S. loc. (Fulford and Sharp 1990; Linares and Uribe 2002); S. loc., 1841, *Friedrichstahl* (W, So 2005). **ALTA VERAPAZ:** Cobán, *Türckheim* (FH, G, So 2005); Río Carcha, 1,360 m, *Standley* 90724 (F, Swails 1970). **IZABAL:** Livingstone municipio, above Río Frio, 7,700 ft (2,347 m), *Sharp* 302 (TENN, Swails 1970). **SAN MARCOS:** S. loc., 3,800–4,000 m, *Steyermark* 35901 (NY, Swails 1970; Freire 2006; Pérez 2009).

COSTA RICA. Cordillera de Talamanca (Holz and Gradstein 2005b also as *Porella liebmaniana*; Holz 2006 also as *Porella liebmaniana*); S. loc. (Cole 1982, 1983 as *Porella liebmaniana*; Geissler and Bischler 1989 as *Porella maxonii*; Fulford and Sharp 1990 as *Porella maxonii* and *Porella liebmaniana*; Gradstein 1999a; Dauphin 2005; Gradstein and Holz 2005; Schäfer-Verwimp and Pócs 2009); S. loc., *Holz* CR 99-539

(GOET, Hentschel et al. 2007a); S. loc., *Schäfer-Verwimp* & Holz SV/H-0021 (GOET, Heinrichs et al. 2007; Hentschel et al. 2007a). **ALAJUELA:** Alajuela cantón, Viento Fresco, 1,600–1,900 m, Standley & Torres 47747 (hb. Herzog, Swails 1970 as *Porella maxonii*; Morales 1991 as *Porella maxonii*); Alajuela cantón, Viento Fresco, Standley 47747 (B21453, Dauphin 2005 as *Porella maxonii*); Alajuela cantón, Viento Fresco, Standley 47921 (Herzog 1951 as *Madotheca swartziana* var. *decurrenti-spinulosa*; Geissler and Bischler 1985 as *Madotheca swartziana* var. *decurrenti-spinulosa*; Dauphin 2005 as *Porella maxonii*). **CARTAGO:** La Estrella, Standley 39180 (Swails 1970 as *Porella maxonii*; Morales 1991 as *Porella maxonii*; Dauphin 2005 as *Porella maxonii*); La Estrella, Mar 1924, Standley 39553 (JE, M-0063409, TYPE of *Madotheca swartziana* var. *decurrenti-spinulosa*; Herzog 1951 as *Madotheca swartziana* var. *decurrenti-spinulosa*; Swails 1970 as *Porella maxonii*; Geissler and Bischler 1985 as *Madotheca swartziana* var. *decurrenti-spinulosa*; Morales 1991 as *Porella maxonii*; Dauphin 2005 as *Porella maxonii*). **HEREDIA:** Heredia cantón, Vara Blanca, between Poás and Barba volcanoes, 1,600–1,700 m, 22 Jul 1918, Maxon & Harvey 8277 (JE-04001321 <https://je.jacq.org/JE04001321>, TYPE of *Madotheca maxonii*; Herzog 1942b, 1951, both as *Madotheca maxonii*; Swails 1970 as *Porella maxonii*; Geissler and Bischler 1985 as *Madotheca maxonii*; Morales 1991 as *Porella maxonii*; Dauphin 2005 as *Porella maxonii*; So 2005); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, Standley 50312 (hb. Herzog, Herzog 1951 as *Madotheca swartziana* var. *decurrenti-spinulosa*; Swails 1970 as *Porella maxonii*; Geissler and Bischler 1985 as *Madotheca swartziana* var. *decurrenti-spinulosa*; Morales 1991 as *Porella maxonii*; Dauphin 2005 as *Porella maxonii*); San Isidro cantón, Yerba Buena, 2,000 m, Standley & Valerio 49187 (hb. Herzog, Swails 1970 as *Porella maxonii*; Morales 1991 as *Porella maxonii*; Dauphin 2005 as *Porella maxonii*). **PUNTARENAS:** Monteverde (Morales 1991 as *Porella liebmaniana*); Monteverde, 10–17 Mar 1965, James, W. & James, M. 71 (R, Reed and Robinson 1971 as *Porella liebmaniana*; Dauphin 2005 as *Porella liebmaniana*). **SAN JOSÉ:** Cordillera de Talamanca, 1,400–1,450 m, 27 Dec 1999, Schäfer-Verwimp & Holz SV/H-0227 (hb. Schäfer-Verwimp, So 2005); Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002 also as *Porella liebmaniana*); Dota cantón, El Jardín, Morales 294 (FLAS, USJ, Kappelle 1996); Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, San Gerardo (Dauphin 2005 also as *Porella liebmaniana*); Dota cantón, San Gerardo, Holz (Holz 2003 also as *Porella liebmaniana*); Dota cantón, Santa María, 1,500–1,600 m, Standley & Valerio 43157 (hb. Herzog, US, Swails 1970 as *Porella liebmaniana*; Morales 1991 as *Porella liebmaniana*; Kappelle 1996 as *Porella liebmaniana*; Dauphin 2005 as *Porella liebmaniana*); Dota cantón, Santa María, 1,500–1,800 m, Standley 43157 (Herzog 1951 as *Madotheca ‘münchiana’*); en el área de la Cueva de Altamira, Chaverri et al. 1242, det. Griffin (FLAS, Morales 1991; Dauphin 2005); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a).

PANAMA. COCLÉ: Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, Schäfer-Verwimp & Verwimp 34116, 34129 (JE, Schäfer-Verwimp 2014). **VERAGUAS:** S. loc. (Schäfer-Verwimp 2014); Mariato distrito, Cerro Hoya, 440 m, 27 Apr 1997, Cuadra & Flores 5 (GOET, So 2005).

Also reported from Mexico, the Caribbean, Northern South America, Western South America.

Porella swartziana (F.Weber) Trevis. *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 407, 1877 (Trevisan 1877).

≡ *Jungermannia swartziana* F.Weber, *Hist. Musc. Hepat. Prodr.*: 18, 1815 (Weber 1815). Type: Jamaica.

≡ *Madotheca swartziana* (F.Weber) Lehm., *Pugillus* 7: 10, 1838 (Lehmann 1838).

≡ *Madotheca complanata* Steph., *Sp. Hepat. [Stephani]* 4: 219, 1910 (Stephani 1910a), syn. fide Schultze-Motel and Menzel (1987). Type: Venezuela.

≡ *Porella complanata* (Steph.) Swails, *Nova Hedwigia* 19: 219, 1970 (Swails 1970).

≡ *Madotheca swartziana* (F.Weber) Lehm. var. *guatemalensis* Herzog, *Beih. Bot. Centralbl.* 61B(3): 570, 1942 (Herzog 1942b), syn. fide Swails (1970). Lectotype (Swails 1970: 218 as “type”): Guatemala, Petén: Fallabon–Yaxhá Road, 23 Mar 1933, Lundell 2052 (JE-04001294 <https://je.jacq.org/JE04001294>).

≡ *Porella sharpii* Swails, *Nova Hedwigia* 19: 243, 1970 (Swails 1970), syn. fide So (2005). Type: Mexico.

GUATEMALA. S. loc. (Schuster 1980d; Fulford and Sharp 1990 also as *Porella sharpii*; Rivera et al. 2006; Fuertes and Prada 2020); S. loc., Gorman (NY, Freire 2006). **ALTA VERAPAZ:** S. loc., Steyermark 44298 (hb. Fulford, Crandall 1969); Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, 2,060 m, Pérez 92 (USCG, Pérez 2009); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). **CHIQUMULA:** Ipala municipio, Volcán Ipala, Steyermark 30595 (F. Swails 1970; Freire 2006; Pérez 2009). **EL PETÉN:** Camino Fallabon–Yaxhá, Lundell 2052 (hb. Herzog, Swails 1970; Freire 2006); Fallabon–Yaxhá Road, Lundell 2066 (Herzog 1942b as *Madotheca swartziana* var. *guatemalensis*; Geissler and Bischler 1985 as *Madotheca swartziana* var. *guatemalensis*); San José municipio, El Zotz, Can et al. (USCG, Morales 2011). **HUEHUETENANGO:** Todos Santos Cuchumatán municipio, Chinhuitz, 15°30'40"N, 91°38'56"W, Pérez 1186 (USCG, Pérez 2009). **QUETZALTENANGO:** Zunil municipio, Aguas Amargas, 2,450 m, Standley 81362 (F. Swails 1970); Zunil municipio, Aguas Amargas, 2,450 m, Standley 83362 (F. Freire 2006; Pérez 2009). **QUICHÉ:** S. loc., Pérez 2335 (USCG, Pérez 2009); abajo del Río Juarco, 5,700 ft (1,737 m), Sharp 2411 (TENN, Swails 1970 as *Porella sharpii*; Freire 2006 as *Porella sharpii*; Pérez 2009 as *Porella sharpii*). **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007).

BELIZE. S. loc. (Schuster 1980d; Fulford and Sharp 1990). **CAYO:** S. loc. (Whittemore and Allen 1996); S. loc., Mains 3814, 3815, 3831, 3857, 3876 (NY, Swails 1970).

HONDURAS. S. loc. (Rivera et al. 2006; Fuertes and Prada 2020). **LEMPIRA:** Gracias municipio, Montaña de Celaque, 1,900 m, 15 May 1992, *Allen* 12173 (GOET, So 2005).

COSTA RICA. S. loc. (Cole 1982, 1983, both as *Porella sharpii*; Fuertes and Prada 2020); Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b). **CARTAGO:** La Estrella, Mar 1924, *Standley* 39553 (JE, M-0063409, So 2005). **HEREDIA:** Barva cantón, Braulio Carrillo National Park, Sector Volcán Barva, *Griffin et al.* D209, D223 (USJ, FLAS, Morales 1991; Dauphin 2005). **PUNTARENAS:** S. loc. (Merwin et al. 2001); Monteverde, <1,500 m (Morales 1991; Dauphin 2005); Monteverde cantón, along South Line, 16 Mar 1969, *James, W.* 1969-83 (R, Reed and Robinson 1971); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde cantón, Reserva Biológica Monteverde, *Gradstein* 9461, 9477, 9493 (GOET, Dauphin 2005); Monteverde, 10–17 Mar 1965, *James, W. & James, M.* 42b, 72 (R, Reed and Robinson 1971). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, El Jardín, *Morales* 294 (FLAS, USJ, Morales 1991 as *Porella complanata*; Kappelle 1996 as *Porella complanata*; Dauphin 2005 as *Porella complanata*); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, 1,950 m, 25 Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0088 (hb. Schäfer-Verwimp, So 2005).

PANAMA. S. loc. (Stephani 1910a as *Madotheca swartziana*; Pagán 1939c; Clark and Svihla 1944a; Frye and Clark 1946; Schuster 1980d; Fulford and Sharp 1990 as *Porella complanata*; Stotler et al. 1998). **CHIRIQUÍ:** Boquete distrito, Bois de Boquete, Nov 1906, *Hélion* 86 (So 2005); Camino Los Indios, between Estrella Arriba and La Hacienda, *Salazar Allen & Wilson* 1259, 1261 (PMA, Stotler et al. 1998 as *Porella complanata*); David, *Hélion* (NY, PR, Swails 1970 as *Porella complanata*; Stotler et al. 1998 as *Porella complanata*); Tierras Altas distrito, Cerro Punta, *Croat* 16133 (MO, Stotler et al. 1998); Tierras Altas distrito, Cerro Punta, Alto de Pineda, 8,000–8,400 ft (2,438–2,560 m), *Salazar Allen* 1091 (PMA, Stotler et al. 1998 as *Porella complanata*); Tierras Altas distrito, Parque Nacional Volcán Barú, Paso Ancho, 8°48'55.13"N, 82°34'33.50"W, 2,047 m, *Guerra Batista et al.* (UCH, Guerra et al. 2020 as *Porella complanata*); Barú Volcano National Park (Rodríguez-Quiel et al. 2022 as *Porella complanata*).

Also reported from Southern Africa, Indo-China, South-eastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

***Prionolejeunea* (Spruce) Schiffn., Hepat.
(Engl.-Prantl): 127, 1893 (Schiffner 1893a).**

Prionolejeunea aemula (Gottsche) A. Evans, *Bull. Torrey Bot. Club* 31(4): 219, 1904 (Evans 1904).

≡ *Lejeunea aemula* Gottsche, *Syn. Hepat.* 3: 338, 1845 (Gottsche et al. 1845a). Type: St. Kitts.

GUATEMALA. ALTA VERAPAZ: S. loc., 1,500–1,600 m, 21 Jul 1977, *Croat* 41772b (GOET, JE, Ilkiu-Borges 2006, 2016); Panzós municipio, Cahabón and/or Senahú, 2012, *Pérez & López-Medina*, det. M. Pérez (Pérez and López-Medina 2012). **QUICHÉ:** S. loc., *Pérez* 2341 (USCG, Pérez 2009). **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, Ramírez 2007).

BELIZE. S. loc. (Ilkiu-Borges 2016). **CAYO:** S. loc., Dec 1993, *Allen* 15091 (BRH, MO, Whittemore and Allen 1996). **TOLEDO:** S. loc., Dec 1993, *Allen* 15295B, 15308B, 15501 (BRH, MO, Whittemore and Allen 1996).

COSTA RICA. LIMÓN: Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 500 m, 29 Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0294/A (hb. Schäfer-Verwimp, Ilkiu-Borges 2006, 2016); Pococí cantón, Braulio Carrillo National Park, Botarrama, 450 m, 19 Apr 2001, *Dauphin* 2955 (NY, Ilkiu-Borges 2006, 2016). **PUNTARENAS:** Coto Brus cantón, Cerro Paraguas, Fila Cruces, 1,410–1,520 m, Aug 1995, *Dauphin* 1801 (GOET, Ilkiu-Borges 2006, 2016).

PANAMA. ?CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (Salazar Allen et al. 2021 as *Prionolejeunea* cf. *aemula*). Note: We are not aware of any positively identified specimen from Chiriquí. **COCLÉ:** Antón distrito, El Valle de Antón, access to Cerro Gaital, 8°37'N, 80°07'W, 700–1,000 m, 31 Mar 2006, *Schäfer-Verwimp & Verwimp* 30771, 30773 p.p., 30788 (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8°N, 80°06.9–7.0°W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34190/A (JE, Schäfer-Verwimp 2014); La Pintada distrito, El Copé, Parque Nacional General División Omar Torrijos Herrera, sendero La Rana Dorada, Río Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López* 665, 715 (PMA, Sierra et al. 2019a). **DARIÉN:** S. loc. (Schäfer-Verwimp 2014); Cerro Pirre (Stotler et al. 1998); Cerro Pirre, 1,200–1,300 m, *Salazar Allen & Gradstein* 9294 (PMA, Stotler et al. 1998); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992); Chepigana distrito, NE slope of Summit Cerro Sapo, approach from Garachiné, 1,100 m, 8 May 1979, *Hammel* 7265 (GOET, Ilkiu-Borges 2006, 2016). **PANAMA:** S. loc. (Schäfer-Verwimp 2014); Panamá distrito, Cerro Jefe, entering Las Nubes, 1,000 m, 12 Jun 1991, *Salazar Allen & Gradstein* 9403 (PMA, GOET, Stotler et al. 1998).

Also reported from the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Prionolejeunea ampliretis Herzog, *Feddes Repert. Spec. Nov. Regni Veg.* 57(1/2): 178, 1955 (Herzog 1955a). Type: Colombia.

***NICARAGUA. *ATLÁNTICO SUR:** Nueva Guinea municipio, road from Río Blanco to Río Copalar, 12°55'N, 85°05'W, 200–400 m, 13 Feb 1979, *Stevens* 12050 p.p., det. Dauphin May

2017 (MO-6699911! <http://tropicos.org/specimen/100988666>, this publication).

PANAMA. S. loc. (Schäfer-Verwimp et al. 2013; Gradstein 2021). ***BOCAS DEL TORO:** Bocas del Toro distrito, Bastimentos, Salt Creek, Sendero a Long Beach, 9.29456°N, 82.10303°W, 70 m, 16 Aug 2017, *Hernández-Rodríguez* 796, det. Hernández-Rodríguez Aug 2017 (PMA, this publication). **COCLÉ:** Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8°N, 80°06.9–7.0°W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34238/B (JE, Schäfer-Verwimp 2014). **PANAMA:** S. loc. (Schäfer-Verwimp 2014); Panamá distrito, Parque Nacional Chagres, Cerro Azul, Sendero El Cantar, 800 m, 20 Mar 1996, *Reiner-Drehwald* 960121 (GOET, Ilkiu-Borges 2006, 2016).

Also reported from the Caribbean, Northern South America, Western South America.

Prionolejeunea clementinae Ilk.-Borg., G. Dauphin et N. Salazar, *Nova Hedwigia* 106(1/2): 66, 2018 (Ilkiu-Borges et al. 2018). Holotype: Panamá, Distrito La Pintada, Corregimiento El Copé, P. N. General de División Omar Torrijos Herrera, Sendero Cuerpo de Paz, Transecto #2, UTM: 17 P, 545027 E 958212 N, 696 m, on *Ficus* tree, 1 m from the ground, in exposed site, 31 Jul 2012, *Dauphin & Gudiño* L. 4442 (holotype PMA, isotype MG).

PANAMA. **COCLÉ:** La Pintada distrito, Corregimiento El Copé, Parque Nacional G. D. Omar Torrijos H., Sendero La Rana Dorada, 8°40'06"N, 80°35'26"W, 696 m, 31 Jul 2012, *Dauphin & Gudiño* 4442 (PMA, MG, Ilkiu-Borges et al. 2018; Söderström et al. 2020); La Pintada distrito, Corregimiento El Copé, Parque Nacional G. D. Omar Torrijos H., Sendero La Rana Dorada, 8°40'06"N, 80°35'26"W, 696 m, 31 Jul 2012, *Dauphin & Gudiño* 4445 (PMA, MG, Ilkiu-Borges et al. 2018).

Not found outside Central America.

Prionolejeunea decora (Taylor) Steph., *Sp. Hepat. (Stephani)* 5: 207, 1913 (Stephani 1913).

=*Lejeunea decora* Taylor, *London J. Bot.* 5: 393, 1846 (Taylor 1846a). Type: Dominica.

HONDURAS. **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 56369 p.p. (JE, Ilkiu-Borges 2006, 2016).

COSTA RICA. ***GUANACASTE:** Liberia cantón, Guanacaste National Park, Sector Orosi, Sendero Casafrán, 11°00'00"N, 83°33'00"W, 10 Jun 1996, *Dauphin & Valdelomar* 2511, det. Dauphin Dec 2020 (CR-151109!, this publication). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, Botar-rama, 450 m, 19 Apr 2001, *Dauphin* 2955 (NY, Ilkiu-Borges 2006, 2016). **PUNTARENAS:** Monteverde cantón, Campbell's Wood, 1,500 m, 1990, *Sillett* (GOET, Ilkiu-Borges 2006, 2016); Monteverde cantón, Reserva Biológica Monteverde, 1,550 m, Nov 1993, *Gradstein* 9528 (GOET, Ilkiu-Borges 2006, 2016).

PANAMA. S. loc. (Lavocat Bernard et al. 2009). **CHIRIQUÍ:** S. loc. (Schäfer-Verwimp 2014); Gualaca distrito, Reserva

Forestal La Fortuna, Hornito, Sendero Quebrada Alemán, 1,100–1,200 m, 16 Mar 1996, *Reiner-Drehwald* 960064 (GOET, Ilkiu-Borges 2006, 2016). **COCLÉ:** Antón distrito, El Valle de Antón, ascent to "India Dormida," 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, *Schäfer-Verwimp & Verwimp* 34153/A (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8°N, 80°06.9–7.0°W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34183, 34200, 34212, 34219, 34247, 34253/B (JE, Schäfer-Verwimp 2014); La Pintada distrito, El Copé, 700–750 m, 17 Nov 1985, *Brako* 8474 (NY, Ilkiu-Borges 2006, 2016). **DARIÉN:** S. loc. (Schäfer-Verwimp 2014); Cerro Pirre, from camping site of Rancho Mojado, 1,000 m, 1991, *Salazar Allen & Gradstein* 9259b (JE, Ilkiu-Borges 2006, 2016). **PANAMA:** S. loc. (Schäfer-Verwimp 2014); Panamá distrito, Cerro Jefe, entering Las Nubes, 1,000 m, 12 Jun 1991, *Salazar Allen & Gradstein* 9403 (PMA, GOET, Ilkiu-Borges 2006, 2016); Panamá distrito, Parque Nacional Chagres, Cerro Azul, Sendero El Cantar, 800 m, 20 Mar 1996, *Reiner-Drehwald* 960117, 960122, 960139 (GOET, Ilkiu-Borges 2006, 2016). **VERAGUAS:** Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, *Schäfer-Verwimp & Verwimp* 30837, 30852 (JE, Schäfer-Verwimp 2014).

Also reported from the Caribbean, Northern South America, Western South America, Brazil(?).

Prionolejeunea denticulata (F. Weber) Schiffn., *Hepat. (Engl.-Prantl)*: 127, 1893 (Schiffner 1893a).

=*Jungermannia denticulata* F. Weber, *Hist. Musc. Hepat. Prodr.*: 30, 1815 (Weber 1815). Type: "Patria ignota" (Jamaica?).

=*Lejeunea microdonta* Gottsche, *Syn. Hepat.* 3: 337, 1845 (Gottsche et al. 1845a), syn. fide Ilkiu-Borges (2006). Type: West Indies.

=*Prionolejeunea microdonta* (Gottsche) Steph., *Bull. Herb. Boissier* 5(10): 842, 1897 (Stephani 1897a), syn. fide Ilkiu-Borges in Dauphin (2005).

=*Lejeunea macrocardia* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15(1): 158, 1884 (Spruce 1884), syn. fide Ilkiu-Borges (2006). Type: Peru.

=*Prionolejeunea macrocardia* (Spruce) Steph., *Sp. Hepat. (Stephani)* 5: 198, 1913 (Stephani 1913).

=*Lejeunea angulistipa* Prantl, *Hedwigia* 29: XIV, 1890 (Prantl 1890), syn. fide Grolle (1984b). Type: West Indies.

=*Cyclolejeunea angulistipa* (Prantl) A. Evans, *Bull. Torrey Bot. Club* 31(4): 203, 1904 (Evans 1904).

=*Prionolejeunea aequitexta* A. Evans, *Bull. Torrey Bot. Club* 31(4): 217, 1904 (Evans 1904), syn. fide Ilkiu-Borges in Dauphin (2005). Type: Puerto Rico.

=*Prionolejeunea innovata* A. Evans, *Bull. Torrey Bot. Club* 31(4): 217, 1904 (Evans 1904), syn. fide Ilkiu-Borges in Dauphin (2005). Type: Puerto Rico.

GUATEMALA. ?**ALTA VERAPAZ:** Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Prionolejeunea* cf. *denticulata*). Note: We do not know of any positively identified specimen from Alta Verapaz. **IZABAL:** Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, *Ramírez* (USCG, BIGU, Ramírez

2007 as *Prionolejeunea* aff. *denticulata*). Note: We do not know of any positively identified specimen from Izabal. **QUICHÉ:** S. loc., Pérez 2331 (USCG, Pérez 2009).

***BELIZE.** ***TOLEDO:** Columbia River Forest Reserve, Camp 1, 16°22'59"N, 89°07'18"W, 705 m, 12 Feb 1997, *Allen* 18622, det. Dauphin Jun 2017 (MO-5228085! <http://tropicos.org/specimen/90101515>, [this publication](#)).

HONDURAS. S. loc. (Lücking 1995; Ilkiu-Borges 2000). **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 56369 p.p. (JE, *Herzog* 1951).

***NICARAGUA.** ***GRANADA:** Granada municipio, Volcán Mombacho, 8 Jun 1981, *Heinrichs* 186 p.p., det. Dauphin May 2017 (MO-6699905! <http://tropicos.org/specimen/100988675>, [this publication](#)).

COSTA RICA. S. loc. (Ilkiu-Borges 2000; Schäfer-Verwimp and Pócs 2009). **ALAJUELA:** San Ramón cantón, Nectandra Cloud Forest Reserve, Quebrada Verde, *Norris* 109995 (UC-2053900, *Norris et al.* 2017). **GUANACASTE:** Liberia cantón, Guanacaste National Park, Sector Cacao, *Espinoza* 38.1 (CR, *Dauphin* 2005); Liberia cantón, Guanacaste National Park, Sector Pitilla, Cerro Orosilito, *Dauphin* 2559, det. Dauphin (CR, *Dauphin* 2005). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, Botarrama trail, *Lücking* 92-189 (*Dauphin* 2005); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, *Lücking* 92-294 (USJ, *Gradstein et al.* 1994; *Dauphin* 2005); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 92-189 (hb. Lücking, USL, *Lücking* 1995 as *Prionolejeunea aequitexta*; *Dauphin et al.* 1998 as *Prionolejeunea aequitexta*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 92-121, 92-122, 92-123, etc. (hb. Lücking, *Lücking* 1995 also as *Prionolejeunea aequitexta*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (*Lücking* 1997 also as *Prionolejeunea aequitexta*); Pococí cantón, Braulio Carrillo National Park, near the entrance, 500 m, 29 Dec 1999, *Schäfer-Verwimp & Holz* SV/H-0304/B, SV/H-0308/B (JE, *Ilkiu-Borges* 2006, 2016); Pococí cantón, Guápiles, 300–500 m, *Standley* 37486a (JE, *Herzog* 1951 as *Prionolejeunea innovata*; *Morales* 1991 as *Prionolejeunea innovata*; *Dauphin* 2005; *Ilkiu-Borges* 2006 as *Prionolejeunea innovata*, 2016). **PUNTARENAS:** Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (*Sonnleitner et al.* 2009); Osa cantón, Rincón, trail Boscosa-Cerro Chocuaco, 450 m, Oct 1993, *Gradstein & Dauphin* 9320, 9324 (GOET, *Ilkiu-Borges* 2006, 2016).

PANAMA. Canal Zone (Schäfer-Verwimp 2014). **COCLÉ:** Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8°N, 80°06.9–7°W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp* 34188, 34190/B (JE, *Schäfer-Verwimp* 2014); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Río Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López* 664, 667, 672, 674, 681, 687, 688, 691 p.p., 692, 693, 722 p.p., 728, 729, 733, 747.3 p.p.,

824 p.p. (PMA, *Sierra et al.* 2019a). **DARIÉN:** S. loc. (Schäfer-Verwimp 2014); Cerro Pirre (Stotler et al. 1998 as *Prionolejeunea macrocardia*); Cerro Pirre, 800–1,150 m, 5 Jun 1991, *Salazar Allen & Gradstein* 9258 (GOET, *Ilkiu-Borges* 2006, 2016); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992 as *Prionolejeunea macrocardia*); Estación Pirre, base of Cerro Pirre, 100 m, 7 Jul 1991, *Salazar Allen & Gradstein* 9225 (PMA, GOET, JE, *Stotler et al.* 1998 as *Prionolejeunea macrocardia*). **PANAMA WEST:** La Chorrera distrito, Barro Colorado Island, *Salazar Allen & Gradstein* 15086 (PMA, *Stotler et al.* 1998 as *Prionolejeunea macrocardia*). **PANAMA:** S. loc. (Schäfer-Verwimp 2014); Panamá distrito, Parque Nacional Soberanía, Sendero “Camino de Cruces,” 0–50 m, 12 Mar 1996, *Reiner-Drehwald* 960025 (GOET, *Ilkiu-Borges* 2006, 2016).

COCOS I. S. loc. (Ilkiu-Borges 2000, 2016); S. loc., *Dauphin* 965 (USJ, *Dauphin* 1999 as *Prionolejeunea* cf. *innovata*); S. loc., *Gómez-Pignataro* 3345B, det. G. Dauphin and A. Ilkiu-Borges Sep 2020 (FI, CR!, [this publication](#)); Cerro Pelón, 5°32'57"N, 87°03'56"W, 500 m, 14 Feb 1994, *Dauphin* A-7, det. M. I. Morales (USJ, *Dauphin* 1995 as *Cyclolejeunea angulistipa*, 1999); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 540 m, 21 Jan 1990, *Dauphin* 983, det. G. Dauphin Apr 2021 (USJ-47643!, CR-4468402!, WI!, [this publication](#)); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 14 Feb 1994, *Dauphin* 965, det. M. I. Morales (USJ, *Dauphin* 1995 as *Prionolejeunea* cf. *innovata*); Río Genio, 5°32'57"N, 87°03'56"W, 0–50 m, *Lücking* 92-295 (USJ, *Gradstein et al.* 1994; *Dauphin* 1995, 2005); Río Genio, 5°32'57"N, 87°03'56"W, Apr 1992, *Lücking* 92-295 (hb. Lücking, *Lücking* 1995).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Prionolejeunea galliotii Steph. *Sp. Hepat. [Stephani]* 6: 388, 1923 (Stephani 1923). Type: French Guiana.

PANAMA. **PANAMA:** Panamá distrito, Parque Nacional Soberanía, Sendero “Camino de Cruces,” 0–50 m, Mar 1996, *Reiner-Drehwald* 960026 (GOET, *Ilkiu-Borges* 2006, 2016; *Heinrichs et al.* 2014c).

COCOS I. Chatham Bay, 1964, *Weber* B-14295 (JE, *Ilkiu-Borges* 2006, 2016).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Prionolejeunea mucronata (Sande Lac.) Steph., *Hedwigia* 35(3): 119, 1896 (Stephani 1896).

≡ *Lejeunea mucronata* Sande Lac., *Syn. hepat. jav.*: 106, 1857 (Sande Lacoste 1856). Type: Venezuela.

GUATEMALA. **EL PROGRESO:** San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, *Ramírez* (USCG, *BIGU, Ramírez* 2007).

COSTA RICA. S. loc. (Dauphin et al. 2015). **CARTAGO:** Cartago cantón, El Muñeco, Río Navarro, 1,400–1,500 m,

6–7 Mar 1926, *Standley 50905a* (JE-04001277 <https://je.jacq.org/JE04001277>, JE-04001278, B-300025820, S-B72010, **Morales 1991; Dauphin 2005**). **LIMÓN**: Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 500 m, 29 Dec 1999, *Schäfer-Verwimp & Holz SV/H-0287* (M, hb. Schäfer-Verwimp, **Ilkiu-Borges 2006, 2016; Heinrichs et al. 2014c**); Pococí cantón, Braulio Carrillo National Park, Botarrama, 450 m, 19 Apr 2001, *Dauphin 2955* (NY, **Ilkiu-Borges 2006, 2016**). **PUNTARENAS**: Monteverde (Morales 1991); Monteverde, 10 Jan 1965, *James, M. 34, 80* (US, R, **Reed and Robinson 1971; Dauphin 2005; Ilkiu-Borges 2006, 2016**); Monteverde, 10–17 Mar 1965, *James, W. & James, M. 34b, 50a, 69, 108* (R, US, **Reed and Robinson 1971; Dauphin 2005; Ilkiu-Borges 2006, 2016**).

PANAMA. COCLÉ: La Pintada distrito, Corregimiento El Copé, Parque Nacional G. D. Omar Torrijos H., Sendero La Rana Dorada, 8°40'06"N, 80°35'26"W, 696 m, 31 Jul 2017, *Dauphin & Gudiño 4499* (PMA, **Dauphin et al. 2015**); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Río Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López 666, 672, 715, 722 p.p.* (PMA, **Sierra et al. 2019a**).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Prionolejeunea muricatoserrulata (Spruce) Steph., *Sp. Hepat. [Stephani]* 5: 223 (Stephani 1913).

=*Lejeunea muricatoserrulata* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15(1): 155, 1884 (Spruce 1884). Type: Brazil.

=*Prionolejeunea mucronata* f. *minutissima* Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 141, 1951 (Herzog 1951), syn. fide Ilkiu-Borges (2006). Lectotype (Söderström and Hentschel 2023: 22): Costa Rica, Cartago, El Muñeco, Río Navarro, 1,400–1,500 m, *Standley & Torres 50905a* (JE-04001277 <https://je.jacq.org/JE04001277>, isoelectotypes JE-04001278 <https://je.jacq.org/JE04001278>, B-300025820 <https://herbarium.bgbm.org/object/B300025820>, S-B72010 <https://herbarium.nrm.se/specimens/B72010>).

BELIZE. TOLEDO: Punta Gorda, 1932, *Dodge 59* (JE, **Ilkiu-Borges 2006, 2016**).

***HONDURAS. ATLÁNTIDA**: El Porvenir municipio, Pico Bonito National Park, base of N slope of Pico Bonito, 15°42'N, 86°51'W, 140 m, 8 May 1993, *Liesner & Meijia 26009 p.p.*, det. Dauphin 2017 (MO-6699932! <http://tropicos.org/specimen/801656>, **this publication**).

COSTA RICA. CARTAGO: Cartago cantón, El Muñeco, Río Navarro, 1,400–1,500 m, *Standley & Torres 50905a* (JE, B, S-B72010, **Ilkiu-Borges 2006, 2016**); Cartago cantón, El Muñeco, Río Navarro, 1,400–1,500 m, 6–7 Mar 1926, *Standley 50905a* (JE-04001277 <https://je.jacq.org/JE04001277>, JE-04001278, B-300025820, S-B72010, **TYPE** of *Prionolejeunea mucronata* f. *minutissima*, **Herzog 1951** as *Prionolejeunea mucronata* f. *minutissima*). **LIMÓN**: Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking 92-198, 92-199, 92-241, 92-421, 92-464, 92-580* (hb. Lücking, **Lücking 1995**); Pococí cantón, Braulio Carrillo

National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (**Lücking 1997**). **PUNTARENAS**: Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (**Sonnleitner et al. 2009**). **SAN JOSÉ**: Moravia cantón, La Hondura, 1,200–1,500 m, *Standley 51801 p.p.* (B, JE, **Herzog 1951; Morales 1991; Dauphin 2005; Ilkiu-Borges 2006, 2016**).

PANAMA. S. loc. (Lücking 1995). **DARIÉN**: Cerro Pirre (Stotler et al. 1998); Cerro Pirre, around INRENARE field station, ~100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, **Gradstein and Salazar Allen 1992**); Estación Pirre, base of Cerro Pirre, 100 m, 7 Jul 1991, *Salazar Allen & Gradstein 9225* (PMA, GOET, JE, **Ilkiu-Borges 2006, 2016**). **PANAMA WEST**: La Chorrera distrito, Barro Colorado Island, *Gradstein & Salazar Allen 15082* (**Dauphin et al. 2022**); La Chorrera distrito, Barro Colorado Island, ~150 m, Oct 1993, *Gradstein & Salazar Allen 15086, 15098* (JE, **Ilkiu-Borges 2006, 2016; Dauphin et al. 2022**); La Chorrera distrito, Barro Colorado, Armour, 2003, *Dauphin 3090* (CR, PMA, **Dauphin et al. 2022**); La Chorrera distrito, Barro Colorado, Lutz tower, 2003, *Dauphin 3085* (CR, PMA, **Dauphin et al. 2022**).

COCOS I. Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 21 Jan 1990, *Dauphin 978 p.p.*, det. G. Dauphin Apr 2021 (USJ-47536!, CR-4468413!, **this publication**); Río Genio, 5°32'57"N, 87°03'56"W, Apr 1992, *Lücking 92-291* (hb. Lücking, **Lücking 1995**).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Prionolejeunea scaberula (Spruce) Steph., *Sp. Hepat. [Stephani]* 5: 214, 1913 (Stephani 1913).

=*Lejeunea scaberula* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 159, 1884 (Spruce 1884). Type: Brazil.

PANAMA. COCLÉ: Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, *Schäfer-Verwimp & Verwimp 34153/C* (JE, **Schäfer-Verwimp 2014**). **PANAMA WEST**: La Chorrera distrito, Barro Colorado Island, *Gradstein & Salazar Allen 15087* (**Dauphin et al. 2022**).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Prionolejeunea schlimiana (Gottsche) Steph., *Sp. Hepat. [Stephani]* 5: 214, 1913 (Stephani 1913).

=*Lejeunea schlimiana* Gottsche, *Ann. Sci. Nat. Bot.*, sér. 5, 1: 154, 1864 (Gottsche 1864). Type: Colombia.

COSTA RICA. S. loc., *Dauphin 2115* (GOET, **Heinrichs et al. 2014c**). **ALAJUELA**: Río Cuatre cantón, Laguna Hule, 700 m, 12 Jan 1996, *Dauphin & Gonzáles 2115* (GOET, **Ilkiu-Borges 2006, 2016**). **PUNTARENAS**: Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, **USJ, Gradstein et al. 2001a**); Monteverde cantón, Reserva Biológica Monteverde, 1,550 m, Nov 1993, *Gradstein 9417, 9460, 9528, 9536, 9552* (GOET, U,

USJ, Gradstein et al. 1994; Dauphin 2005; Ilkiu-Borges 2006, 2016); Monteverde, 1,550 m, *Gradstein & Solano 9460* (U, USJ, Gradstein et al. 1994; Dauphin 2005).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, NW of camping site, 1,000–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, SW of camping site, from Finca Pittí to foothills of Cerro Fortuna, 1,000–1,270 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, near southern edge of storage lake, 8°44.0'N, 82°14.5'W, 1,215 m, 30 Mar 2009, *Schäfer-Verwimp & Verwimp 34503* (JE, Schäfer-Verwimp 2014). **COCLÉ:** Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8'N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp 34185, 34194, 34218/C* (JE, Schäfer-Verwimp 2014); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Rio Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López 673, 716* (PMA, Sierra et al. 2019a). **DARIÉN:** S. loc. (Schäfer-Verwimp 2014); Chepigana distrito, Cerro Sapo, 762 m, 1 Feb 1978, *Hammel 1248* (GOET, Ilkiu-Borges 2006, 2016). **PANAMA WEST:** Capira distrito, Altos de Campana National Park, Sendero de Interpretación, 850 m, 13 Jul 1991, *Salazar Allen & Gradstein 9449* (GOET, Ilkiu-Borges 2006, 2016). **PANAMA:** Panamá distrito, La Eneida, Cerro Jefe region, 750 m, 12 Jan 1972, *Maas & Dressler 692a* (GOET, Ilkiu-Borges 2006, 2016). **VERAGUAS:** Santa Fe distrito, Piedra Alto, 8°30–31'N, 81°07–08'W, 800–850 m, 27 Mar 2009, *Schäfer-Verwimp & Verwimp 34313/B* (JE, Schäfer-Verwimp 2014).

Also reported from Northern South America, Western South America.

Prionolejeunea trachyodes (Spruce) Steph., *Sp. Hepat. [Stephani]* 5: 215, 1913 (Stephani 1913).

≡ *Lejeunea trachyodes* Spruce, *J. Linn. Soc., Bot.* 30(210): 338, 1895 (Gepp 1895). Type: Dominica.

COSTA RICA. LIMÓN: Pococí cantón, Braulio Carrillo National Park, near park entrance, 10°06.9'N, 83°58.4'W, 500, 29 Dec 1999, *Schäfer-Verwimp & Holz SV/H-0283/A* (CR, JE, Ellis et al. 2014a).

PANAMA. S. loc. (Bastos and Ilkiu-Borges 2011; Ellis et al. 2014a; Fagundes et al. 2016; Lavocat Bernard and Reeb 2016; Lavocat Bernard 2018; Gradstein 2021); S. loc., *Schäfer-Verwimp & Verwimp 30778* (M, Heinrichs et al. 2014c). **COCLÉ:** Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 700–1,000 m, 31 Mar 2006, *Schäfer-Verwimp & Verwimp 30778* (JE, Schäfer-Verwimp 2014). **DARIÉN:** S. loc. (Schäfer-Verwimp 2014); Cerro Pirre (Stotler et al. 1998); Cerro Pirre, 800–1,150 m, *Salazar Allen & Gradstein 9267* (PMA, Stotler et al. 1998); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992); INRENARE station, foothills

of Cerro Pirre, 800–1,150 m, 1991, *Salazar Allen & Gradstein 9267* (PMA, JE, Ilkiu-Borges 2006, 2016; Stotler et al. 1998).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

***Pseudocephalozia* R.M.Schust., Nova Hedwigia 10(1/2): 21 (Schuster 1965).**

Pseudocephalozia quadriloba (Steph.) R.M.Schust., *J. Hattori Bot. Lab.* 36: 371, 1973 (Schuster 1972).

≡ *Isotachis quadriloba* Steph., *Bih. Kongl. Svenska Vetensk.-Akad. Handl.* 26(III, 6): 54, 1900 (Stephani 1900c). Type: Chile.

COSTA RICA. S. loc. (Gradstein et al. 1977; Engel 1978, 1990; Hässel and Solari 1985; Gradstein 1999a; Gradstein et al. 2001b; Dauphin 2005; Gradstein and Holz 2005; Benitez et al. 2013; Váña and Engel 2013; Burghardt 2019; Gradstein 2021); Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b). **ALAJUELA:** Poás (Schuster 1990); Poás cantón, Poás Volcán between crater and lagoon, 2,600 m, *Engel 8957, 8969* (F, Schuster and Engel 1974); Poás National Park (Gradstein et al. 1994; Dauphin 2005); Poás Volcano, 2,600 m (Engel and Glenn 2008); Poás Volcano, vicinity of crater, 2,600 m, *Schuster RMS 71-198, 71-199* (hb. Schuster, Schuster and Engel 1974; Schuster 2000c).

Also reported from Northern South America, Western South America, Southern South America, Subantarctic Islands.

***Pseudomarsupidium* Herzog, Svensk Bot. Tidskr. 47(1): 42, 1953 (Herzog 1953).**

Pseudomarsupidium decipiens (Hook.) Grolle, *Trans. Brit. Bryol. Soc.* 4(3): 443, 1963 (Grolle 1963c).

≡ *Jungermannia decipiens* Hook., *Brit. Jungermann.*: tab. 50, 1813 (Hooker 1813). Type: Ireland.

≡ *Adelanthus decipiens* (Hook.) Mitt., *J. Proc. Linn. Soc., Bot.* 7(28): 244, 1864 (Mitten 1864).

= *Adelanthus crossii* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 404, 1885 (Spruce 1885), syn. fide León-Yáñez et al. (2006). Type: Colombia.

COSTA RICA. S. loc. (Gradstein et al. 1983 as *Adelanthus decipiens*; Fulford 1987 as *Adelanthus decipiens*; Fulford and Sharp 1990 as *Adelanthus decipiens*; Gradstein 1999a as *Adelanthus crossii*; Paton 1999 as *Adelanthus decipiens*; Gradstein and Holz 2005 as *Adelanthus crossii* and *Adelanthus decipiens*; Váña and Engel 2013); Cordillera de Talamanca (Holz 2003 as *Adelanthus crossii*, 2006 as *Adelanthus decipiens*; Holz and Gradstein 2005b as *Adelanthus crossii* and *Adelanthus decipiens*). **ALAJUELA:** Poás Volcano, 2,500 m, 1929, *Valerio 80*, det. Herzog as *Adelanthus crossii* Spruce (B-18569, Herzog 1938 as *Adelanthus crossii*; Dauphin 2005 as *Adelanthus decipiens*, but this specimen is rejected as *Adelanthus pittieri* by Grolle 1972c); Poás Volcano, 30 Jul 1977, *Griffin & Araya 17* (USJ, FLAS, Morales and Griffin 1983 as *Adelanthus decipiens*; Morales 1991 as *Adelanthus decipiens*; Dauphin 2005 as *Adelanthus decipiens*). **PUNTARENAS:** S. loc. (Merwin et al. 2001

as *Adelanthus decipiens*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a as *Adelanthus decipiens*). SAN JOSÉ: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, *Holz et al.* 2002 as *Adelanthus decipiens*); Dota cantón, San Gerardo (Dauphin 2005 as *Adelanthus decipiens*); Dota cantón, San Gerardo, *Holz* (*Holz* 2003 as *Adelanthus decipiens*); Los Santos Forest Reserve, ~2,900 m (*Holz and Gradstein* 2005a as *Adelanthus decipiens*); Moravia cantón, La Hondura, *Standley* 37825 (JE, *Grolle* 1972c as *Adelanthus decipiens*; *Morales* 1991 as *Adelanthus decipiens*; *Dauphin* 2005 as *Adelanthus decipiens*).

PANAMA. S. loc. (Vaña and Engel 2013). CHIRIQUÍ: Boquete distrito, Palo Alto, 1,300–1,400 m, *Salazar Allen et al.* 751 p.p. (PMA, *Stotler et al.* 1998 as *Adelanthus decipiens*), Barú Volcano National Park (*Rodríguez-Quiel et al.* 2022). NASO TÍJER DI COMARCA: Cerro Fábrega, *De Gracia* 343 (PMA, *Dauphin* 2007 as *Adelanthus decipiens*); Parque Internacional La Amistad, Cerro Fábrega, 3,150–3,353 m, *Dauphin* 1569 (GOET, CR, PMA, U, *Stotler et al.* 1998 as *Adelanthus crossii*; *Dauphin* 2007 as *Adelanthus crossii*).

Also reported from Northern Europe, Southwestern Europe, Macaronesia, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Middle Atlantic Ocean, Western Indian Ocean, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Subantarctic Islands.

***Pycnolejeunea* (Spruce) Schiffn., Hepat.
(Engl.-Prantl): 124, 1893 (Schiffner 1893a).**

Pycnolejeunea contigua (Nees) Grolle, *J. Hattori Bot. Lab.* 45: 179, 1979 (Grolle 1979a).

≡ *Jungermannia contigua* Nees, *Fl. Bras. (Martius)* 1(1): 360, 1833 (Nees 1833b). Type: Brazil.

COSTA RICA. S. loc. (*Fulford and Sharp* 1990; *Schäfer-Verwimp* 1999). CARTAGO: Jiménez cantón, Peijivalle, 900 m, *Standley* 46822 (JE, S, *Morales* 1991); Jiménez cantón, Peijivalle, 900 m, 1926, *Standley & Valerio* 46822 (JE, *Grolle* 1979a). LIMÓN: Pococí cantón, Guápiles, 300–500 m, 1924, *Standley* 37371 (JE-04002681 <https://je.jacq.org/JE04002681>, *Grolle* 1979a; *Morales* 1991).

PANAMA. COCLÉ: La Pintada distrito, El Copé, 1 Aug 1979, *Meijer* 231g, det. G. Dauphin and N. Salazar Allen (PMA, *Dauphin* 2007).

Also reported from West Tropical Africa, West-Central Tropical Africa, East Tropical Africa, Western Indian Ocean, Indo-China, Malesia, Papuasias, Australia, Southwestern Pacific, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Pycnolejeunea decurviloba Steph., *Hedwigia* 35(3): 125, 1896 (Stephani 1896). Syntypes: Ecuador, Trinidad.

≡ *Cheilolejeunea decurviloba* (Steph.) Xiao L. He, *Ann. Bot. Fenn.* 33(1): 51, 1996 (He 1996).

BELIZE. CAYO: S. loc., Dec 1993, *Allen* 15269 (BRH, MO, *Whittemore and Allen* 1996). *TOLEDO: Columbia River Forest Reserve, from Camp 2 along Little Quartz Ridge spur to spur's summit, 16°23'17"N, 89°05'30"W, 16 Feb 1997, *Allen* 18842, det. *Whittemore* 1997 (MO-44171961, this publication).

COSTA RICA. S. loc. (León et al. 1998 as *Cheilolejeunea decurviloba*). PUNTARENAS: Osa cantón, Península de Osa, Cerro Chocuaco, 450 m, *Gradstein & Dauphin* 9333b (GOET, U, USJ, *Gradstein et al.* 1994); Osa cantón, Rincón, trail Boscosa-Cerro Chocuaco, 450 m, *Gradstein & Dauphin* 9333a (U, USJ, *Gradstein et al.* 1994; *Dauphin* 2005 as *Cheilolejeunea decurviloba*).

PANAMA. S. loc. (León et al. 1998 as *Cheilolejeunea decurviloba*). CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (*Salazar Allen et al.* 2021). PANAMA: Panamá City, ~1,000 m, 1994, *Gradstein* (He 1996 as *Cheilolejeunea decurviloba*; *Stotler et al.* 1998 as *Cheilolejeunea decurviloba*); Panamá distrito, above Altos de Cerro Azul down toward Río Chagres, 700–850 m, *Allen* 9035 (MO, *Stotler et al.* 1998 as *Cheilolejeunea decurviloba*); Panamá distrito, Cerro Jefe, ~1,000 m, *Salazar Allen & Gradstein* 9385 (B-573682, G-417124, He 1996 as *Cheilolejeunea decurviloba*; *Stotler et al.* 1998 as *Cheilolejeunea decurviloba*); Panamá distrito, Cerro Jefe, 4 Jan 1970, *Lewis* 7607, det. *Dauphin* Jun 2017 (MO-52437231, this publication).

COCOS I. S. loc., *Dauphin* 1068 (USJ, *Dauphin* 1999 as *Cheilolejeunea decurviloba*); S. loc., 0–100 m, Apr 1964, *Itow* 7 (COLO, U-540267, B, JE, *Gradstein et al.* 1994; He 1996 as *Cheilolejeunea decurviloba*); trail to Cerro Yglesias, 250 m, *Lücking* 92-311 (USJ, *Gradstein et al.* 1994; *Dauphin* 1995, 2005 as *Cheilolejeunea decurviloba*); Yglesias E, 500–634 m, Apr 1992, *Lücking* 312, 313, 314 (USJ, *Bernecker-Lücking* 2000 as *Cheilolejeunea decurviloba*).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Pycnolejeunea densistipula (Lehm. et Lindenb.) Steph., *Sp. Hepat. (Stephani)* 5: 602, 1914 (Stephani 1914).

≡ *Lejeunea densistipula* Lehm. et Lindenb., *Nouv. Stirp. Pug.* 7: 20, 1838 (Lehmann 1838). Type: Peru.

≡ *Pycnolejeunea parvilobula* Herzog ex Zwickel, *Beih. Bot. Centralb.* 49: 600, 1932 (Zwickel 1932), syn. fide He (1999: 25). Lectotype (He 1999: 180): Costa Rica, vicinity of Guápiles, province of Limón, altitude 300–500 m, 12–13 Mar 1924, *Standley* 37371 (JE-040002681 <https://je.jacq.org/JE040002681>, isolectotype US-00072846 <http://n2t.net/ark:/65665/36b171d03-37a9-4bb8-9f3f-16ba47cb08e2>).

≡ *Pycnolejeunea densistipula* var. *dubia* Herzog, *Rev. Bryol. Lichénol.* 20: 165, 1951 (Herzog 1951), syn. fide He (1999).

COSTA RICA. S. loc. (*Schäfer-Verwimp* 2014). CARTAGO: Jiménez cantón, Peijivalle, 900 m, *Standley* 46822 (JE, S, *Zwickel* 1932 as *Pycnolejeunea parvilobula*; *Herzog* 1951 as *Pycnolejeunea densistipula* var. *dubia*; *Geissler and Bischler* 1989 as

Pycnolejeunea densistipula var. *dubia* and *Pycnolejeunea parvilobula*; He 1999; Dauphin 2005). LIMÓN: Pococí cantón, Guápiles, 300–500 m, 1924, Standley 37371 (JE-04002681 <https://je.jacq.org/JE04002681>, TYPE of *Pycnolejeunea parvilobula*, Zwickel 1932 as *Pycnolejeunea parvilobula*; Herzog 1951 as *Pycnolejeunea densistipula* var. *dubia*; Geissler and Bischler 1989 as *Pycnolejeunea densistipula* var. *dubia* and *Pycnolejeunea parvilobula*; He 1999; Dauphin 2005).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna, 8 Apr 1987, Salazar Allen 4981 (PMA, Dauphin 2007). VERAGUAS: Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, Schäfer-Verwimp & Verwimp 30845 (JE, Schäfer-Verwimp 2014).

*COCOS I. Río Genio, 5°32'57"N, 87°03'56"W, 10 m, 25 Jan 1990, Dauphin 1054, det. G. Dauphin Oct 2020 (CR!, this publication); Río Genio, 5°32'57"N, 87°03'56"W, 10 m, 26 Jan 1994, Dauphin 1054, det. G. Dauphin Oct 2020 (CR!, this publication).

Also reported from the Caribbean, Western South America, Brazil.

Pycnolejeunea macroloba (Nees et Mont.) Schiffn., *Hepat. (Engl.-Prantl)*: 124, 1893 (Schiffner 1893a).

≡ *Lejeunea macroloba* Nees et Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 19: 260, 1843 (Montagne 1843). Type: *Patria ignota*.

BELIZE. STANN CREEK: Cockscombe Reserve, 1996, Eggers & Timm BEZ 5/28, det. Eggers (Eggers et al. 2004). *TOLEDO: Punta Gorda, det. Dauphin May 2017 (MO-5223877! <https://www.tropicos.org/specimen/90093900>, this publication).

COSTA RICA. S. loc. (Stephani 1914; Jovet-Ast 1957; Arnell 1959; He 1999; Bastos 2004; Eggers et al. 2004). PUNTARENAS: Golfito cantón, Refugio de Vida Silvestre, Aguilar 914.1, det. Dauphin (CR, Dauphin 2005); Osa cantón, Rincón, trail Boscosa-Cerro Chocuaco, 450 m, Gradstein & Dauphin 9333 (U, USJ, Gradstein et al. 1994; Dauphin 2005); Osa cantón, Rincón, trail to Cerro Chocuaco, 350 m, Gradstein & Dauphin 9333 p.p. (U, USJ, Gradstein et al. 1994).

PANAMA. S. loc. (Bastos 2004; Eggers et al. 2004). PANAMA: Panamá distrito, Altos de Cerro Azul, Sendero El Cantar, Stotler & Crandall-Stotler 3508 (ABSH, Stotler et al. 1998); Panamá distrito, Parque Nacional Chagres, Cerro Azul, Sendero El Cantar, 800 m, 1996, Gradstein (H, ABSH, He 1999).

Also reported from Northern South America, Western South America, Brazil.

Pycnolejeunea schwaneckeii (Steph.) Schiffn. ex P.Syd., *Just's Bot. Jahresber.* 19: 246, 1894 (Sydow 1894).

≡ *Lejeunea schwaneckeii* Steph., *Hedwigia* 27(11/12): 290, 1888 (Stephani 1888a). Type: Puerto Rico.

*NICARAGUA. *ATLÁNTICO NORTE: Puerto Cabezas municipio, ~14 km W of Río Wawa ferry on road from Puerto Cabezas to Rosita, 14°06'N, 83°39'W, 1 May 1978, Stevens 8605, det. Dauphin May 2017 (MO-5238556! <http://tropicos>

.org/specimen/90108890, this publication); Rosita municipio, road between Rosita and Puerto Cabezas, 13°58'N, 84°12'W, 50–100 m, 30 Apr 1978, Stevens 8552, det. Dauphin May 2017 (MO-5238381! <http://tropicos.org/specimen/90108660>, this publication).

PANAMA. PANAMA: Panamá distrito, Cerro Jefe Mountain near Panama City, ~1,000 m, 1994, Gradstein (H, He 1999); Panamá distrito, Parque Nacional Chagres, Cerro Azul, Sendero El Cantar, 800 m, 1996, Reiner-Drehwald 960138 (hb. Drehwald 2812, He 1999).

Also reported from the Caribbean, Northern South America.

***Radula Dumort.*, *Commentat. Bot.* (Dumortier): 112, 1822 (Dumortier 1822).**

Radula antilleana Castle, *J. Hattori Bot. Lab.* 21: 48, 1959 (Castle 1959). Type: Puerto Rico.

GUATEMALA. S. loc. (YU, NY, Castle 1959, 1968; Fulford 1987; Yamada 1988b; Schäfer-Verwimp and Pócs 2009).

COSTA RICA. S. loc. (Schäfer-Verwimp and Pócs 2009; Schäfer-Verwimp et al. 2013). PUNTARENAS: S. loc. (Merwin et al. 2001); Monteverde cantón, Cordillera de Tilarán, 1,550 m, Jul 1971, James (GOET, Holz et al. 2001); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde, Gradstein 9448 (GOET, Holz et al. 2001; Dauphin 2005); Monteverde, Oct 1967, James, W. (R, US, Dauphin 2005); Monteverde, 9 Nov 1993, Gradstein & Mues 9681 (GOET, Holz et al. 2001; Dauphin 2005).

Also reported from the Caribbean, Northern South America, Western South America.

Radula campanulata Lindenb. et Gottsche, *Syn. Hepat.* 2: 256, 1845 (Gottsche et al. 1845b). Type: Dominican Republic.

COSTA RICA. S. loc. (Schäfer-Verwimp and Pócs 2009). PUNTARENAS: Osa cantón, Rincón trail Boscosa-Chocuaco, 250 m, 30 Oct 1993, Gradstein & Dauphin 9329 (GOET, Holz et al. 2001; Dauphin 2005).

Also reported from the Caribbean, Northern South America(?).

Radula costaricensis Gottsche, *J. Bot.* 15: 226, 1877 (Polakowsky 1877). Type: Costa Rica, Alajuela, s. loc. Jun 1875, Polakowsky 120a.

COSTA RICA. S. loc. (Dauphin 2005). ALAJUELA: S. loc., Jun 1875, Polakowsky 120a (TYPE, Polakowsky 1877, 1879; Geissler and Bischler 1990).

Not found outside Central America.

Radula elliottii Castle, *J. Hattori Bot. Lab.* 21: 12, 1959 (Castle 1959). Type: Dominica.

GUATEMALA. EL PROGRESO: San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007). HUEHUETENANGO: Todos Santos

Cuchumatán, Chihuitz, 15°30'40"N, 91°38'56"W, 2,790 m, 2006, *Pérez 1187* (USCG, *Pérez 2009*). **IZABAL**: Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez 2007*). **ZACAPA**: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez 2007*).

Also reported from the Caribbean, Northern South America.

Radula episcia Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 318, 1885 (Spruce 1885). Type: Ecuador.

=*Radula cornucopiae* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 318, 1885 (Spruce 1885), syn. fide Yamada and Gradstein (1991). Type: Ecuador.

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna (Stotler et al. 1998); Gualaca distrito, Fortuna Forest Reserve, NE of camping site, 900–1,200 m (*Salazar Allen et al. 2021*); Gualaca distrito, Fortuna Forest Reserve, NW of camping site, 1,000–1,200 m (*Salazar Allen et al. 2021*); Gualaca distrito, Fortuna, *Spörle 1.43* (PMA, *Spörle 1990* as *Radula cornucopiae*; *Stotler et al. 1998*); Gualaca distrito, Hornito, Fortuna, *Salazar Allen et al. 6179, 6240* (PMA, *Stotler et al. 1998*); Gualaca distrito, NE of camping site of Fortuna, *Salazar Allen et al. 543, 581, 582* (PMA, *Stotler et al. 1998*); Gualaca distrito, NE of camping site of Fortuna, 1,000–1,200 m, *Salazar Allen et al. 583* (PMA, *Stotler et al. 1998*).

Also reported from the Caribbean, Western South America, Southern South America.

Radula evansii Castle, *Ann. Bryol.* 11: 37, 1938 (Castle 1938). Type: Dominica.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al. 156* (USCG, *Freire et al. 2013*); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al. 2005*).

Also reported from Mexico, the Caribbean.

Radula fendleri Gottsche ex Steph., *Hedwigia* 23(10): 146, 1884 (Stephani 1884a) var. *fendleri*. Type: Venezuela.

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, foothills of Cerro Pinola, 1,280–2,000 m (*Salazar Allen et al. 2021*); Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (*Salazar Allen et al. 2021*); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,700 m, 29–30 Mar 2013, *Schäfer-Verwimp & Verwimp 34442* (JE, *Schäfer-Verwimp 2014*).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Radula flaccida Lindenb. et Gottsche, *Syn. Hepat.* 5: 726, 1847 (Gottsche et al. 1847). Type: Mexico.

GUATEMALA. S. loc. (Schuster 1980d; Fulford and Sharp 1990; Lücking 1995). **ALTA VERAPAZ**: Santa María Cahabón municipio, Secanquim, 1905, *Maxon & Hay 3211* (Y, *Castle*

1925, 1939). **IZABAL**: S. loc., 2007, *Pérez*, det. *Pérez* (USCG, *Barillas de Klee et al. 2008*).

BELIZE. STANN CREEK: Cockscombe Reserve, 17 Mar 1996, *Eggers BEZ 5/24* (O'Shea et al. 1997; *Eggers et al. 2001*).

HONDURAS. ATLÁNTIDA: Tela municipio, Lancetilla Valley, 20–600 m, *Standley 54792, 54846 p.p.* (*Herzog 1951*).

COSTA RICA. S. loc. (Stephani 1910a; Schuster 1980d; Fulford and Sharp 1990). **CARTAGO**: S. loc., *Tonduz* (*Reiner-Drehwald 1994*); Buenos Aires cantón, Cabayra, 1892, *Tonduz 15565* (G, NY, Y, *Castle 1939*); Buenos Aires, 1892, *Tonduz 15588* (G, Y, *Castle 1939*); Jiménez cantón, Río Naranjo, 1893, *Tonduz* (G, *Castle 1939*); Paraíso cantón, Orosi, Tapantí, *Morales 1797 p.p.*, det. *Morales* (USJ, *Morales 1991*; *Dauphin 2005*); Turrialba cantón, CATIE, 600 m, Mar 1991, *Lücking 91-6, 91-136, 91-138* (hb. Lücking, *Lücking 1995*); Turrialba cantón, Vallée de Tuis, bassin de Reventazón, 1893, *Tonduz 15594* (G, Y, *Castle 1939*). **LIMÓN**: Guácimo cantón, Jalova, southern border of the Tortuguero National Park, 2 m, 19 Feb 1985, *Eggers CR 12/7* (*Eggers et al. 2001*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, *Lücking 31928* (*Dauphin 2005*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking 91-134, 91-137* (hb. Lücking, *Lücking 1995*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (*Lücking 1997*). **PUNTARENAS**: Buenos Aires cantón, 9°10'N, 83°20'W, *Tonduz* (*Reiner-Drehwald 1994*); Buenos Aires cantón, Boruca (*Tonduz 1895a*); Buenos Aires cantón, Boruca, *Pittier 6073* (G, Y, *Stephani 1893c*; *Morales 1991*; *Dauphin 2005*); Buenos Aires cantón, Boruca, 1891, *Tonduz et al. 6073* (Y, *Castle 1939*); Golfito cantón, Nacionales Refugium Golfito, 50–100 m, Aug 1991, *Lücking 91-133* (hb. Lücking, *Lücking 1995*); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (*Sonnleitner et al. 2009*); Golfito, *Lücking 91-33* (*Dauphin 2005*).

PANAMA. S. loc. (*Lücking 1995*); Canal Zone (*Schäfer-Verwimp 2014*). **DARIÉN**: S. loc. (*Schäfer-Verwimp 2014*); Cerro Pirre (*Stotler et al. 1998*); Cerro Pirre, above Rancho Mojado, 800–1,150 m, *Salazar Allen & Gradstein 9252* (PMA, *Stotler et al. 1998*); Cerro Pirre, along trail to Rancho Mojado, 400–500 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen 1992*); INRENARE station, foothills of Cerro Pirre, 100 m, *Salazar Allen & Gradstein 9220, 9240* (PMA, *Stotler et al. 1998*). **PANAMA WEST**: La Chorrera distrito, Barro Colorado Island, *Gradstein & Salazar Allen 15107* (*Dauphin et al. 2022*); La Chorrera distrito, Barro Colorado Island, *Mežaka et al.* (PMA, *Mežaka et al. 2020*); La Chorrera distrito, Barro Colorado Island, *Salazar Allen & Gradstein 15145* (MO, *Stotler et al. 1998*); La Chorrera distrito, Barro Colorado Island, Bay East from Gross 5, 2003, *Dauphin 3172* (CR, PMA, *Dauphin et al. 2022*); La Chorrera distrito, Barro Colorado Island, Quebrada R. Shannon, *Marino 5, 6, 35, 36* (PMA, *Stotler et al. 1998*; *Dauphin et al. 2022*); La Chorrera distrito, Barro Colorado Island, Shannon Creek and ridge top, 1 Dec 1990, *Marino & Salazar Allen* (STRI, *Marino and Salazar Allen 1992*). **VERAGUAS**: Santa Fe distrito, Río Santa María,

8°32'N, 81°06'W, 400–450 m, 1 Apr 2006, *Schäfer-Verwimp & Verwimp 30794* (JE, Schäfer-Verwimp 2014).

COCOS I. S. loc. (Dauphin 1995); Quebrada al Sur de Punta Ulloa, 100 m, 15 Feb 1994, *Dauphin 1231*, det. K. Yamada (USJ, CR, Dauphin 1995, 1999, 2005); Río Genio, 5°32'57"N, 87°03'56"W, 0–50 m, Apr 1992, *Lücking 508, 512, 523, 527, 528* (hb. Bernecker, Bernecker-Lücking 2000).

Also reported from West Tropical Africa, West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Western Indian Ocean, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Radula gottscheana Taylor, *London J. Bot.* 5: 374, 1846 (Taylor 1846a). Type: Dominican Republic.

Note: Renner et al. (2022) recently described the new genus *Cladoradula* (Spruce) M.A.M. Renner, Gradst., Ilk.-Borg. et F.R. Oliveira-da-Silva with *Radula gottscheana* as type. In the same publication they treat *Radula gottscheana* as a synonym of the African *Cladoradula boryana* (F. Weber) M.A.M. Renner, Gradst., Ilk.-Borg. et F.R. Oliveira-da-Silva, which has priority. We are holding off applying this synonymy, but all references to *Radula boryana* from the Neotropics can be referred to *Radula gottscheana* if the latter is recognized.

GUATEMALA. QUICHÉ: S. loc., Pérez 2308 (USCG, Pérez 2009).

BELIZE. TOLEDO: Columbia River Forest Reserve, 705 m, Allen 18598 (MO, Renner et al. 2022 as *Cladoradula boryana*; see note).

HONDURAS. COMAYAGUA: Siguatopeque, 1,080–1,400 m, Standley 56340 (JE, Renner et al. 2022 as *Cladoradula boryana*; see note).

COSTA RICA. S. loc. (Stephani 1910a). **CARTAGO:** Jiménez cantón, Pejibaye, 900 m, Standley & Valerio 46972 (JE, Renner et al. 2022 as *Cladoradula boryana*; see note); Jiménez cantón, Río Naranjo, Tonduz 1893 (Dauphin 2005); Jiménez cantón, Río Naranjo, 1893, Tonduz (G, Morales 1991). **PUNTARENAS:** S. loc. (Merwin et al. 2001); Cordillera de Talamanca, N of Santa Elena, 1,100 m, Davidse et al. 28217 (GOET, MO, Renner et al. 2022 as *Cladoradula boryana*; see note); Distrito Potrero Grande, Parque Natural La Amistad, Cerro Bioley, Dauphin et al. 1631 (MO, Renner et al. 2022 as *Cladoradula boryana*; see note); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a); Osa cantón, Península de Osa, Boscosa-Chocuaco (Dauphin 2005). **SAN JOSÉ:** Buena Vista, 1903, Cook & Doyle 118, 146 (Y, Morales 1991; Dauphin 2005); Dota cantón, Santa María, 1,500–1,800 m, Standley 41693 (JE, Renner et al. 2022 as *Cladoradula boryana*; see note).

PANAMA. BOCAS DEL TORO: Campamento la pasta del Cedro, 1,525 m, Alfaro & Monro 5440 (MO, Renner et al. 2022 as *Cladoradula boryana*; see note). **CHIRIQUÍ:** Boquete distrito, Plateau above Boquete, Holcomb Trail, Cornman 3198 (MO, Renner et al. 2022 as *Cladoradula boryana*; see note); Gualaca distrito, Cerro Pinola, Spörle 1.1 (PMA, Stotler et al. 1998);

Gualaca distrito, Fortuna (Stotler et al. 1998); Gualaca distrito, Fortuna Forest Reserve, Cerro Hornito, 1,670–2,300 m (Salaazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,660 m, Schäfer-Verwimp & Verwimp 34424 (JE, MO, Schäfer-Verwimp 2014; Renner et al. 2022 as *Cladoradula boryana*; see note); Tierras Altas distrito, El Volcán, road to Río Sereno, near Santa Clara, 8°49.8'N, 82°44.0'W, 1,200 m, 2 Apr 2009, Schäfer-Verwimp & Verwimp 34712 (JE, Schäfer-Verwimp 2014).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Radula husnotii Castle, *J. Hattori Bot. Lab* 21: 45, 1959 (Castle 1959). Type: Guadeloupe.

GUATEMALA. S. loc. (Castle 1968; Fulford 1987; Yamada 1988b; Fulford and Sharp 1990). **ALTA VERAPAZ:** Cobán, 1,600 m, 1908, Türckheim 5592 (Y, BM, Castle 1959).

COSTA RICA. S. loc., M. J. Lyon (Devos et al. 2011; Renner et al. 2022).

Also reported from Mexico(?), the Caribbean, Northern South America, Western South America(?).

Radula inflexa Gottsche ex Steph., *Hedwigia* 23(10): 148, 1884 (Stephani 1884a). Type: Guadeloupe.

GUATEMALA. S. loc. (Castle 1968; Fulford 1987; Yamada 1980, 1988a; Fulford and Sharp 1990). **ALTA VERAPAZ:** Cobán, 1,350 m, 1907, Türckheim 5496 (Y, NY, Castle 1963).

Also reported from Mexico, the Caribbean, Brazil.

Radula javanica Gottsche, *Syn. Hepat.* 2: 257 (Gottsche et al. 1845b). Lectotype: Caroline Islands.

=*Radula macrostachya* Lindenb. et Gottsche, *Syn. Hepat.* 5: 726, 1847 (Gottsche et al. 1847), syn. fide Yamada (2000). Type: Mexico.

=*Radula amazonica* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15(1): 257, 1884 (Spruce 1884), syn. fide Yamada (2000). Type: Brazil.

=*Radula surinamensis* Steph., *Hedwigia* 23(8): 136, 1884 (Stephani 1884b), syn. fide Yamada (2000). Type: Surinam.

=*Radula elegans* Steph., *Sp. Hepat.* 4: 172, 1910 (Stephani 1910a), syn. with *Radula surinamensis* fide Yamada (1991). Lectotype (Castle 1966: 15) or possibly holotype: Panama, Chiriquí, *Hélión*, ex hb. Lacouture (G-00043875 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=129309&lang=en>).

=*Radula falcifolia* Steph., *Sp. Hepat.* 4: 174, 1910 (Stephani 1910a), syn. fide Yamada (1991). Lectotype (Castle 1967: 19) or possibly holotype: Costa Rica, Carrisol, 2,800 m, 1889, Pittier & Durand, Pl. costaricensis exsic. No. 6013b (G-00042622 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=79809&lang=en>).

GUATEMALA. S. loc. (Stephani 1910a as *Radula macrostachya*; Fulford and Sharp 1990 as *Radula elegans*). **ALTA VERAPAZ:** Cobán municipio, Cubilquits, 350 m, 1906, Türckheim 5102 (G, Castle 1966 as *Radula elegans*); Cobán, 1887, Türckheim 3 (Y, Castle 1966 as *Radula elegans*); Oxeq, 20 Jul 1977, Croat 41665 (MO, NY, Pérez 2009 as *Radula surinamensis*); Santa María Cahabón municipio, Secanquim, 550 m, 1905, Maxon & Hay 3194a (Y, Castle 1966 as *Radula elegans*). **BAJA**

VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 98 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as *Radula 'machrostachya'*). **EL PETÉN:** Fallabon–Yaxhá Road, 1933, Lundell 2015 (Y, Castle 1966 as *Radula elegans*); La Libertad, 1933, Lundell 2508, 2510, 3332 (Y, Castle 1966 as *Radula elegans*). **IZABAL:** Puerto Barrios, 1904, Maxon & Hay 3075 (Y, Castle 1966 as *Radula elegans*).

BELIZE. S. loc., Dec 1993, Allen 15272 (BRH, MO, Whittemore and Allen 1996 as *Radula macrostachya*). **CAYO:** S. loc., Dec 1993, Allen 15124 (BRH, MO, Whittemore and Allen 1996 as *Radula macrostachya*).

COSTA RICA. S. loc. (Pagán 1942b as *Radula falcifolia*; Cole 1982, 1983, both as *Radula elegans*; Yamada 1983 as *Radula falcifolia*; Schäfer-Verwimp and Pócs 2009); S. loc., Gradstein & Dauphin 12894 (GOET, Váňa et al. 2014a as *Radula macrostachya*, 2017 as *Radula macrostachya*; Promma et al. 2018 as *Radula macrostachya*); Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b). **ALAJUELA:** Alajuela cantón, Carrizal, 2,800 m (Castle 1968 as *Radula falcifolia*; Geissler and Bischler 1990 as *Radula falcifolia*); Alajuela cantón, Carrizal, 2,800 m, 1889, Pittier & Durand 6013b (G-00042622 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=79809&lang=en>, TYPE of *Radula falcifolia*, Castle 1967 as *Radula falcifolia*); Alajuela cantón, Carrizal, 2,800 m, 1889, Pittier 6013b (G-19800, TYPE of *Radula falcifolia*, Stephani 1910a as *Radula falcifolia*; Morales 1991 as *Radula falcifolia*; Yamada 1991 as *Radula surinamensis*; Dauphin 2005 as *Radula surinamensis*). **PUNTARENAS:** S. loc. (Merwin et al. 2001); Monteverde, <1,500 m (Morales 1991 as *Radula elegans*; Dauphin 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, Gradstein et al. (U, Sillett et al. 1995 as *Radula macrostachya*); Monteverde, 1,500–2,800 m, James, W. (Dauphin 2005 as *Radula surinamensis*); Monteverde, Oct 1967, James, W. (R, US, Reed and Robinson 1971 as *Radula elegans*); Osa cantón, Osa Peninsula, Rincón, Centro Boscosa, 150 m, Oct 1993, Gradstein (Gradstein 1999b as *Radula macrostachya*). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin 2005).

PANAMA. S. loc. (Fulford and Sharp 1990 as *Radula elegans*); S. loc., 1906, Hélión (PC, Stotler et al. 1998 as *Radula macrostachya*). ***BOCAS DEL TORO:** Bocas del Toro distrito, Bastimentos, Salt Creek, Sendero a Long Beach, 9.29456°N, 82.10303°W, 70 m, 16 Aug 2017, Villarreal PA-17-1760, det. Villarreal Aug 2017 (PMA, this publication). **CHIRIQUÍ:** S. loc. (Stephani 1910a as *Radula elegans*; Castle 1968 as *Radula elegans*; Geissler and Bischler 1990 as *Radula elegans*; Stotler et al. 1998 as *Radula macrostachya*); S. loc., Hélión (G-00043875,

TYPE of *Radula elegans*, Castle 1966 as *Radula elegans*; Yamada 1991 as *Radula surinamensis*). **PANAMA WEST:** Capira distrito, Parque Nacional Altos de Campana, Sendero de Interpretación, 1 km E del campamento de los guardabosques del INRENARE, 8°40'N, 79°55'W, 800–900 m, 7 Apr 1989, Lara et al. 1459 (PMA, Dauphin et al. 2006); La Chorrera distrito, Barro Colorado Island, 9°09'N, 79°51'W, 20–170 m, Gradstein & Salazar Allen 15116, 15117, 15136, 15138 (GOET, PMA, Dauphin et al. 2006, 2022); La Chorrera distrito, Barro Colorado Island, Barbours Point, 9°09'N, 79°51'W, 20–170 m, Dauphin 3154 (PMA, Dauphin et al. 2006 as *Radula amazonica*); La Chorrera distrito, Barro Colorado Island, F Miller 5–6, 9°09'N, 79°51'W, 20–170 m, Salazar Allen 4414a (PMA, Dauphin et al. 2006); La Chorrera distrito, Barro Colorado Island, Fairchild 18, 9°09'N, 79°51'W, 20–170 m, Dauphin 3139 (PMA, Dauphin et al. 2006 as *Radula amazonica*); La Chorrera distrito, Barro Colorado Island, Miller 5–6, 9°09'N, 79°51'W, 20–170 m, Salazar Allen 4414a (PMA, Stotler et al. 1998 as *Radula macrostachya*; Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, Van Tyne 10, 18, 9°09'N, 79°51'W, 20–170 m, Dauphin 3082, 3083 (PMA, Dauphin et al. 2006); La Chorrera distrito, Barro Colorado, van Tyne, 2003, Dauphin 3082, 3083 (CR, PMA, Dauphin et al. 2022).

COCOS I. Bahía Wafer, 0 m, 15 Feb 1994, Dauphin 916, 923, 955, det. K. Yamada (USJ, Dauphin 1995 as *Radula macrostachya*, 2005); Bahía Wafer, cerca Río Genio, 10 m, 15 Feb 1994, Dauphin 927, 940, det. K. Yamada (USJ, Dauphin 1995 as *Radula macrostachya*, 2005); Cascada Río Genio, 130 m, 15 Feb 1994, Dauphin 998, det. K. Yamada (USJ, Dauphin 1995 as *Radula macrostachya*, 2005); Río Genio, 30 m, 15 Feb 1994, Dauphin 1127, det. K. Yamada (USJ, Dauphin 1995 as *Radula macrostachya*, 2005); Río Genio, 5°32'57"N, 87°03'56"W, 0–5 m, Dauphin 927, det. G. Dauphin Apr 2021 (CR-4468156!, this publication); Río Genio, 5°32'57"N, 87°03'56"W, 0–10 m, Dauphin 940, det. G. Dauphin Apr 2021 (USJ-47238!, CR-4468437!, W!, this publication); Río Genio, 5°32'57"N, 87°03'56"W, 0–5 m, Dauphin 955, det. G. Dauphin Apr 2021 (CR-4468155!, W!, this publication); Río Genio, 5°32'57"N, 87°03'56"W, 30 m, 6 Feb 1990, Dauphin 1127, det. G. Dauphin Jan 2021 (CR-4468153!, W!, this publication); Valle Wafer, 5°32'57"N, 87°03'56"W, 0–5 m, 19 Jan 1990, Dauphin 923, det. G. Dauphin Apr 2021 (CR-4468164!, this publication).

Also reported from Western Indian Ocean(?), China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasias, Australia, New Zealand, Southwestern Pacific, Southeastern Pacific, Northwestern Pacific, Northeastern Pacific, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Radula laxiramea Steph., *Sp. Hepat.* 4:178, 1910 (Stephani 1910a). Lectotype (Castle 1959: 45; see also Söderström et al. 2023a: 154): Panama, Chiriquí, Hélión 412, hb. Lacouture (G-00112206 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=131244&lang=en>, isoelectotypes YU, BM, PC).

GUATEMALA. S. loc. (Pagán 1939c; Castle 1968; Yamada 1991). ALTA VERAPAZ: Senahú municipio, Finca Mocca, 3,500 ft (1,067 m), 1920, *Johnson* 152 (YU, G, Castle 1959).

EL SALVADOR. S. loc. (Yamada 1991). SAN VICENTE: Volcán de San Vicente, 12–1,500 m, 1922, *Standley* 21573 (YU, Castle 1959).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b). CARTAGO: Paraíso cantón, Orosi, Tapantí National Park, Refugio de Vida Silvestre Tapantí, 1,300 m, 30 Dec 1999, Holz & Schäfer-Verwimp CR 99-1366 (CR, GOET, Holz et al. 2001; Dauphin 2005). SAN JOSÉ: Cordillera de Talamanca, Pan-American Highway km 117, 1,700 m, 13 Oct 1999, Anton & Holz AHH-324 (CR, GOET, Holz et al. 2001; Dauphin 2005); Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, 1,900–2,200 m, 24 Apr 1999, Holz CR 99-342, 99-344 (CR, GOET, Holz et al. 2001; Dauphin 2005).

PANAMA. S. loc. (Pagán 1939c; Yamada 1991). CHIRIQUÍ: S. loc. (Stephani 1910a; Stotler et al. 1998); Boquete distrito, Bois de Boquete, near David, *Hélion* 412 (G-00112206 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=131244&lang=en>, YU, BM, PC, TYPE, Castle 1959; Yamada 1991; Stotler et al. 1998).

Also reported from the Caribbean, Northern South America, Western South America.

Radula mammosa Spruce, *Mem. Torrey Bot. Club* 1(3): 127, 1890 (Spruce 1890). Type: Bolivia.

=*Radula lindigii* Castle, *J. Hattori Bot. Lab.* 21: 29, 1959 (Castle 1959), syn. fide Gradstein et al. (2003). Type: Colombia.

GUATEMALA. ALTA VERAPAZ: Panzós municipio, Cahabón and/or Senahú, 2012, Pérez & López-Medina, det. M. Pérez (Pérez and López-Medina 2012). CHIMALTENANGO: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008). IZABAL: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008). QUICHÉ: S. loc., Pérez 2331 (USCG, Pérez 2009).

EL SALVADOR. SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler* A/1/4, A/1/5, A/1/11, etc. (Winkler 1967).

NICARAGUA. GRANADA: Granada municipio, Volcán Mombacho, 1903, *Baker* 2491 (YU, Castle 1959 as *Radula lindigii*).

COSTA RICA. SAN JOSÉ: Dota cantón, San Gerardo, ~9°33'N, 83°48'W, Weg von Ferienanlage Chacon zu “Las Cruces” am Rio Savegre, 1,900 m, 25 Dec 1999, Schäfer-Verwimp & Holz SV/H-0128/D (CR, JE, Ellis et al. 2016a).

Also reported from Mexico(?), the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Radula mexicana Lindenb. et Gottsche, *Mexik. Leverm.*: 150, 1863 (Gottsche 1863). Type: Mexico.

GUATEMALA. S. loc. (Castle 1968; Yamada 1988b, 1993; Fulford and Sharp 1990; Schäfer-Verwimp and Pócs 2009). ALTA VERAPAZ: Cobán, *Türckheim* 6060 bis (G-00051328, Castle 1964). *EL PETÉN: Flores municipio, SW side of Laguna Yaxhá, Reserva Privada Yaxhá, 17°03.295'N, 89°23.236'W, 25 Jan 2006, *Quedensley* 4136, det. Dauphin Sep 2017 (MO, W-00890831, this publication). EL PROGRESO: San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007). HUEHUETENANGO: S. loc., Pérez 1208 (USCG, Pérez 2009). ZACAPA: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Radula neotropica Castle, *J. Hattori Bot. Lab.* 21: 31, 1959 (Castle 1959). Type: Dominica.

GUATEMALA. S. loc. (Castle 1968; Fulford 1987; Fulford and Sharp 1990); S. loc., 1892 (YU, G, Castle 1959). ALTA VERAPAZ: Oxec, 20 Jul 1977, *Croat* 41601 (MO, Pérez 2009).

HONDURAS. S. loc., Allen 11935 (NY, Váña et al. 2017).

Also reported from Mexico, the Caribbean, Northern South America(?).

Radula nudicaulis Steph., *Sp. Hepat. (Stephani)* 4: 174, 1910 (Stephani 1910a). Type: Brazil.

COSTA RICA. S. loc. (Gradstein and Holz 2005; Oliveira-da-Silva et al. 2021); Cordillera de Talamanca (Holz and Gradstein 2005b; Holz 2006). CARTAGO: Cordillera de Talamanca, Cerro de La Muerte, Páramo Buena Vista, km 85 of Pan-American Highway, 3,100 m, 26 Jun 2000, Holz CR 00-809 (CR, GOET, Holz et al. 2001; Dauphin 2005); El Guarco cantón, La Esperanza, *Kappelle et al.* 276 (Dauphin 2005); El Guarco cantón, La Esperanza, 1.5 km N Pan-American Highway (km 61.5), 1,500 m, 11 Dec 1985, *Kappelle* 276 (GOET, Holz et al. 2001); Turrialba cantón, Villa Mills, CATIE Station Siberia, 2,630 m, 9 Jan 1986, *Kappelle et al.* 602 (GOET, Holz et al. 2001; Dauphin 2005). SAN JOSÉ: Cerro Estaquero (km 83, RN 2), 3,140 m, 8 Jun 1983, *Chaverri & López* 1413 (GOET, Holz et al. 2001; Dauphin 2005); Desamparados cantón, Frailes, between San Antonio and San Cristóbal Sur, 1,800 m, 8 Jun 1986, *Kappelle & Gutiérrez* 1782 (GOET, Holz et al. 2001; Dauphin 2005); Dota cantón, San Gerardo, Holz (Holz 2003); Dota cantón, San Gerardo, Los Robles, 2,300 m, 30 Jan 2000, Holz CR 00-331 (CR, GOET, Holz et al. 2001; Dauphin 2005); Dota cantón, San Gerardo, Los Robles, 2,900 m, 14 Mar 2000, Holz CR 00-642 (CR, GOET, Holz et al. 2001; Dauphin 2005); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a).

Also reported from Macaronesia, Mexico(?), Western South America, Brazil.

Radula paganii Castle, *J. Hattori Bot. Lab.* 21: 33, 1959 (Castle 1959). Type: Puerto Rico.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

Also reported from the Caribbean.

Radula pallens (Sw.) Nees ex Mont., *Voy. Amér. Mérid.* 7(2): 71, 1839 (Montagne 1839b).

≡ *Jungermannia pallens* Sw., *Prodr.* (Swartz): 173, 1788 (Swartz 1788). Type: Jamaica.

= *Radula subsimplex* Steph., *Hedwigia* 23(8): 130, 1884 (Stephani 1884c), syn. fide Gradstein and Lavocat Bernard (2020). Type: Guadeloupe.

= *Radula kegelii* Gottsche ex Steph., *Hedwigia* 23(10): 152, 1884 (Stephani 1884a), syn. fide Gradstein (2021). Type: Surinam.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 53, 236 (USCG, Freire et al. 2013 as *Radula subsimplex*); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as *Radula kegelii* and *Radula subsimplex*).

BELIZE. CAYO: S. loc., Dec 1993, Allen 15110 (BRH, MO, Whittemore and Allen 1996 as *Radula kegelii*).

HONDURAS. S. loc. (Castle 1968 as *Radula kegelii*; Fulford 1987 as *Radula kegelii*; Yamada 1988b as *Radula kegelii*; Fulford and Sharp 1990 as *Radula kegelii*; Reiner-Drehwald 1994 as *Radula kegelii*; Schäfer-Verwimp and Pócs 2009 as *Radula kegelii*; Lavocat Bernard 2018 as *Radula kegelii*); S. loc., 1903, Wilson 287 (YU, Castle 1959 as *Radula kegelii*). **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, Standley (Standley 1931).

EL SALVADOR. AHUACHAPÁN: S. loc. (Standley and Calderón 1925).

COSTA RICA. S. loc. (Castle 1968 as *Radula kegelii*; Yamada 1988b as *Radula kegelii*; Fulford and Sharp 1990 as *Radula kegelii*; Reiner-Drehwald 1994 as *Radula kegelii*; Schäfer-Verwimp and Pócs 2009 as *Radula kegelii*; Lavocat Bernard 2018 as *Radula kegelii*); S. loc., 5,000–8,000 ft (1,524–2,438 m), Oersted 1169 (YU, G, S, Hampe 1851b; Müller 1851; Polakowsky 1879; Castle 1959 as *Radula kegelii*; Morales 1991 as *Radula kegelii*; Dauphin 2005 as *Radula kegelii*). **ALAJUELA:** S. loc., Polakowsky 120c (Polakowsky 1877; Morales 1991); S. loc., Polakowsky (Polakowsky 1879); S. loc., 1891–1896, Durand & Pittier (Morales and Griffin 1983). **SAN JOSÉ:** Montaña de Poás, Macizo de Escazú, 2,275 m, Pittier 6005 (Stephani 1893c).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (Salazar Allen et al. 2021 as *Radula kegelii*); Gualaca distrito, Fortuna Forest Reserve, Cerro Hornito, 1,670–2,300 m (Salazar Allen et al. 2021 as *Radula kegelii*); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, near southern edge of storage lake, 8°44.0'N, 82°14.5'W, 1,215 m, 30 Mar 2009, Schäfer-Verwimp & Verwimp 34500 (JE, Schäfer-Verwimp 2014 as *Radula kegelii*); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,680 m, Schäfer-Verwimp &

Verwimp 34440 (JE, Schäfer-Verwimp 2014 as *Radula kegelii*); Tierras Altas distrito, Laguna de El Volcán, 8°46.1'N, 82°40.4'W, 1,370 m, 1 Apr 2009, Schäfer-Verwimp & Verwimp 34644 (JE, Schäfer-Verwimp 2014 as *Radula kegelii*); Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, Schäfer-Verwimp & Verwimp 34593 (JE, Schäfer-Verwimp 2014 as *Radula kegelii*). **COCLÉ:** Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8°N, 80°06.9–7.0'W, 860–1,015 m, 25 Mar 2009, Schäfer-Verwimp & Verwimp 34192, 34208 (JE, Schäfer-Verwimp 2014 as *Radula kegelii*). **DARIÉN:** S. loc. (Schäfer-Verwimp 2014 as *Radula kegelii*); Cerro Pirre (Stotler et al. 1998 as *Radula kegelii*); Cerro Pirre, Trail El Real–Pirre, along Río Pirre, ~50 m, 4–8 Jun 1991, Gradstein & Salazar Allen (PMA, U, Gradstein and Salazar Allen 1992 as *Radula kegelii*). **PANAMA WEST:** Capira distrito, Altos de Campana National Park, 800–900 m, Salazar Allen et al. 6794 (PMA, Stotler et al. 1998 as *Radula kegelii*). ?**PANAMA:** S. loc. (Schäfer-Verwimp 2014 as *Radula kegelii*). Note: We are not aware of any firsthand report from Panama Province and think it refers to Panama West. **VERAGUAS:** Santa Fe distrito, along road to Guabal on the Caribbean coast, 8°31.9–33.9'N, 81°08.8–11.3'W, 330 m, 27 Mar 2009, Schäfer-Verwimp & Verwimp 34298 (JE, Schäfer-Verwimp 2014 as *Radula kegelii*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Radula portoricensis Steph., *Hedwigia* 27(11/12): 298, 1888 (Stephani 1888a). Type: Puerto Rico.

= *Radula guatemalensis* Steph., *Sp. Hepat.* 4: 198, 1910 (Stephani 1910a), syn. fide Yamada (1981b). Lectotype (Castle 1936: 50) or possibly holotype: Guatemala, west of Cobán, 1906, Türckheim, Bryotheca Levier No. 6329 (G-00112156 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=132567&lang=en>).

GUATEMALA. S. loc. (Castle 1968 as *Radula guatemalensis*; Schuster 1980a as *Radula guatemalensis*; Yamada 1988b; Geissler and Bischler 1990 as *Radula guatemalensis*; Schäfer-Verwimp and Pócs 2009). **ALTA VERAPAZ:** Cobán municipio, west of Cobán, Sep 1906, Türckheim 6329 (G-00112156 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=132567&lang=en>, TYPE of *Radula guatemalensis*, Stephani 1910a as *Radula guatemalensis*; Castle 1936 as *Radula guatemalensis*; Yamada 1981a).

Also reported from the Caribbean, Northern South America.

Radula pusilla Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 320, 1885 (Spruce 1885). Type: Ecuador.

?**COSTA RICA.** S. loc. (Gradstein 2021). Note: We are not aware of any firsthand report from Costa Rica mainland and think it refers to Cocos I.

COCOS I. Catarata Río Genio, 5°32'57"N, 87°03'56"W, 140 m, 24 Jan 1990, Dauphin 1013, det. K. Yamada 1994 (USJ-47240!, CR-4468158!, Dauphin 1995, 1999, 2005); Río Genio,

5°32'57"N, 87°03'56"W, 140 m, 24 Jan 1994, *Dauphin* 1022, det. K. Yamada (USJ-472241, W-0207482! <https://w.jacq.org/W0207482>, *Dauphin* 1995, 2005).

Also reported from the Caribbean, Northern South America, Western South America.

Radula quadrata Gottsche, *Syn. Hepat.* 2: 255, 1845 (Gottsche et al. 1845b). Type: Mexico.

=*Radula affinis* Lindenb. et Gottsche, *Syn. Hepat.* 5: 725, 1847 (Gottsche et al. 1847), syn. fide Yamada (1993). Type: Mexico.

=*Radula mollis* Lindenb. et Gottsche, *Syn. Hepat.* 5: 745, 1847 (Gottsche et al. 1847), syn. fide Yamada and Gradstein (1991). Type: Mexico.

=*Radula andicola* Steph., *Hedwigia* 23(8): 114, 1884 (Stephani 1884b), syn. fide Yamada (1993). Type: Ecuador.

GUATEMALA. S. loc. (Stephani 1910a also as *Radula affinis*; Schuster 1980d as *Radula mollis*; Fulford and Sharp 1990 also as *Radula 'affinia'*; Miller et al. 1983 as *Radula mollis*; Yamada 1993, 2000; Reiner-Drehwald 1994; Kürschner 2003). **ALTA VERAPAZ:** S. loc., 1892, *Türckheim* 4949 (G, Castle 1965); Cobán, 1,350 m, 1906, *Türckheim* 5099 (BM, G, NY, Castle 1965 as *Radula mollis*); Cobán, 1,350 m, 1906, *Türckheim* 5100, 5101, 5570 (NY, Castle 1965 as *Radula mollis*). **RETALHULEU:** San Felipe, 1905, *Maxon & Hay* 3507 (Y, Castle 1965 as *Radula mollis*).

HONDURAS. S. loc. (Yamada 1982 as *Radula affinis*; Fulford and Sharp 1990 as *Radula 'affinia'*). **COMAYAGUA:** Siguatopeque, 1,050 m, 1936, *Yuncker et al.* (Y, Castle 1966 as *Radula affinis*).

COSTA RICA. Cordillera de Talamanca (Holz and Gradstein 2005b; Holz 2006); S. loc. (Stephani 1910a as *Radula andicola*; Evans 1914b as *Radula andicola*; Herrera 1921, 1926, 1930, 1941, all as *Radula andicola*; Schuster 1980d as *Radula mollis*; Miller et al. 1983 as *Radula mollis*; Yamada 1993, 2000; Reiner-Drehwald 1994). **CARTAGO:** Jiménez cantón, Juan Viñas (Tonduz 1895b as *Radula mollis*); Jiménez cantón, Juan Viñas, *Pittier* 6039 (G, Stephani 1893c as *Radula mollis*; Morales 1991 as *Radula mollis*; Dauphin 2005); Jiménez cantón, Juan Viñas, *Tonduz* 3054 (Dauphin 2005); Jiménez cantón, Juan Viñas, 1,135 m, 1890, *Pittier & Durand* 6039 (G, Castle 1965 as *Radula mollis*); Jiménez cantón, Juan Viñas, 1890, *Tonduz* 3054 (G, Castle 1965 as *Radula mollis*; Morales 1991 as *Radula mollis*); Santiago, 1,050 m, 1906, *Maxon* 115 (Y, Castle 1965 as *Radula mollis*; Morales 1991 as *Radula mollis*; Dauphin 2005); Santiago, 1,050 m, 1906, *Maxon* 90, 126 (Y, Castle 1965 as *Radula mollis*; Morales 1991 as *Radula mollis*; Dauphin 2005). **HEREDIA:** Barva cantón, Barva forest, *Pittier* 6009 (Stephani 1893c as *Radula mollis*; Morales 1991 as *Radula mollis*); Barva cantón, Barva forest, 1890, *Pittier & Durand* 6009 (G, Castle 1965 as *Radula mollis*; Dauphin 2005). **PUNTARENAS:** Buenos Aires cantón, Monte Hacum, 1892, *Tonduz* (G, Castle 1965 as *Radula mollis*; Morales 1991 as *Radula mollis*; Dauphin 2005). **SAN JOSÉ:** Dota cantón, "Los Robles" (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin

2005); Dota cantón, San Gerardo, Holz (Holz 2003); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a).

PANAMA. S. loc. (Schuster 1980d as *Radula mollis*; Yamada 1993, 2000; Reiner-Drehwald 1994; Stotler et al. 1998). **CHIRIQUÍ:** S. loc., *Hélion* 417 (G hb. Stephani, Castle 1965 as *Radula mollis*; Stotler et al. 1998); Tierras Altas distrito, El Volcán, road to Rio Sereno, near Santa Clara, 8°49.8'N, 82°44.0'W, 1,200 m, 2 Apr 2009, *Schäfer-Verwimp & Verwimp* 34176 (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Volcán, along road to Rio Serena at western edge of the village, 8°47.6'N, 82°39.4'W, 1,370 m, 1 Apr 2009, *Schäfer-Verwimp & Verwimp* 34633 (JE, Schäfer-Verwimp 2014).

COCOS I. S. loc. (Fosberg and Klawe 1966 as *Radula affinis*; Dauphin 1995, 1999, both as *Radula affinis*, 2005); S. loc., 1966, *Fosberg & Klawe* (Morales 1991 as *Radula affinis*); Wafer Bay, 28 Jun 1932, *Howell* 222 p.p., 229 p.p. (CAS, Clark 1953a as *Radula affinis*); Wafer Bay, 28 Jun 1932, *Walton Clark* 221 p.p., 230 p.p. (CAS, Clark 1953a as *Radula affinis*).

Also reported from West-Central Tropical Africa, North-east Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, North-Central USA, Northeastern USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Radula recubans Taylor, *London J. Bot.* 5: 376, 1846 (Taylor 1846a). Type: Guyana.

GUATEMALA. S. loc. (Oliveira-da-Silva et al. 2021). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 10 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

Also reported from the Caribbean, Northern South America, Western South America(?), Brazil.

Radula saccatiloba Steph., *Hedwigia* 23(8): 129, 1884 (Stephani 1884a). Type: Guadeloupe.

GUATEMALA. **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 462, 485 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

PANAMA. ?**CHIRIQUÍ:** Tierras Altas distrito, Parque Nacional Volcán Barú, Paso Ancho, 8°48'55.13"N, 82°34'33.50"W, 2,047 m, *Guerra Batista et al.* (UCH, Guerra et al. 2020 as *Radula* cf. *saccatiloba*). Note: We are not aware of any positively identified specimen from Chiriquí. **DARIÉN:** Cerro Pirre (Stotler et al. 1998); Cerro Pirre, 800–1,150 m, *Salazar Allen & Gradstein* 9260 (PMA, Stotler et al. 1998); Cerro Pirre, along trail to Rancho Mojado, 400–500 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992).

Also reported from Indian Subcontinent, Malesia, the Caribbean, Northern South America, Western South America, Brazil(?).

Radula schaefer-verwimpii K. Yamada, *J. Jap. Bot.* 65(1): 3, 1990 (Yamada 1990). Type: Brazil.

GUATEMALA. ALTA VERAPAZ: Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, 2,300–2,500 m, Pérez 299 (USCG, Pérez 2009); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Radula* cf. *schaefer-verwimpii*). BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

Also reported from the Caribbean(?), Northern South America, Western South America, Brazil.

Radula schofieldiana K. Yamada, *J. Hattori Bot. Lab.* 82: 337, 1997 (Yamada 1997). Holotype: Costa Rica, San José, La Palma, 1,600 m, 17 Mar 1924, Standley 37992 (JE-04008914 <https://je.jacq.org/JE04008914>; isotype NICH-432557).

COSTA RICA. S. loc. (Holz et al. 2001). SAN JOSÉ: Moravia cantón, La Palma (Dauphin 2005); Moravia cantón, La Palma, 1,600 m, 17 Mar 1924, Standley 37992 (JE-04008914 <https://je.jacq.org/JE04008914>, NICH, TYPE, Yamada 1997; Crosby and Engel 2006).

Not found outside Central America.

Radula sinuata Gottsche ex Steph., *Sp. Hepat. (Stephani)* 4: 161, 1910 (Stephani 1910a). Type: Brazil.

=*Radula montana* Steph., *Sp. Hepat. (Stephani)* 4: 176, 1910 (Stephani 1910a), syn. fide Yamada (2000). Type: Brazil.

GUATEMALA. S. loc. (Castle 1968 as *Radula montana*; Yamada 1987 as *Radula montana*; Reiner-Drehwald 1994 as *Radula montana*). ALTA VERAPAZ: S. loc., 1906, *Türckheim* 5130 (G, Castle 1965 as *Radula montana*). BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

COSTA RICA. S. loc. (Castle 1968 as *Radula montana*; Yamada 1987 as *Radula montana*; Reiner-Drehwald 1994 as *Radula montana*; Dauphin 2005 as *Radula montana*; Schäfer-Verwimp et al. 2013; Oliveira-da-Silva et al. 2021); S. loc., Tonduz 1788 (Morales 1991 as *Radula montana*). HEREDIA: S. loc., 1893, Tonduz 1788 (G, Castle 1965 as *Radula montana*); Barva cantón, Barva forest, 1,135 m, Pittier & Durand (G, Castle 1965 as *Radula montana*; Morales 1991 as *Radula montana*; Dauphin 2005 as *Radula montana*).

?PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, foothills of Cerro Pinola, 1,280–2,000 m (Salazar Allen et al. 2021 as *Radula* cf. *sinuata*). Note: We are not aware of any positively identified specimen from Panama.

Also reported from Western South America, Brazil, Southern South America.

Radula stenocalyx Mont., *Ann. Sci. Nat. Bot.*, sér. 4, 3(5): 315, 1855 (Montagne 1855). Type: French Guiana.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

HONDURAS. S. loc. (Winkler 1967). ATLÁNTIDA: Tela municipio, Lancetilla Valley, 20–600 m, Standley 54861, 87985 p.p. (Herzog 1951).

EL SALVADOR. SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, Winkler (Winkler 1967).

COSTA RICA. S. loc. (Winkler 1967; Yamada 1993; Schäfer-Verwimp and Pócs 2009). HEREDIA: San Isidro cantón, Cerro de Caricias, Standley 51985 p.p. (Herzog 1951); San Isidro cantón, Cerro de Caricias, N of San Isidro, 2,000–2,400 m, Standley 51985 (Morales 1991; Dauphin 2005). PUNTARENAS: Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a).

PANAMA. ?BOCAS DEL TORO: S. loc. (Schäfer-Verwimp 2014). Note: This report probably refers to the “new” comarca Naso Tjër Di. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Cerro Hornito, 1,670–2,300 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, near southern edge of storage lake, 8°44.0'N, 82°14.5'W, 1,215 m, 30 Mar 2009, Schäfer-Verwimp & Verwimp 34497/D (JE, Schäfer-Verwimp 2014); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,650 m, Schäfer-Verwimp & Verwimp 34418/B (JE, Schäfer-Verwimp 2014). NASO TJËR DI COMARCA: Cerro Fábrega, De Gracia 222 (PMA, Dauphin 2007).

Also reported from West Tropical Africa, West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, China, Indian Subcontinent, Indo-China, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Radula subinflata Lindenb. et Gottsche, *Syn. Hepat.* 5: 724, 1847 (Gottsche et al. 1847). Type: Mexico.

=*Radula pallens* var. *flaccida* Steph. ex Castle, *Rev. Bryol. Lichénol.* 29(1/2): 18, 1960 (Castle 1960), nom. inval. (ICN2018 Art. 36.1(b); publ. in syn.), syn. fide Castle (1960). Original material: Costa Rica, Montana de Poás, massif de l'Escazú, 2,275 m, Pittier 6005 (G).

GUATEMALA. S. loc. (Castle 1968; Fulford and Sharp 1990; Yamada and Gradstein 1991; Schäfer-Verwimp 1999). ALTA VERAPAZ: Cobán, 1,350 m, 1907, *Türckheim* 5496 (Y, NY, Castle 1963).

HONDURAS. ATLÁNTIDA: Tela municipio, Lancetilla Valley, 20–600 m, 27 Jul 1927–Mar 1928, Standley 54900 (JE, Herzog 1951).

COSTA RICA. SAN JOSÉ: Montaña de Poás, Macizo de Escazú, 2,275 m, Pittier 6005 (TYPE of *Radula pallens* var. *flaccida*, Morales 1991; Dauphin 2005).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Radula tectiloba Steph., *Hedwigia* 27(11/12): 298, 1888 (Stephani 1888a). Type: Puerto Rico.

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Gradstein and Holz 2005; Schäfer-Verwimp and Pócs 2009; Cañiza et al. 2017; Arrocha et al. 2020). **CARTAGO:** Cordillera de Talamanca, Cerro de La Muerte, Páramo Buena Vista, km 85 of Pan-American Highway, 3,100 m, 26 Jun 2000, *Holz CR 00-811* (CR, GOET, Holz et al. 2001; Dauphin 2005). **SAN JOSÉ:** S. loc. (U-038091, Reiner-Drehwald 1994); Dota cantón, San Gerardo, Jaboncillo, 2,900 m, 3 Oct 1999, *Holz CR 99-022* (GOET, Holz et al. 2001; Dauphin 2005).

PANAMA. **CHIRIQUÍ:** Boquerón distrito, Parque Nacional Volcán Barú, Localidad, Finca El Aguacatal, 8°47'22.2"N, 82°34'33.6"W, 2,043 m, 15 Aug 2016, *Guerra 92a* (UCH, Arrocha et al. 2020); Tierras Altas distrito, Parque Nacional Volcán Barú, Localidad Paso Ancho, Camino de ascenso a la cima, ladera Occidental, Bosque de las Brujas, 2,040 m, 6 Jan 2017, *Guerra 103a, 108b, 115b* (UCH, Arrocha et al. 2020); Tierras Altas distrito, Parque Nacional Volcán Barú, Localidad Paso Ancho, Camino de ascenso a la cima, ladera Occidental, Bosque de las Brujas, 2,047 m, 12 Jan 2017, *Guerra 119c* (UCH, Arrocha et al. 2020); Tierras Altas distrito, Parque Nacional Volcán Barú, Paso Ancho, 8°48'55.13"N, 82°34'33.50"W, 2,047 m, *Guerra Batista et al.* (UCH, Guerra et al. 2020); Barú Volcano National Park (Rodríguez-Quiel et al. 2022).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Radula tenera Mitt. ex Steph., *Hedwigia* 23(10): 149, 1888 (Stephani 1888a). Type: America tropica.

GUATEMALA. **ALTA VERAPAZ:** S. loc., Pérez 312 (USCG, Pérez 2009); Panzós municipio, Cahabón and/or Senahú, 2012, Pérez & López-Medina, det. M. Pérez (Pérez and López-Medina 2012); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). **HUEHUETENANGO:** San Juan Ixcay municipio, Piedras de Captzin, 15°33'52"N, 91°29'54"W, 3,387 m, 2006, Pérez et al. 1293 (USCG, Pérez 2009). **QUICHÉ:** S. loc., Pérez 2307 (USCG, Pérez 2009).

***EL SALVADOR.** ***SANTA ANA:** Metapán municipio, Calle Los Planes, 12 Nov 2014, *Búcaro H323 p.p.*, det. Dauphin (MHES!, this publication).

COSTA RICA. S. loc. (Gradstein and Holz 2005; Santos 2008; Schäfer-Verwimp et al. 2013; Gradstein 2021; Oliveira-da-Silva et al. 2021); Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b). **ALAJUELA:** San Ramón cantón, Nectandra Cloud Forest, Quebrada Verde, *Norris 111060* (UC-2053338, Norris et al. 2017). **CARTAGO:** El Guarco cantón, 3 de Junio, 2,600 m, *Gradstein & Morales 9393* (U, USJ, Gradstein et al. 1994; Kappelle 1996; Dauphin 2005). **PUNTARENAS:** S. loc. (Merwin et al. 2001); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994,

Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde, 1,550 m, *Gradstein & Solano 9534* (U, Gradstein et al. 1994; Dauphin 2005).

Also reported from Northern South America, Western South America, Brazil, Southern South America.

Radula voluta Taylor, *Syn. Hepat.* 2: 255, 1845 (Gottsche et al. 1845b). Type: Ireland.

=*Radula ramulina* Taylor, *London J. Bot.* 5: 374, 1846 (Taylor 1846a), syn. fide Yamada and Gradstein (1991). Type: Ecuador.

GUATEMALA. S. loc. (Fulford and Sharp 1990 as *Radula ramulina*). **ALTA VERAPAZ:** Cobán, 1,350 m, 1906, *Türkheim 5099, 5429* (G, BM, NY, Y, Castle 1965 as *Radula ramulina*); Senahú municipio, Finca Sepacuité, 900 m, 1905, *Maxon 3252* (US, Y, Castle 1965 as *Radula ramulina*); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). **CHIMALTENANGO:** Cerro de Tecpán region, Santa Eleva, 2,400–2,760 m, 1938, *Standley 60975* (Y, Castle 1965 as *Radula ramulina*).

COSTA RICA. S. loc. (Fulford and Sharp 1990 as *Radula ramulina*; Reiner-Drehwald 1994; Gradstein 1999a; Dauphin 2005; Gradstein and Holz 2005); S. loc., Wercklé (NY, Y, Dauphin 2005); S. loc., 1900, Wercklé (YU, NY, Castle 1965 as *Radula ramulina*); Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b). **CARTAGO:** Alvarado cantón, Coliblanco, Maxon 342 (NY, Y, Morales 1991 as *Radula ramulina*; Dauphin 2005); Alvarado cantón, Coliblanco, 1,950 m, 1906, Maxon 342 (NY, Y, Castle 1965 as *Radula ramulina*). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin 2005).

PANAMA. **CHIRIQUÍ:** Boquete distrito, along road to Sendero Los Quetzales and along first part of trail, 8°51'N, 82°30'W, 1,900 m, 6 Apr 2006, *Schäfer-Verwimp & Verwimp 30996* (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Parque Internacional La Amistad near Las Nubes above Cerro Punta, near park entrance, 8°53'N, 82°37'W, 2,130–2,250 m, 31 Mar 2009, *Schäfer-Verwimp & Verwimp 34534/C, 34574* (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Parque Nacional Volcán Barú, Paso Ancho, 8°48'55.13"N, 82°34'33.50"W, 2,047 m, *Guerra Batista et al.* (UCH, Guerra et al. 2020); Tierras Altas distrito, Volcán, along road to Rio Serena at western edge of the village, 8°47.6'N, 82°39.4'W, 1,370 m, 1 Apr 2009, *Schäfer-Verwimp & Verwimp 34631* (JE, Schäfer-Verwimp 2014); Barú Volcano National Park (Rodríguez-Quiel et al. 2022).

Also reported from Northern Europe, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Radula xalapensis Nees et Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 5: 56, 1836 (Nees and Montagne 1836). Type: Mexico.

=*Radula frondescens* Taylor, *London J. Bot.* 4: 181, 1910 (Stephani 1910a), syn. fide Oliveira-da-Silva et al. (2021). Type: Peru.

COSTA RICA. S. loc. (Gradstein 2021); S. loc., *Holz CR 00-774B* (GOET, Heinrichs et al. 2007 as *Radula frondescens*; Feldberg et al. 2014 as *Radula frondescens*). **CARTAGO:** Turrialba cantón, Villa Mills, CATIE Station Siberia, 2,700 m, 28 Feb 2000, *Holz CR 00-493* (CR, GOET, Holz et al. 2001 as *Radula frondescens*; Dauphin 2005 as *Radula frondescens*). **PUNTARENAS:** S. loc. (Merwin et al. 2001 as *Radula frondescens*); Monteverde cantón, Cordillera de Tilarán, Reserva Biológica Monteverde, 1,550 m, 9 Nov 1993, *Gradstein 9443* (GOET, Holz et al. 2001 as *Radula frondescens*; Dauphin 2005 as *Radula frondescens*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a as *Radula frondescens*). **SAN JOSÉ:** Dota cantón, Los Quetzales National Park (Amengual et al. 2007 as *Radula frondescens*); Dota cantón, San Gerardo, *Holz CR 00-749b* (Dauphin 2005 as *Radula frondescens*); Dota cantón, San Gerardo, *Schäfer-Verwimp & Holz SV/H-0111* (Dauphin 2005 as *Radula frondescens*); Dota cantón, San Gerardo, 1,900–2,100 m, 5 Mar 1999, *Holz CR 99-035, 99-749B, SV/H-0111* (CR, GOET, Holz et al. 2001 as *Radula frondescens*; Dauphin 2005 as *Radula frondescens*).

Also reported from Northeastern USA(?), Southeastern USA(?), Mexico, Northern South America, Western South America, Brazil, Southern South America.

Radula yanoella R.M.Schust., *Phytologia* 56(2): 72, 1984 (Schuster 1984). Type: Brazil.

COSTA RICA. S. loc. (Gradstein et al. 2001b; Gradstein and Costa 2003; Schäfer-Verwimp et al. 2013; Costa et al. 2017, 2020; Gradstein 2021; Oliveira-da-Silva et al. 2021). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, *Lücking 92-615* (Dauphin et al. 1998; Dauphin 2005); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking 92-615* (hb. Lücking, Lücking 1995); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (Lücking 1997). **PUNTARENAS:** Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

***Reboulia Raddi*, *Opusc. Sci.* 2(6): 357, 1818 (Raddi 1818a).**

***Reboulia hemisphaerica* (L.) Raddi, *Opusc. Sci.* 2:357, 1818 (Raddi 1818a).

≡*Marchantia hemisphaerica* L., *Sp. Pl.* 1: 1158, 1753 (Linnaeus 1753). Type: Europe.

Note: We do not know to which subspecies the *Reboulia hemisphaerica* reports from Central America belong. It is here confirmed for Central America.

***GUATEMALA.** S. loc. (Miller et al. 1983). ***HUEHUETE-NANGO:** San Rafael Petzal municipio, ~20 km N Huehuetenango, 15°28'45.8"N, 91°31'47.7"W, 3,700 m, 4 Apr 2007, *Laeger et al.*

3679, det. Whittemore 2009 (MO-6160447! <http://tropicos.org/specimen/101411572>, this publication).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa, Macaronesia, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Siberia, Russian Far East, Middle Asia, Caucasus, Western Asia, Arabian Peninsula, China, Mongolia, Eastern Asia, Indian Subcontinent, Indo-China, Malaysia, Papuaasia, Australia, New Zealand, Southwestern Pacific, Southeastern Pacific, Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, South-Central USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands.

***Rectolejeunea* A.Evans, Bull. Torrey Bot. Club 33(1): 8, 1906 (Evans 1906b).**

Rectolejeunea emarginuliflora (Schiffn.) A.Evans, *Bull. Torrey Bot. Club* 33(1): 14, 1906 (Evans 1906b).

≡*Cheilolejeunea emarginuliflora* Schiffn., *Bot. Jahrb. Syst.* 23(5): 585, 1897 (Schiffner 1897). Type: Cuba.

?**COSTA RICA.** ?**HEREDIA:** San Miguel de Sarapiquí, 850 m (Eggers 2001 as *Rectolejeunea* cf. *emarginuliflora*); Sarapiquí cantón, La Selva, 100 m (Eggers 2001 as *Rectolejeunea* cf. *emarginuliflora*). ?**LIMÓN:** Braulio Carrillo National Park, 400–500 m (Eggers 2001 as *Rectolejeunea* cf. *emarginuliflora*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking 92-191, 92-243, 92-577, 94-1, 94-2* (hb. Lücking, Lücking 1995 as *Rectolejeunea* cf. *emarginuliflora*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (Lücking 1997 as *Rectolejeunea* cf. *emarginuliflora*). Note: We are not aware of any positively identified *Rectolejeunea emarginuliflora* from Costa Rica or Cocos I.

PANAMA. **PANAMA WEST:** La Chorrera distrito, Barro Colorado, Shannon, 2003, *Dauphin 3073* (CR, PMA, Dauphin et al. 2022).

?**COCOS I.** Cerro Yglesias, 5°32'57"N, 87°03'56"W, Apr 1992, *Lücking 92-278* (hb. Lücking, Lücking 1995 as *Rectolejeunea* cf. *emarginuliflora*); Serranías al NE de la Isla, 5°32'57"N, 87°03'56"W, 200 m, 14 Feb 1994, *Dauphin 1107* (USJ-47220!, Dauphin 1995, 1999, both as *Rectolejeunea* cf. *emarginuliflora*; note that this specimen is reidentified as *Rectolejeunea versifolia*); Yglesias-Bucht, Apr 1992, *Lücking 92-280* (hb. Lücking, Lücking 1995 as *Rectolejeunea* cf. *emarginuliflora*). Note: We are not aware of any positively identified *Rectolejeunea emarginuliflora* from Costa Rica or Cocos I.

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Rectolejeunea flagelliformis A.Evans, *Bull. Torrey Bot. Club* 33(1): 9, 1906 (Evans 1906b). Type: Puerto Rico.

BELIZE. S. loc. (Fulford 1938; Whittemore and Allen 1996).

HONDURAS. S. loc. (Jovet-Ast 1957, 1959; Winkler 1967; Schäfer-Verwimp et al. 2013). **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 54841, 54882 p.p., 56777, 56805 p.p. (Zwickel 1932; Herzog 1951; Reiner-Drehwald and Grolle 2012); Tela municipio, Lancetilla Valley, *Standley* (Standley 1931); Tela municipio, Lancetilla Valley, 20–600 m, 6 Jul 1927–20 Mar 1928, *Standley* 56556 (JE, US, Herzog 1951).

EL SALVADOR. **SANTA ANA:** Metapán municipio, SE-hang des Cerro Miramundo bei der Hazienda Montecristo, *Winkler* B/6/a/6, B/6/b/6, B/6/c/3, B/6/d/7 (Winkler 1967).

PANAMA. S. loc., *Schäfer-Verwimp* & *Verwimp* 34286 (JE, Bechteler et al. 2016a, 2016c; Schäfer-Verwimp et al. 2017; Zhu et al. 2017, 2018a, 2018b, 2019; Ye and Zhu 2018; Zhu and Shu 2018; Ye and Wei 2021; Shu et al. 2022). **BOCAS DEL TORO:** Bocas del Toro distrito, Dolphin Bay, 9°13'16.9"N, 82°13'03.0"W, 16 m, 15 Aug 2017, *Dauphin* 4614 (PMA, this publication); Bocas del Toro distrito, Dolphin Bay, 9°13'16.9"N, 82°13'03.0"W, 16 m, 15 Aug 2017, *Magaña-Marcial* & *Rodríguez* 256, det. Magaña-Marcial Aug 2017 (PMA, this publication); Bocas del Toro distrito, Salt Creek, Aug 2017, *Dauphin* et al. 4623, 4624 (PMA, this publication); Bocas del Toro distrito, Salt Creek, Long Beach Trail, Aug 2017, *Dauphin* et al. 4630, 4633 (PMA, this publication); Dolphin Bay (9°13'14.7"N, 82°13'02.9"W), Aug 2017 (Salazar Allen et al. 2022); Salt Creek (9°17'39.7"N, 82°06'11.2"W) on Isla Bastimento, Aug 2017 (Salazar Allen et al. 2022). **COCLÉ:** Antón distrito, El Valle de Antón, access to Cerro Gaital 8°37'N, 80°07'W, 700–1,000 m, 31 Mar 2006, *Schäfer-Verwimp* & *Verwimp* 30760 (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, *Schäfer-Verwimp* & *Verwimp* 34136/B, 34165, det. (JE, Schäfer-Verwimp 2014). **DARIÉN:** S. loc. (*Schäfer-Verwimp* 2014); Cerro Pirre, 400–500 m, *Salazar Allen* & *Gradstein* 9241d (JE, Reiner-Drehwald and Grolle 2012). **PANAMA:** Panamá distrito, Cerro Jefe, along unpaved road, 9°13.4–5'N, 79°22.7–9'W, 750–1,000 m, 28 Mar 1906, *Schäfer-Verwimp* & *Verwimp* 30720 (JE, Schäfer-Verwimp 2014); Panamá distrito, Chagres National Park, Altos de Cerro Azul, Sendero El Cantar, 800 m, *Gradstein* 9783 (GOET, Stotler et al. 1998); Panamá distrito, Parque Nacional Soberanía, sendero Camino de Cruces, 9°06'08"N, 79°36'56"W, 12 Mar 1996, *Reiner-Drehwald* 960005 (PMA, GOET, Reiner-Drehwald and Grolle 2012). **VE-RAGUAS:** S. loc., 890 m, *Schäfer-Verwimp* & *Verwimp* 30818 (JE, Heinrichs et al. 2015); Santa Fe distrito, base of Cerro Tute, 8°30'N, 81°06'W, 710–890 m, 26 Mar 2009, *Schäfer-Verwimp* & *Verwimp* 34277/A, 34286 (JE, Schäfer-Verwimp 2014).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Rectolejeunea lindigiana Steph., *Sp. Hepat.* 5: 690, 1914 (Stephani 1914). Lectotype: Colombia.

Note: This is a species of *Lejeunea* of uncertain affinity (cf. Reiner-Drehwald and Grolle 2012), but it has never been transferred or synonymized.

COSTA RICA. S. loc. (Stephani 1914; Geissler and Bischler 1990); S. loc., *Pittier* & *Durand* (G, Reiner-Drehwald and Grolle 2012).

Also reported from Western South America.

Rectolejeunea versifolia (Schiffn.) L.Söderstr. et A.Hagborg, *Phytotaxa* 220(2): 188 (Söderström et al. 2015).

≡*Cheilolejeunea versifolia* Schiffn., *Bot. Jahrb. Syst.* 23(5): 597, 1897 (Schiffner 1897). Type: Cuba.

≡*Odontolejeunea berteriana* Gottsche ex Steph., *Hedwigia* 27(11/12): 282, 1888 (Stephani 1888a), nom. inval. (ICN2018 Art. 35.1; genus not valid).

≡*Rectolejeunea berteriana* A.Evans, *Bull. Torrey Bot. Club* 33(1): 12, 1906 (Evans 1906b), syn. fide Evans (1906b). Lectotype: Puerto Rico.

GUATEMALA. **EL PETÉN:** S. loc., *Eggers* & *Timm* 1996 (GUA, Pérez 2009 as *Rectolejeunea berteriana*); Flores municipio, Tikal, near the Maya ruins, ~150 m, 1996, *Eggers* & *Timm* GUA 2/20, det. *Eggers* (*Eggers* et al. 2004 as *Rectolejeunea berteriana*); Flores municipio, Tikal, near the Maya ruins, 150 m, 1996, *Eggers* & *Timm*, det. *Eggers* (GUA, Freire 2006 as *Rectolejeunea berteriana*). **IZABAL:** Los Amates municipio, Caserio El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007 as *Rectolejeunea berteriana*).

BELIZE. S. loc. (Fulford 1938 as *Rectolejeunea berteriana*; Steere 1946 as *Rectolejeunea berteriana*; Frye and Clark 1947 as *Rectolejeunea berteriana*; Schuster 1980d as *Rectolejeunea berteriana*; Fulford and Sharp 1990 as *Rectolejeunea berteriana*; Lücking 1995 as *Rectolejeunea berteriana*; Whittemore and Allen 1996 as *Rectolejeunea berteriana*; Ilkiu-Borges 2000 as *Rectolejeunea berteriana*; Bastos 2004 as *Rectolejeunea berteriana*; *Eggers* et al. 2004 as *Rectolejeunea berteriana*).

HONDURAS. **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, 1927, *Standley* 55777 (JE, Reiner-Drehwald and Grolle 2012 as *Rectolejeunea berteriana*).

COSTA RICA. S. loc. (Ilkiu-Borges 2000 as *Rectolejeunea berteriana*; *Eggers* et al. 2004 as *Rectolejeunea berteriana*). **CARTAGO:** Turrialba cantón, Tuis Valley, Rancho Naturalista, 900 m, 30 Jan 2001, *Eggers* CR 17/28 (*Eggers* et al. 2001 as *Rectolejeunea berteriana*). **GUANACASTE:** Tenorio, 500 m, *Eggers* (hb. *Eggers*, *Eggers* 2001 as *Rectolejeunea berteriana*). **HEREDIA:** Sarapiquí cantón, Puerto Viejo, 100 m, *Eggers*, det. Pócs (hb. *Eggers*, *Eggers* 2001 as *Rectolejeunea berteriana*). **LIMÓN:** Braulio Carrillo National Park, 400–500 m (*Eggers* 2001 as *Rectolejeunea berteriana*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 92-183, *Lücking* 92-377, *Lücking* 92-420, *Lücking* 92-520 (hb. *Lücking*, *Lücking* 1995 as *Rectolejeunea berteriana*); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (*Lücking* 1997 as *Rectolejeunea berteriana*); Pococí cantón, Tortuguero, 1–5 m, *Eggers* (hb. *Eggers*, *Eggers* 2001 as *Rectolejeunea berteriana*). **PUNTARENAS:** Golfito cantón, Corcovado National Park, Esquinas, <100 m (*Eggers* 2001 as *Rectolejeunea berteriana*); Golfito cantón, Nacionales Refugium Golfito,

50 m, Sep 1991, *Lücking* 91-125 (hb. Lücking, Lücking 1995 as *Rectolejeunea berteriana*); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009 as *Rectolejeunea berteriana*); Golfo Dulce (Eggers 2001 as *Rectolejeunea berteriana*); Golfo Dulce, Taylor 39-765 (AHFH, MICH, hb. Fulford, Steere 1946 as *Rectolejeunea berteriana*; Morales 1991 as *Rectolejeunea berteriana*; Dauphin 2005 as *Rectolejeunea berteriana*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a as *Rectolejeunea berteriana*); Osa cantón, Osa Peninsula, Rincón, Centro Boscosa, 150 m, Oct 1993, *Gradstein* (*Gradstein* 1999b as *Rectolejeunea berteriana*). **SAN JOSÉ:** Pérez Zeledón cantón, Quizarrá near San Isidro, 700 m, Eggers (hb. Eggers, Eggers 2001 as *Rectolejeunea berteriana*).

PANAMA. S. loc. (Lücking 1995 as *Rectolejeunea berteriana*; Ilkiu-Borges 2000 as *Rectolejeunea berteriana*; Eggers et al. 2004 as *Rectolejeunea berteriana*). **CHIRIQUÍ:** Boquete, 9 Aug 1950, *Chickering* (MICH, *Crum and Arzeni* 1953 as *Rectolejeunea berteriana*; *Stotler et al.* 1998 as *Rectolejeunea berteriana*). **DARIÉN:** Cerro Pirre (Stotler et al. 1998 as *Rectolejeunea berteriana*); Cerro Pirre, above Rancho Mojado, 800–1,150 m, *Salazar Allen & Gradstein* 9247 p.p. (PMA, *Stotler et al.* 1998 as *Rectolejeunea berteriana*); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992 as *Rectolejeunea berteriana*); Cerro Pirre, along trail to Rancho Mojado, 400–500 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992 as *Rectolejeunea berteriana*); Cerro Pirre, around INRENARE field station, ~100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992 as *Rectolejeunea berteriana*); Cerro Pirre, Trail El Real–Pirre, along Río Pirre, ~50 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992 as *Rectolejeunea berteriana*). **PANAMA WEST:** La Chorrera distrito, Barro Colorado Island, Basilisk Bay, 2003, *Dauphin* 3161 (CR, PMA, *Dauphin et al.* 2022); La Chorrera distrito, Barro Colorado Island, Camino F. Miller, 9°09'N, 79°51'W, *Salazar Allen & Chung* 4529 (PMA, *Stotler et al.* 1998 as *Rectolejeunea berteriana*; *Dauphin et al.* 2022); La Chorrera distrito, Barro Colorado, Fairchild, 2003, *Dauphin* 3136 (CR, PMA, *Dauphin et al.* 2022). ***PANAMA:** Panamá distrito, River Chagres between junction with River Pequeni and Indio, 5 Dec 1934, *Steyermark & Allen* 16809 p.p., det. Dauphin Jun 2017 (MO-6699930!, this publication).

COCOS I. Boca Río Yglesias, 5°32'57"N, 87°03'56"W, 0 m, 14 Feb 1994, *Dauphin* 1143, det. M. I. Morales (USJ, *Dauphin* 1995, 1999, both as *Rectolejeunea berteriana*); Río Genio, 5°32'57"N, 87°03'56"W, 0–50 m, Apr 1992, *Lücking* 549 (USJ, *Bernecker-Lücking* 2000 as *Rectolejeunea berteriana*); Wafer Bay, 0 m, Apr 1992, *Lücking* 493 (hb. Bernecker, *Bernecker-Lücking* 2000 as *Rectolejeunea berteriana*); Serranías al NE de la Isla, 5°32'57"N, 87°03'56"W, 200 m, 14 Feb 1994, *Dauphin* 1107 (USJ-47220!, *Dauphin* 1995, 1999, originally identified as *Rectolejeunea cf. emarginuliflora*).

Also reported from Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Riccardia Gray, Nat. Arr. Brit. Pl. 1: 679, 1821 (Gray 1821).

Riccardia digitiloba (Spruce) Pagán, *Bryologist* 42(1): 6, 1939 (Pagán 1939a).

≡ *Aneura digitiloba* Spruce, *Bull. Soc. Bot. France (Congr. Bot.)* 36: cci, 1890 (Spruce 1889). Type: Brazil.

≡ *Aneura metzgeriiformis* Steph., *Bull. Herb. Boissier* 7(10): 753 (=Spec. Hepat. [Stephani] 1: 263), 1899 (Stephani 1899e), syn. fide *Gradstein and Reeb* (2018). Type: Brazil.

≡ *Riccardia metzgeriiformis* (Steph.) R.M.Schust., *J. Hattori Bot. Lab.* 26: 295, 1963 (Schuster 1963a).

GUATEMALA. ALTA VERAPAZ: Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 8, 91, 195, 231, 252, 311, 410, 456, 460, 478 (USCG, *Freire et al.* 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al.* 2005 also as *Riccardia 'metzgeriiformis'*). **EL PROGRESO:** San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007 as *Riccardia metzgeriiformis*).

Also reported from Mexico(?), the Caribbean, Northern South America, Western South America, Brazil.

Riccardia fucoidea (Sw.) C.Massal., *Nuovo Giorn. Bot. Ital.* 17(3): 256, 1885 (Massalongo 1885).

≡ *Jungermannia fucoidea* Sw., *Prodr. (Swartz)*: 145, 1788 (Swartz 1788). Type: Jamaica.

≡ *Aneura fucoidea* (Sw.) Besch., *J. Bot. (Morot)* 7(9): 193, 1893 (Bescherelle 1893b).

≡ *Aneura andina* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 548, 1885 (Spruce 1885), syn. fide *Gradstein and Reeb* (2018). Lectotype: Peru.

≡ *Riccardia andina* (Spruce) Herzog, *Svensk Bot. Tidskr.* 46(1): 62, 1952 (Herzog 1952).

≡ *Aneura plumiformis* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 548, 1885 (Spruce 1885), syn. fide *Gradstein and Reeb* (2018). Type: Ecuador.

≡ *Riccardia plumiformis* (Spruce) Hässel ex Meenks, *Beih. Nova Hedwigia* 88: 101, 1987 (Schultze-Motel and Menzel 1987).

GUATEMALA. S. loc., 1840–1841, *Friedrichstahl*, det. Dauphin and *Gradstein* Sep 2017 (W-201707325!, this publication). **ALTA VERAPAZ:** Cobán (Haupt 1942 as *Riccardia andina*); Cobán, 1,650 m, Jun 1908, *Türkheim* (G-00061198 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=121330&lang=en>, NY, *Stephani* 1899c as *Aneura andina*).

COSTA RICA. S. loc. (Evans 1921a as *Aneura 'fucoidea'*; Pagán 1939a as *Riccardia 'fucoidea'*; Arnell 1959; Hell 1969 as *Riccardia 'fucoidea'*; Timme 1985; Meenks 1987; Schultze-Motel and Menzel 1987 as *Riccardia 'plumaeformis'*; Morales

1991; Dauphin 2005 also as *Riccardia plumiformis*); S. loc., *Pittier* (Stephani 1899c as *Aneura fucoidea* and *Aneura plumiformis*); Cordillera de Talamanca (Holz 2003 as *Riccardia andina*; Holz and Gradstein 2005b as *Riccardia andina*); Cordillera de Talamanca, Kappelle 225 (CR, Kappelle 1996 as *Riccardia andina*). ALAJUELA: Alajuela cantón, Poás Volcán, Haupt (Morales 1991 as *Riccardia andina*); Poás National Park (Dauphin 2005 as *Riccardia andina*); Poás Volcano, 1942, Haupt (Morales and Griffin 1983 as *Riccardia andina*); San Ramón cantón, Nectandra Cloud Forest, Quebrada Verde, 2010, Lucas (UC-2053925, Norris et al. 2017 as *Riccardia 'fucoidea'*). PUNTARENAS: S. loc. (Merwin et al. 2001); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, Gradstein et al. (FLAS, U, USJ, Gradstein et al. 2001a). SAN JOSÉ: Aserrí cantón, Tablazo Mountains, SW of Cartago, 5,500 ft (1,676 m), 9 Aug 1940, Haupt (Haupt 1942 as *Riccardia andina*); Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002 as *Riccardia andina*); Dota cantón, San Gerardo (Dauphin 2005 as *Riccardia andina*); Montañas de Tablazo (Dauphin 2005 as *Riccardia andina*); Montañas de Tablazo, Haupt (Morales 1991 as *Riccardia andina*).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna (Stotler et al. 1998 as *Riccardia andina*); Gualaca distrito, Fortuna Forest Reserve, NE of camping site, 900–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, NW of camping site, 1,000–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, SW of camping site, from Finca Pittí to foothills of Cerro Fortuna, 1,000–1,270 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna, 1,000 m, Salazar Allen et al. 610 (PMA, Stotler et al. 1998); Gualaca distrito, Fortuna, Salazar Allen et al. 670, 717 (PMA, Stotler et al. 1998); Gualaca distrito, Fortuna, Spörle 1.3 (PMA, Spörle 1990 as *Riccardia andina*; Stotler et al. 1998 as *Riccardia andina*); Tierras Altas distrito, Volcán, 9 Aug 1950, Chickering (MICH, Crum and Arzeni 1953 as *Riccardia 'fucoidea'*; Stotler et al. 1998). DARIÉN: Cerro Pirre (Stotler et al. 1998); Cerro Pirre, 1,300 m, Salazar Allen & Gradstein 9306 (PMA, Stotler et al. 1998); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, Gradstein & Salazar Allen (PMA, U, Gradstein and Salazar Allen 1992).

***COCOS I.** Cerro Yglesias, 5°32'57"N, 87°03'36"W, 600 m, 22 Jan 1994, Dauphin 966, det. G. Dauphin Oct 2020 (USJ-47252!, CR-4468446!, W-0207484! <https://w.jacq.org/W0207484>, this publication).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Riccardia glaziovii (Spruce) Meenks, *J. Hattori Bot. Lab.* 62: 173, 1987 (Meenks 1987).

≡*Aneura glaziovii* Spruce, *Bull. Soc. Bot. France (Congr. Bot.)* 36: cc1, 1890 (Spruce 1889). Type: Brazil.

=*Aneura tripinnata* Steph., *Primit. fl. costar.*: 111, 1893 (Stephani 1893c), syn. fide Stephani (1899c). Lectotype (Söderström et al. 2023a: 150): Costa

Rica, Heredia, Forêt du Barba, 6 Feb 1890, Pittier & Durand 6075 (G-00282017 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=209259&lang=en>, isoelectotype PC-0101733).

COSTA RICA. HEREDIA: Barva cantón, Barva forest, 6 Feb 1890, Pittier 6075 (G-00282017 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=209259&lang=en>, PC-0101733, TYPE of *Aneura tripinnata*, Stephani 1893c as *Aneura tripinnata*, 1899c as *Aneura glaziovii*; Bonner 1962a as *Aneura tripinnata*; Morales 1991 as *Aneura tripinnata*).

Also reported from Western South America, Brazil.

Riccardia hymenophytoides (Spruce) Meenks, *Beih. Nova Hedwigia* 88: 101, 1987 (Schultze-Motel and Menzel 1987).

≡*Aneura hymenophytoides* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 549, 1885 (Spruce 1885). Type: Peru.

=*Aneura sprucei* Steph., *Bull. Herb. Boissier* 5(10): 844, 1897 (Stephani 1897a), syn. fide Gradstein and Reeb (2018). Lectotype: Venezuela.

≡*Riccardia sprucei* (Steph.) Meenks et C.De Jong, *Cryptog. Bryol. Lichénol.* 6(1): 22, 1985 (Meenks and De Jong 1985).

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 6, 22, 32, 53, 93, 122, 140, 204, 327, 385, 395, 397, 402, 435, 438, 451, 498, 513, 524 (USCG, Freire et al. 2013 as *Riccardia sprucei*); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as *Riccardia sprucei*). **?EL PROGRESO**: San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007 as *Riccardia* aff. *sprucei*). Note: We are not aware of any positively identified specimen from El Progreso. **?IZABAL**: Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007 as *Riccardia* aff. *sprucei*). Note: We are not aware of any positively identified specimen from Izabal. **?ZACAPA**: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007 as *Riccardia* aff. *sprucei*). Note: We are not aware of any positively identified specimen from Zacapa.

PANAMA. S. loc. (Schäfer-Verwimp and Pócs 2009 as *Riccardia sprucei*). **PANAMA**: Panamá distrito, Cerro Jefe (Stotler et al. 1998 as *Riccardia sprucei*); Panamá distrito, Cerro Jefe, Spörle 5220 (PMA, Spörle 1990 as *Riccardia sprucei*); Panamá distrito, Cerro Jefe, forest behind INTEL tower, 900–1,000 m, Salazar Allen & Chung 5220 (PMA, Stotler et al. 1998 as *Riccardia sprucei*).

Also reported from Mexico(?), the Caribbean, Northern South America, Western South America, Brazil.

Riccardia pallida (Spruce) Meenks et C.De Jong, *Cryptog. Bryol. Lichénol.* 6(1): 15, 1985 (Meenks and de Jong 1985).

≡*Aneura pallida* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 547, 1885 (Spruce 1885). Type: Ecuador.

COSTA RICA. Cordillera de Talamanca, Kappelle 3392 (U, Kappelle 1996).

Also reported from Northern South America, Western South America.

Riccardia poeppigiana (Lehm. et Lindenb.) Hässel ex Meenks et C. De Jong, *Cryptog. Bryol. Lichénol.* 6(1): 17, 1985 (Meenks and De Jong 1985).

≡ *Jungermannia poeppigiana* Lehm. et Lindenb., *Nov. Stirp. Pug.* 6: 23, 1834 (Lehmann 1834). Type: Peru.

= *Aneura cervicornis* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 550, 1885 (Spruce 1885), syn. fide Gradstein and Reeb (2018). Lectotype: Ecuador.

≡ *Riccardia cervicornis* (Spruce) Herzog ex Gradst. et Hekking, *J. Hattori Bot. Lab.* 45: 129, 1979 (Gradstein and Hekking 1979).

COSTA RICA. S. loc. (Meenks 1987 as *Riccardia cervicornis*); S. loc., Pittier (Stephani 1899c as *Aneura cervicornis*). **HEREDIA:** Barva cantón, between Laguna de Barva and Carrizal, Pittier 6015 (Stephani 1893c as *Aneura cervicornis*; Morales 1991 as *Riccardia cervicornis*; Dauphin 2005 as *Riccardia cervicornis*).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna (Stotler et al. 1998 as *Riccardia cervicornis*); Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna, Spörle 1.29 (PMA, Spörle 1990 as *Riccardia cervicornis*; Stotler et al. 1998 as *Riccardia cervicornis*). **DARIÉN:** Cerro Pirre (Stotler et al. 1998 as *Riccardia cervicornis*); Cerro Pirre, 1,300 m, Salazar Allen & Gradstein 9307 (PMA, Stotler et al. 1998 as *Riccardia cervicornis*); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, Gradstein & Salazar Allen (PMA, U, Gradstein and Salazar Allen 1992 as *Riccardia cervicornis*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Southern South America.

Riccardia regnellii (Ångstr.) K.G. Hell, *Bol. Fac. Filos. Univ. São Paulo, Bot.* 25: 110, 1969 (Hell 1969).

≡ *Pseudoneura regnellii* Ångstr., *Öfvers. Kongl. Vetensk.-Akad. Förh.* 33(7): 90, 1876 (Ångström 1876). Type: Brazil.

= *Aneura amazonica* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 545, 1885 (Spruce 1885). Lectotype: Brazil.

≡ *Riccardia amazonica* (Spruce) Schiffn. ex Gradst. et Hekking, *J. Hattori Bot. Lab.* 45: 129, 1979 (Gradstein and Hekking 1979).

GUATEMALA. ALTA VERAPAZ: Tucurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Riccardia* cf. *regnellii*). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as *Riccardia amazonica*).

PANAMA. BOCAS DEL TORO: Dolphin Bay (9°13'14.7"N, 82°13'02.9"W), Aug 2017 (Salazar Allen et al. 2022); Salt Creek (9°17'39.7"N, 82°06'11.2"W) on Isla Bastimento, Aug 2017 (Salazar Allen et al. 2022). **PANAMA WEST:** La Chorrera distrito, Barro Colorado, Barbour Point, 2003, Dauphin 3154 (CR, PMA, Dauphin et al. 2022); La Chorrera distrito, Barro Colorado, Fairchild, 2003, Dauphin 3139 (CR, PMA, Dauphin et al. 2022).

***COCOS I.** Camino a Cerro Escondido, 5°32'57"N, 87°03'36"W, 300 m, Dauphin 1145, det. G. Dauphin Apr 2021 (USJ-47255!, CR-446841!, W-0207486! <https://w.jacq.org/W0207486>, this publication); Cerro Yglesias, 5°32'57"N, 87°03'36"W, 600 m, 22 Jan 1994, Dauphin 984, det. G. Dauphin Oct 2020 (USJ-47253!, CR-4468444!, W-0207485! <https://w.jacq.org/W0207485>, this publication); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 21 Jan 1990, Dauphin 985, det. G. Dauphin Oct 2020 (USJ-47251!, CR-4468445!, W!, this publication); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 22 Jan 1994, Dauphin 985, det. G. Dauphin Oct 2020 (CR!, this publication as *Riccardia amazonica*); Fila sobre Valle Wafer, 5°32'57"N, 87°03'36"W, 150 m, 26 Jan 1994, Dauphin 1064, det. G. Dauphin Apr 2021 (USJ-47254!, CR-4468442!, W-0207488! <https://w.jacq.org/W0207488>, this publication).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Riccardia schwaneckeii (Steph.) Pagán, *Bryologist* 42(1): 7, 1939 (Pagán 1939a).

≡ *Aneura schwaneckeii* Steph., *Hedwigia* 27(11/12): 278, 1888 (Stephani 1888a). Type: Puerto Rico.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 441 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

Also reported from the Caribbean, Northern South America, Brazil, Southern South America.

Riccardia tenuicula (Spruce) Meenks, *Beih. Nova Hedwigia* 88: 101, 1987 (Schultze-Motel and Menzel 1987).

≡ *Aneura tenuicula* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 545, 1885 (Spruce 1885). Type: Brazil.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

Also reported from Western South America, Brazil, Southern South America.

***Riccia* L., Sp. Pl. 1: 1138, 1753 (Linnaeus 1753).**

Riccia bialbistrata Hässel, *Opera Lilloana* 7: 243, 1962 (Hässel 1962). Type: Argentina.

COSTA RICA. SAN JOSÉ: À la sortie de San José, 1,200 m, 12 Aug 1979, Jovet-Ast (Jovet-Ast 1981); San José cantón, cemetière central, 1,200 m, 15 Aug 1979, Jovet-Ast (Jovet-Ast 1981; Morales 1991; Dauphin 2005).

Also reported from Southern South America.

Riccia breutelii Hampe ex Steph., *Bull. Herb. Boissier* 6(4): 325 (=Spec. Hepat. [Stephani] 1: 17), 1898 (Stephani 1898a). Type: St. Kitts.

COSTA RICA. S. loc. (Gradstein et al. 1994). **GUANACASTE:** La Cruz cantón, Guanacaste National Park, Sector Islas Murciélagos, Isla San José, 3 Jul 1932, *Howell* 240 (NY, *Jovet-Ast* 1991; *Bischler-Causse* et al. 2005; *Dauphin* 2005; *Dauphin* and *Grayum* 2005); Santa Cruz cantón, Bahía Brasilito, 0–150 m, *Howell* 238, 239 (NY, *Jovet-Ast* 1991; *Bischler-Causse* et al. 2005; *Dauphin* 2005).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Riccia curtisii (James ex Austin) Austin, *Bull. Torrey Bot. Club* 6(52): 305, 1879 (Austin 1879).

≡ *Cryptocarpus curtisii* James ex Austin, *Proc. Acad. Nat. Sci. Philadelphia* 21: 231, 1869 (Austin 1869). Type: USA.

COSTA RICA. S. loc. (Gradstein et al. 2001b; Gradstein and Costa 2003). **SAN JOSÉ:** Granadilla de Montes de Oca, *Jovet-Ast* (Morales 1991; *Dauphin* 2005); Granadilla, N of Montes de Oca, 1,400 m, 10 Sep 1979, *Melendez-Howell* (PC, *Jovet-Ast* 1981, 1993; *Bischler-Causse* et al. 2005); Montes de Oca (Gradstein 2013b, 2017b).

Also reported from Southwestern Europe, Northeast Tropical Africa, Southern Africa, Indian Subcontinent, South-Central USA, Southeastern USA, Brazil, Southern South America.

Riccia elliottii Steph., *Bull. Herb. Boissier* 6(4): 324 (= *Spec. Hepat. [Stephani]* 1: 16), 1898 (Stephani 1898a). Type: Dominica.

COSTA RICA. S. loc. (Cole 1984; *Bischler-Causse* et al. 2005). **GUANACASTE:** La Cruz cantón, Guanacaste National Park, Sector Islas Murciélagos, Isla San José, 3 Jul 1932, *Howell* 240 (NY, *Howe* 1934; *Jovet-Ast* 1991; *Dauphin* 2005); Santa Cruz cantón, Bahía Brasilito, 0–150 m, *Howell* 238, 239 (NY, *Howe* 1934; *Jovet-Ast* 1991; *Dauphin* 2005).

Also reported from Mexico, the Caribbean.

Riccia membranacea Gottsche et Lindenb., *Syn. Hepat.* 4: 608, 1846 (Gottsche et al. 1846). Type: Mexico.

COSTA RICA. S. loc. (Infante and Heras 2002). **GUANACASTE:** La Cruz cantón, Santa Rosa National Park, *Dauphin* 2430 (CR, *Dauphin* 2005). **SAN JOSÉ:** Montes de Oca cantón, San Pedro, *Jovet-Ast* (Morales 1991); Montes de Oca cantón, San Pedro, 1,200 m, 10 Sep 1979, *Leda Meléndez* (*Jovet-Ast* 1993); Montes de Oca cantón, San Pedro, 1,200 m, 10 Sep 1979, *Melendez-Howell* (PC, *Jovet-Ast* 1981; *Bischler-Causse* et al. 2005); San José cantón, Barrio Mexico, 14 Aug 1979, *Jovet-Ast* (PC, *Jovet-Ast* 1981, 1993; Morales 1991; *Bischler-Causse* et al. 2005; *Dauphin* 2005); San José cantón, Paso Ancho, 9 Sep 1979, *Melendez-Howell* (PC, *Jovet-Ast* 1981; *Bischler-Causse* et al. 2005); Santa Ana cantón, Paso Ancho, 1,200 m, 9 Sep 1979, *Jovet-Ast* (Morales 1991); Santa Ana cantón, Paso Ancho, 1,200 m, 9 Sep 1979, *Leda Meléndez* (*Jovet-Ast* 1993).

Also reported from West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, North-Central USA, Northeastern USA,

South-Central USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America, Antarctic Continent(?).

Riccia oerstediana Lindenb. et Hampe, *Linnaea* 24: 304, 1851 (Hampe 1851b). Lectotype (*Jovet-Ast* 1993: 243; see also *Söderström* et al. 2023a: 155): Costa Rica, *Oersted* (G-00281751 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=341810&lang=en>, isolectotypes G, S).

≡ *Ricciella oerstediana* (Lindenb. et Hampe) Müll. Hal., *Bot. Zeitung (Berlin)* 9(48): 914, 1851 [Dec 26] (Müller 1851).

= *Riccia stenophylla* Spruce, *Bull. Soc. Bot. France (Congr. Bot.)* 36: cxcv, 1889 (Spruce 1889), syn. fide *Bischler-Causse* et al. (2005). Type: Paraguay.

Note: This species may be a synonym of the widespread *Riccia fluitans*.

GUATEMALA. S. loc. (Fernandes et al. 2021 as *Riccia stenophylla*). **SUCHITEPÉQUEZ:** Naranjo, N of Chicacao, *Hürlimann* 518 (PC, *Jovet-Ast* 1993 as *Riccia stenophylla*; *Bischler-Causse* et al. 2005 as *Riccia stenophylla*; Pérez 2009 as *Riccia stenophylla*).

? **NICARAGUA.** S. loc. (Fernandes et al. 2021 as *Riccia stenophylla*). Note: We are not aware of any firsthand report from Nicaragua.

COSTA RICA. S. loc. (Fernandes et al. 2021 as *Riccia stenophylla*); S. loc., 5,000–8,000 ft (1,524–2,438 m), *Oersted* 1169 (S-B58739, G-00282693, **TYPE**, Hampe 1851b; Müller 1851 as *Ricciella oerstediana*; Polakowsky 1879 as *Riccia* ‘*Oerstediana*’; Geissler and *Bischler* 1990; *Jovet-Ast* 1993 as *Riccia stenophylla*). **ALAJUELA:** S. loc., 1,000 m, 1979, *Jovet-Ast* (PC, *Bischler-Causse* et al. 2005 as *Riccia stenophylla*); S. loc., 1,000 m, 11 Aug 1979, *Jovet-Ast* (*Jovet-Ast* 1981 as *Riccia stenophylla*, 1993 as *Riccia stenophylla*); Alajuela cantón, Alajuela city, *Jovet-Ast* (Morales 1991 as *Riccia stenophylla*; *Dauphin* 2005 as *Riccia stenophylla*). **CARTAGO:** La Unión cantón, Tres Ríos y Turrialba, *Jovet-Ast* (Morales 1991 as *Riccia stenophylla*; *Dauphin* 2005 as *Riccia stenophylla*); La Unión cantón, Trés Ríos, 1,600 m, 4 Sep 1979, *Melendez-Howell* (*Jovet-Ast* 1993 as *Riccia stenophylla*); Turrialba cantón, CATIE, 600 m, 13 Aug 1979, *Jovet-Ast* (*Jovet-Ast* 1981, 1993, both as *Riccia stenophylla*); Turrialba, 13 Aug 1979, *Jovet-Ast* (PC, *Jovet-Ast* 1993 as *Riccia stenophylla*; *Bischler-Causse* et al. 2005 as *Riccia stenophylla*). **SAN JOSÉ:** S. loc., 12 Aug 1979, *Jovet-Ast* (PC, *Bischler-Causse* et al. 2005 as *Riccia stenophylla*); à la sortie de San José, 1,200 m, 12 Aug 1979, *Jovet-Ast* (*Jovet-Ast* 1981 as *Riccia stenophylla*); La Unión cantón, San Ramón de Tres Ríos, 1,600 m, 1976–1979, *Meléndez* (PC, *Jovet-Ast* 1981 as *Riccia stenophylla*; *Bischler-Causse* et al. 2005 as *Riccia stenophylla*); San José cantón, cimetière central, 1,200 m, 15 Aug 1979, *Jovet-Ast* (*Jovet-Ast* 1981 as *Riccia stenophylla*, 1993 as *Riccia stenophylla*); San José cantón, dans la cour de l’ITCO, 22 Aug 1979, *Jovet-Ast* (*Jovet-Ast* 1981 as *Riccia stenophylla*); San José cantón, dans la ville, 1,200 m, *Jovet-Ast* (*Jovet-Ast* 1981 as *Riccia stenophylla*); San José cantón, Jardín du Musée d’Histoire Naturelle,

24 Aug 1979, *Jovet-Ast* (*Jovet-Ast* 1981 as *Riccia stenophylla*); San José cantón, Paso Ancho, 9 Sep 1979, *Meléndez-Howell* (PC, *Jovet-Ast* 1981, 1993, both as *Riccia stenophylla*; *Bischler-Causse et al.* 2005 as *Riccia stenophylla*); Santa Ana cantón, El Rodeo, 26 Aug 1979, *Jovet-Ast* (PC, *Jovet-Ast* 1981, 1993, both as *Riccia stenophylla*; *Morales* 1991 as *Riccia stenophylla*; *Bischler-Causse et al.* 2005 as *Riccia stenophylla*; *Dauphin* 2005 as *Riccia stenophylla*); Santa Ana cantón, Paso Ancho, 1,200 m, 9 Sep 1979, *Jovet-Ast* (*Morales* 1991 as *Riccia stenophylla*; *Dauphin* 2005 as *Riccia stenophylla*); Santa Ana, 1979, *Meléndez* (PC, *Jovet-Ast* 1981 as *Riccia stenophylla*; *Bischler-Causse et al.* 2005 as *Riccia stenophylla*); Santa Ana, 8 Sep 1979, *Meléndez-Howell* (*Jovet-Ast* 1993 as *Riccia stenophylla*).

PANAMA. S. loc. (Fernandes et al. 2021 as *Riccia stenophylla*). COCLÉ: Antón distrito, El Valle de Antón, Rio de las Mozas, 500 m, *Salazar Allen et al.* 13498 (*Jovet-Ast* 1993 as *Riccia stenophylla*; *Stotler et al.* 1998 as *Riccia stenophylla*; *Bischler-Causse et al.* 2005 as *Riccia stenophylla*).

Also reported from North-Central USA, Southwestern USA, South-Central USA, Southeastern USA, Mexico, the Caribbean(?), Western South America, Brazil, Southern South America.

Riccia sorocarpa Bisch., *Bem. Leberm.*: 145, 1835 (Bischoff 1835). Type: Germany.

COSTA RICA. S. loc. (Gradstein and Cuvertino 2015). CARTAGO: Cartago cantón, Taras, road from Cartago to Turrialba, 1,500 m, 13 Aug 1979, *Jovet-Ast* (PC, *Jovet-Ast* 1981, 1991; *Morales* 1991; *Bischler-Causse et al.* 2005; *Dauphin* 2005).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa, Macaronesia, Northeast Tropical Africa, East Tropical Africa, Southern Africa, Siberia, Russian Far East, Middle Asia, Caucasus, Western Asia, Arabian Peninsula, China, Mongolia, Eastern Asia, Indian Subcontinent, Australia, New Zealand, Northeastern Pacific, Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, South-Central USA, Southeastern USA, Mexico, the Caribbean(?), Western South America, Brazil, Southern South America.

Riccia subplana Steph., *Symb. Antill. (Urban)* 3(2): 275, 1902 (Stephani 1902d). Type: Martinique.

GUATEMALA. S. loc. (Infante and Heras 2002; Ayub et al. 2014). SUCHITEPÉQUEZ: Naranjo, 24 Dec 1955, *Hürlimann* H 520 (hb. *Hürlimann*, *Jovet-Ast* 1991; *Bischler-Causse et al.* 2005; *Pérez* 2009).

COSTA RICA. S. loc. (Infante and Heras 2002; Gradstein and Costa 2003; Ayub et al. 2014). ALAJUELA: S. loc., 1,000 m, 1979, *Jovet-Ast* (PC, *Bischler-Causse et al.* 2005; *Dauphin* 2005); S. loc., 1,000 m, 11 Aug 1979, *Jovet-Ast* (*Jovet-Ast* 1991); Atenas, 16 Sep 1979, *Meléndez* (PC, *Jovet-Ast* 1991; *Bischler-Causse et al.* 2005; *Dauphin* 2005). CARTAGO: Turrialba cantón, CATIE, 600 m, 13 Aug 1979, *Jovet-Ast* (*Jovet-Ast* 1991; *Dauphin* 2005); Turrialba, 13 Aug 1979, *Jovet-Ast* (PC,

Bischler-Causse et al. 2005). GUANACASTE: Cañas cantón, La Pacífica, 1956, *Hürlimann* (*Dauphin* 2005); Cañas, 30 m, 17 Oct 1956, *Hürlimann* (hb. *Hürlimann*, *Jovet-Ast* 1991; *Bischler-Causse et al.* 2005); Liberia, 21 Aug 1979, *Jovet-Ast* (PC, *Jovet-Ast* 1991; *Bischler-Causse et al.* 2005; *Dauphin* 2005). SAN JOSÉ: NW of San José, 10 Aug 1979, *Jovet-Ast* (*Jovet-Ast* 1991); W of San José, 30–1,000 m, 13 Aug 1979, *Jovet-Ast* (PC, *Bischler-Causse et al.* 2005; *Dauphin* 2005).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Riccia vitalii Jovet-Ast, *Mem. New York Bot. Gard.* 45: 285, 1987 (*Jovet-Ast* 1987). Type: Brazil.

COSTA RICA. S. loc. (Gradstein and Costa 2003; Alvarenga et al. 2008; Valente 2010; Gradstein et al. 2016; Silva et al. 2018; Fernandes et al. 2021; Gradstein 2021; Gradstein and Pérez 2021). GUANACASTE: La Cruz cantón, Guanacaste National Park, Cerros Santa Elena, 10°53'24"N, 85°50'55"W, 650–700 m, 27 Aug 2003, *Dauphin et al.* 3371 (CR, *Dauphin and Grayum* 2005); La Cruz cantón, Guanacaste National Park, Sector Islas Murciélago, Isla Catalina, *Dauphin & Morales* 3275, 3278, 3279, 3281 (CR, *Dauphin* 2005); La Cruz cantón, Guanacaste National Park, Sector Islas Murciélago, Isla Cocinera, *Dauphin et al.* 3284, 3371, 3372, 3379 (CR, *Dauphin* 2005); La Cruz cantón, Guanacaste National Park, Sector Islas Murciélago, Isla San José, *Dauphin et al.* 3255, 3258 (CR, *Dauphin* 2005); La Cruz cantón, Guanacaste National Park, Sector Islas Murciélago, Isla San José, 3 Jul 1932, *Howell* 240 (NY, *Jovet-Ast* 1991; Gradstein et al. 1994; *Bischler-Causse et al.* 2005; *Dauphin* 2005).

Also reported from Western South America, Brazil, Southern South America.

Riccia weinionis Steph., *Bull. Herb. Boissier* 6(4): 326 (=Sp. *Hepat. [Stephani]* 1: 18), 1898 (Stephani 1898a). Type: Brazil.

COSTA RICA. S. loc. (Linares and Uribe 2002; Lavocat Bernard et al. 2009; Silva et al. 2018). GUANACASTE: Cañas cantón, La Pacífica, 17 Oct 1956, *Hürlimann* H 521 (hb. *Hürlimann*, *Jovet-Ast* 1991; *Bischler-Causse et al.* 2005; *Dauphin* 2005); La Cruz cantón, Santa Rosa National Park, 21 Aug 1979, *Jovet-Ast* (PC, *Jovet-Ast* 1981, 1991; *Morales* 1991; *Bischler-Causse et al.* 2005; *Dauphin* 2005).

PANAMA. S. loc. (Linares and Uribe 2002; Lavocat Bernard et al. 2009). PANAMA WEST: La Chorrera distrito, Barro Colorado Island, *Chung et al.* 205 (PMA, *Jovet-Ast* 1991; *Stotler et al.* 1998; *Bischler-Causse et al.* 2005; *Dauphin et al.* 2022).

Also reported from Mexico, the Caribbean, Western South America, Brazil, Southern South America.

***Ricciocarpos* Corda, Gen. Hepat.: 651, 1829 (Corda 1829).**

Ricciocarpos natans (L.) Corda, *Gen. Hepat.*: 651, 1829 (Corda 1829).

≡*Riccia natans* L., *Syst. Nat.*, ed. 10., 2: 1339, 1759 (Linnaeus 1759). Type: Britain.

PANAMA. S. loc. (Balciunas and Center 1981; Gradstein et al. 2001b; Gradstein and Costa 2003). **COLÓN:** Colón distrito, Juan Mina, Chagres River, *Bartlett & Lasser 16828* (NY, *Bischler-Causse et al. 2005*). **¿DARIÉN:** Cerro Pirre (Stotler et al. 1998). Note: We are not aware of any firsthand report from Darién. **LOS SANTOS:** Los Santos distrito, La Jagua, *McDaniel 8223* (NY, *Bischler-Causse et al. 2005*). **PANAMA WEST:** La Chorrera distrito, Lago Gatún, *Vergara & Mendoza* (PMA, *Stotler et al. 1998*).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa, Macaronesia, West Tropical Africa, West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Siberia, Russian Far East, Middle Asia, Caucasus, Western Asia, China, Mongolia, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Australia, New Zealand, Northeastern Pacific, Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, South-Central USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

***Ruizanthus* R.M.Schust., *Phytologia*
39(4): 240, 1978 (Schuster 1978a).**

Ruizanthus venezuelanus R.M.Schust., *Phytologia* 39(4): 240, 1978 (Schuster 1978a). Type: Venezuela.

COSTA RICA. S. loc. (Schuster 1990; León et al. 1998; Gradstein 1999a; Gradstein and Holz 2005; Campos and Uribe 2012; Gradstein and Uribe 2016; Gradstein 2021; Gradstein and Pócs 2021; Schuster 2021); Cordillera de Talamanca (Gradstein et al. 2001b; Engel and Gradstein 2003; Holz 2003; Holz and Gradstein 2005b). **SAN JOSÉ:** Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,000–3,600 m, *Gradstein 9747 p.p.* (Dauphin 2005); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,000 m, *Gradstein 9747* (U, USJ, *Gradstein et al. 1994*); Pérez Zeledón cantón, Chirripó National Park, Valle de los Conejos, *Chaverri et al. 1207* (CR, U, van Reenen et al. 1986; Morales 1991; Dauphin 2005).

Also reported from Northern South America, Western South America.

***Scapania* (Dumort.) Dumort., *Recueil Observ.*
Jungerm.: 14, 1835 (Dumortier 1835).**

Scapania portoricensis var. *boliviensis* (Steph.) Herzog, *Ann. Bryol.* 1: 110, 1928 (Herzog 1928).

≡*Scapania boliviensis* Steph., *Biblioth. Bot.* 87(2): 231, 1916 (Stephani 1916b). Lectotype: Bolivia.

COSTA RICA. S. loc. (Hong 1988). **SAN JOSÉ:** Moravia cantón, La Palma, 1,600 m, 3 Feb 1924, *Standley 32989* (Herzog 1928).

Also reported from Mexico, Western South America.

Scapania portoricensis Hampe et Gottsche, *Linnaea* 25(3): 342 (Hampe and Gottsche 1852) var. *portoricensis*. Lectotype: Puerto Rico.

≡*Scapania portoricensis* f. *integrifolia* Müll.Frib., *Bull. Herb. Boissier*, sér. 2, 1(6): 605 [Vorarb. Monogr. *Scapania*: 13], 1901 (Müller 1901). Type: Colombia.

≡*Scapania portoricensis* f. *gemmaipara* Herzog, *Ann. Bryol.* 1: 108, 1928 (Herzog 1948), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Costa Rica, Las Nubes, province of San José, altitude about 1,500 to 1,900 m, 20–22 Mar 1924, *Standley 38452* (US-04639083 <http://n2t.net/ark:/65665/37a30af1a-9c1c-47c0-b512-0e18d5520297>).

≡*Scapania portoricensis* f. *grossealata* Herzog, *Ann. Bryol.* 1: 108, 1928 (Herzog 1948), syn. fide Herzog (1948). Lectotype: Jamaica.

≡*Scapania portoricensis* var. *typica* Herzog, *Ann. Bryol.* 1: 108, 1928 (Herzog 1948), nom. inval. (ICN2018 Art. 26.1; type of species included).

GUATEMALA. S. loc. (Fulford and Sharp 1990). **ALTA VERAPAZ:** Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al. 248, 454, 477, 521, 522* (USCG, *Freire et al. 2013*); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). **HUEHUETENANGO:** Todos Santos Cuchumatán, Chinhuitz, 15°30'40"N, 91°38'56"W, 2,790 m, 2006, *Pérez 1195* (USCG, Pérez 2009).

HONDURAS. S. loc. (Fulford and Sharp 1990). **CORTÉS:** San Pedro Sula municipio, Cusuco National Park, Cusuco NP, *Allen 14279* (GOET, Heinrichs et al. 2012b).

COSTA RICA. S. loc. (Cole 1982, 1983; Hong 1988 also as f. *grossealata* and f. *integrifolia*; Fulford and Sharp 1990; Geissler and Bischler 1990 as *Scapania portoricensis* f. *gemmaipara*; Gradstein 1999a; Dauphin 2005; Gradstein and Holz 2005; Schäfer-Verwimp and Pócs 2009); Cordillera de Talamanca (Holz and Gradstein 2005b); Cordillera de Talamanca, *Kappelle 4630* (U, *Kappelle 1996* as *Scapania portoricensis* f. *gemmaipara*). **CARTAGO:** Paraíso cantón, Orosi, Tapantí National Park, *Griffin & Morales 166* (USJ, FLAS, *Morales 1991*; Dauphin 2005). **GUANACASTE:** Liberia cantón, Guanacaste National Park, Estación Cacao, 10°55'45"N, 85°28'15"W, *Dauphin 1870* (CR, Dauphin 2005); Liberia cantón, Guanacaste National Park, Sector Pitilla, *Dauphin 2572* (CR, Dauphin 2005). **HEREDIA:** San Isidro cantón, Cerro de las Caricias, N of San Isidro, 2,000–2,400 m, 11 Mar 1926, *Standley 52115, 52163* (B-15329, *Herzog 1928* as *Scapania portoricensis* var. *typica*; Morales 1991; Dauphin 2005); San Isidro cantón, Cerro de Las Lajas, ~2,000–2,400 m, *Standley 51639* (Herzog 1951; Morales 1991; Dauphin 2005); San Isidro cantón, Cerro de Las Lajas, N of San Isidro, ~2,000–2,400 m, 7 Mar 1926, *Standley 51643* (Herzog 1928 as *Scapania portoricensis* var. *typica*, 1951; Morales 1991; Dauphin 2005); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, 3 Mar 1926, *Standley 50282, 50517* (Herzog 1928 as *Scapania portoricensis* var. *typica*, 1951; Morales 1991; Dauphin 2005). **LIMÓN:** Chirripó, *Dauphin 1246* (GOET, Heinrichs et al. 2012b); Talamanca cantón, Bratsi, Valle del Silencio, *Quesada 1520* (CR, Dauphin 2005); Talamanca cantón, Quebrada Kuiza, *Bittner*

1870 (CR, Dauphin 2005). **PUNTARENAS:** S. loc. (Merwin et al. 2001); Monteverde, <1,500 m (Morales 1991; Dauphin 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, *Gradstein et al.* 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995); Monteverde, *James, W.* 23923 (Dauphin 2005); Monteverde, 4,300 ft (1,310 m), Feb 1969, *James, W.* 1969-07 (US, Reed and Robinson 1971); Puntarenas cantón, Brillante, 25 Jul 1966, *James, W.* (R, Reed and Robinson 1971). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin 2005); Moravia cantón, Cerro Zurquí, 2,000–2,500 m, 13 Feb 1926, *Standley* 48218 (*Herzog* 1928 as *Scapania portoricensis* f. *grossealata*, 1951; Morales 1991; Dauphin 2005); Moravia cantón, La Palma, 1,600 m, 3 Feb 1924, *Standley* 32989 (*Herzog* 1951; Morales 1991; Dauphin 2005); Moravia cantón, La Palma, 1,600 m, 17 Mar 1924, *Standley* 38027 (*Herzog* 1928 as *Scapania portoricensis* f. *grossealata*, 1951; Morales 1991; Dauphin 2005); Vásquez de Coronado cantón, Las Nubes, 1,500–1,900 m, 20–22 Mar 1924, *Standley* 38452 (*Herzog* 1928, 1951, both as *Scapania portoricensis* f. *gemmaipara*; Morales 1991; Dauphin 2005); Vásquez de Coronado cantón, Las Nubes, 1,500–1,900 m, 20–22 Mar 1924, *Standley* 38454 (B-15328, *Herzog* 1928 as *Scapania portoricensis* var. *typica*, 1951; Morales 1991; Dauphin 2005).

PANAMA. **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve (Salazar Allen et al. 2021); Gualaca distrito, Hornito, Fortuna, *Spörle* (PMA, Stotler et al. 1998); Tierras Altas distrito, Parque Internacional La Amistad, along trail to Cerro Punta, 2,462 m, *Stotler & Crandall-Stotler* 3505 (ABSH, Stotler et al. 1998).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

***Schiffneriolejeunea* Verd., *Ann. Bryol.* 6: 89, 1933 (Verdoorn 1933).**

Schiffneriolejeunea polycarpa (Nees) Gradst., *J. Hattori Bot. Lab.* 38: 335, 1974 (Gradstein 1974).

≡ *Jungermannia polycarpa* Nees, *Fl. Bras. (Martius)* 1(1): 350, 1833 (Nees 1833b). Type: Brazil.

≡ *Ptychocoleus polycarpus* (Nees) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 405, 1877 (Trevisan 1877).

BELIZE. S. loc. (Whittemore and Allen 1996; Bastos 2004); S. loc., 1910, *Hunt* (BM, Gradstein 1994).

HONDURAS. S. loc. (Bastos 2004). **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 54384 (JE, Gradstein 1994); Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 55255 (JE, *Herzog* 1951 as *Ptychocoleus polycarpus*; Gradstein 1994).

***NICARAGUA.** ***BOACO:** Camoapa municipio, 5 km N of El Zancudo empalme, road from Cuapa to Camoapa, 12°20'02"N,

85°23'57"W, 10 Dec 2012, *Stevens* 33360 p.p., det. Dauphin May 2017 (MO-6699938! <http://tropicos.org/specimen/100988175>, this publication). ***CHONTALES:** La libertad municipio, road to Betulia, 12°12'54"N, 85°16'24"W, 12 May 2011, *Stevens* 31522 p.p., det. Dauphin May 2017 (MO-6699902! <http://tropicos.org/specimen/100988688>, this publication). ***ESTELÍ:** Estelí municipio, ~5.9 km beyond Rio Estelí, road between Hwy 1 and Laguna Miraflores, 13°15'N, 86°18'W, 19 May 1981, *Stevens* 20262-B, det. Dauphin May 2017 (MO-5228163! <http://tropicos.org/specimen/90103078>, this publication); Estelí municipio, Estelí–Laguna Miraflores road, 7 km W of Laguna entrance, 7 May 2010, *Magill* 14009 p.p., det. Dauphin May 2017 (MO-6699942! <http://tropicos.org/specimen/100988182>, this publication).

COSTA RICA. S. loc. (Bastos 2004). **LIMÓN:** Talamanca cantón, road along the Caribbean coast from Limón to Cahuita, 0 m, *Sipman* 12298b (U, Gradstein 1994; Gradstein et al. 1994; Dauphin 2005).

PANAMA. **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,340–1,350 m, *Schäfer-Verwimp & Verwimp* 34336, 34340 (JE, Schäfer-Verwimp 2014); Tierras Altas distrito, Volcán, 9 Aug 1950, *Chickering* (MICH, Crum and Arzeni 1953 as *Ptychocoleus polycarpus*; Stotler et al. 1998, stating “needs verification”). **COCLÉ:** Antón distrito, El Valle de Antón, Golden Frog Inn and near surroundings, 8°36.6'N, 80°06.6'W, 640–650 m, 7 Apr 2006, *Schäfer-Verwimp & Verwimp* 31048 (JE, Schäfer-Verwimp 2014). **VERAGUAS:** Santa Fe distrito, base of Cerro Tute, 8°30'N, 81°06'W, 710–890 m, 26 Mar 2009, *Schäfer-Verwimp & Verwimp* 34268 (JE, Schäfer-Verwimp 2014).

COCOS I. Fila despues de Mirador a Bahía Wafer, 250 m, 14 Feb 1994, *Dauphin* A-5 (USJ, Dauphin 1995, 1999); Mirador a Bahía Wafer, 5°32'57"N, 87°03'36"W, 250 m, *Dauphin* A-5, det. G. Dauphin Feb 2021 (USJ-47639!, CR-4468149!, W-0207489! <https://w.jacq.org/W0207489>, this publication).

Also reported from West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, China, Indian Subcontinent, Indo-China, New Zealand, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

***Schistochilopsis* (N.Kitag.) Konstant., *Arctoa* 3: 125 (Konstantinova and Vasiljev 1994).**

Schistochilopsis incisa (Schrader.) Konstant., *Arctoa* 3: 125, 1994 (Konstantinova and Vasiljev 1994).

≡ *Jungermannia incisa* Schrader., *Syst. Samml. Crypt. Gew.* 2: 5, 1797 (Schrader 1797). Lectotype: Germany.

≡ *Lophozia incisa* (Schrader.) Dumort., *Recueil Observ. Jungerm.*: 17, 1835 (Dumortier 1835).

GUATEMALA. **HUEHUETENANGO:** S. loc., 1 Jan 1946, *Sharp* 4949 (TENN, Gradstein and Váňa 1987 as *Lophozia*

incisa). **QUETZALTENANGO**: San Carlos Sija municipio, Getenagre near Sija, 9,500 ft (2,896 m), 1 Jan 1945, *Sharp 1133* (TENN, **Gradstein and Vána 1987** as *Lophozia incisa*).

COSTA RICA. S. loc. (Gradstein 1999a as *Lophozia incisa*; Dauphin 2005 as *Lophozia incisa*; Gradstein and Holz 2005 as *Lophozia incisa*; Cordillera de Talamanca (Holz 2003 as *Lophozia incisa*; **Holz and Gradstein 2005b** as *Lophozia incisa*). **CARTAGO**: Talamanca cantón, Chirripó National Park, Lago Dikevi, *Dauphin & Valerio 1249a* (**Dauphin 2005** as *Lophozia incisa*). **LIMÓN**: Talamanca cantón, Chirripó National Park, Lago Dikevi, 3,600 m, *Dauphin 1249a* (U, USJ, **Gradstein et al. 1994** as *Lophozia incisa*).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, Macaronesia, Siberia, Russian Far East, Middle Asia, Caucasus, Western Asia, China, Mongolia, Eastern Asia, Indian Subcontinent, Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, South-Central USA, Southeastern USA, Mexico, Northern South America, Western South America.

***Solenostoma* Mitt., J. Proc. Linn. Soc.,
Bot. 8(29): 51, 1865 (Mitten 1865).**

Solenostoma amoenum (Lindenb. et Gottsche) R.M.Schust. ex Vána, Hentschel et Heinrichs, *Cryptog. Bryol.* 31(2): 136, 2010 (Vána et al. 2010a).

≡*Jungermannia amoena* Lindenb. et Gottsche, *Syn. Hepat.* 5: 674, 1847 (Gottsche et al. 1847). Type: Mexico.

≡*Solenostoma costaricanum* Bakalin, *Polish Bot. J.* 58(1): 128, 2013 (Bakalin 2013), syn. fide Vána et al. (2013a). Holotype: Costa Rica: Alajuela, Calera de San Ramón, 29 Jan 1934, A. M. Brenes 19033 (NY-636521 <http://sweetgum.nybg.org/science/vh/specimen-details/?irn=486984>).

GUATEMALA. **ALTA VERAPAZ**: S. loc., Pérez 84 (USCG, Pérez 2009 as *Jungermannia amoena*); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Jungermannia amoena*).

COSTA RICA. **ALAJUELA**: San Ramón cantón, Calera, 29 Jan 1934, Brenes 19033 (NY-636521 <http://sweetgum.nybg.org/science/vh/specimen-details/?irn=486984>, **TYPE** of *Solenostoma costaricanum*, Bakalin 2013 as *Solenostoma costaricanum*; Vána et al. 2013a; Söderström et al. 2016b as *Solenostoma costaricanum*).

Also reported from Mexico, the Caribbean, Western South America, Brazil.

Solenostoma amplexifolium (Hampe) Vána et Schäf.-Verw., *Acta Bot. Hung.* 51(3/4): 408, 2009 (Schäfer-Verwimp and Pócs 2009).

≡*Plagioclila amplexifolia* Hampe, *Nov. Stirp. Pug.* 7: 6, 1838 (Lehmann 1838). Type: St. Vincent.

≡*Jungermannia amplexifolia* (Hampe) Grolle, *J. Hattori Bot. Lab.* 67: 249, 1989 (Grolle 1989a).

≡*Jungermannia linguifolia* Gottsche, *Mexik. Leverm.*: 86, 1863 (Gottsche 1863), syn. fide Grolle (1989a). Type: Mexico.

≡*Haplozia linguifolia* (Gottsche) Herzog, *Rev. Bryol. Lichénol.* 11(1/2): 6, 1939 (Herzog 1938).

≡*Solenostoma linguifolium* (Gottsche) R.M.Schust., *Beih. Nova Hedwigia* 119: 381, 2002).

GUATEMALA. **QUICHÉ**: 5 km E of Los Cinquentros, highway between Chimaltenango and Quetzaltenango, 2,500 m, 25 Jan 1974, *Richards & Williams 2942*, det. Vána (TENN, **Blockeel et al. 2010**). **SAN MARCOS**: N of Palestina, 9,000 ft (2,743 m), 16 Feb 1945, *Sharp 2633* (TENN, **Blockeel et al. 2010**).

HONDURAS. S. loc. (Fulford and Sharp 1990 as *Jungermannia linguifolia*; Schuster 2002 as *Solenostoma linguifolium*; Lavocat Bernard et al. 2009 as *Jungermannia linguifolia*; Schäfer-Verwimp and Pócs 2009; Blockeel et al. 2010). **COMAYAGUA**: Siguatepeque, 1,080–1,400 m, 1928, *Standley 56369* (**Herzog 1938** as *Haplozia 'linguaeifolia'*; Vána 1974b as *Jungermannia linguifolia*). ***CORTÉS**: San Pedro Sula municipio, Cusuco National Park, Rio Cusuco, 15°31'N, 88°14'W, 18 Mar 1993, *Allen 14130 p.p.*, det. Dauphin Jun 2017 (MO-6699918!, **this publication**); San Pedro Sula municipio, from Rio Cusuco to Cerro Cantiles, 19 Mar 1993, *Allen 14173*, det. Whittemore 1994 (MO-3982141!, **this publication**).

COSTA RICA. S. loc. (Schäfer-Verwimp and Pócs 2009; Blockeel et al. 2010). **ALAJUELA**: Poás National Park, 10°12'N, 84°14'W, Aug 1973, *Griffin et al.* (**Griffin et al. 1974** as *Jungermannia linguifolia*); Poás Volcano, Aug 1977, *Griffin et al.* 100 (FLAS-020508, **Morales and Griffin 1983** as *Jungermannia linguifolia*; **Morales 1991** as *Jungermannia linguifolia*; **Dauphin 2005** as *Jungermannia amplexifolia*).

PANAMA. **CHIRIQUÍ**: Tierras Altas distrito, Volcán, road to Rio Sereno, 8°49.5'N, 82°41.5'W, 1,580 m, 3 Apr 2009, *Schäfer-Verwimp & Verwimp 34672*, det. Vána (JE, PRC, Ellis et al. 2015b).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Solenostoma callithrix (Lindenb. et Gottsche) Steph., *Bull. Herb. Boissier*, sér. 2, 1(2): 486 (=Spec. Hepat. [Stephani] 2: 48), 1901 (Stephani 1901f).

≡*Jungermannia callithrix* Lindenb. et Gottsche, *Syn. Hepat.* 5: 673, 1847 (Gottsche et al. 1847). Type: Mexico.

GUATEMALA. S. loc. (Fulford 1987 as *Jungermannia callithrix*; Fulford and Sharp 1990 as *Jungermannia callithrix*; Schäfer-Verwimp and Pócs 2009 as *Jungermannia callithrix*). **BAJA VERAPAZ**: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 209 (USCG, **Freire et al. 2013**); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (**Freire et al. 2005** as *Jungermannia callithrix*). **SACATEPÉQUEZ**: Cuesta de la Cañas, 1936, *Standley* (Hb. Grolle, Vána 1974b as *Jungermannia callithrix*); Volcán de Fuego, *Godman* (NY, Pérez 2009 as *Jungermannia callithrix*).

***HONDURAS**. ***CORTÉS**: San Pedro Sula municipio, Cusuco National Park, along Rio Cusuco, ~22 km W of San Pedro Sula, 15°31'N, 88°14'W, 1,500 m, 18 Mar 1993, *Allen*

14130, det. Whittemore 1994 (MO-3982139! <http://tropicos.org/specimen/90019184>, this publication).

COSTA RICA. S. loc. (Schäfer-Verwimp and Pócs 2009 as *Jungermannia callithrix*). CARTAGO: Oreamuno cantón, Irazú National Park, outer limits of the park, 9°58'45"N, 83°50'50"W, 3,200 m, Dauphin & Morales 1923 (CR, Dauphin et al. 1998 as *Jungermannia callithrix*; Dauphin 2005 as *Jungermannia callithrix*); Turrialba cantón, Volcán Turrialba, S slope, 18 Aug 1991, King C-91-83, det. Dauphin Jun 2017 (MO-3966588!, this publication). *PUNTARENAS: Monteverde cantón, from Estación Biológica, 10°18'N, 84°48'W, 24 Mar 1992, Lyon 463, det. Whittemore 1995 (MO-4423832!, this publication).

PANAMA. S. loc. (Schäfer-Verwimp and Pócs 2009 as *Jungermannia callithrix*; Ellis et al. 2015b). CHIRIQUÍ: Tierras Altas distrito, Parque Internacional La Amistad, along trail to Cerro Punta, 2,462 m, Stotler & Crandall-Stotler 3506 (ABSH, PMA, hb. Vána, Stotler et al. 1998 as *Jungermannia callithrix*).

Also reported from Macaronesia, Mexico, the Caribbean, Northern South America, Western South America, Southern South America.

***Solenostoma decolor* (Schiffn.) R.M.Schust. ex Vána, Hentschel et Heinrichs, *Cryptog. Bryol.* 31(2): 136, 2010 (Vána et al. 2010a).

≡*Jungermannia decolor* Schiffn., *Leberm., Forschungs. Gazelle* 4: 10, 1890 (Schiffner 1890). Type: Chile.

***COSTA RICA.** *CARTAGO: Turrialba cantón, Turrialba National Park, 2,550 m, 12 Jul 2006, Dauphin et al. 3555 (CR!, this publication).

***PANAMA.** *CHIRIQUÍ: Boquete distrito, road to summit of Volcán Barú, 8°45'N, 82°30'W, 1,800–3,400 m, 13 May 1990, Allen 9144, det. Whittemore 1990 (MO-3678097!, this publication).

Also reported from Mexico, Northern South America, Western South America, Brazil, Southern South America.

***Solenostoma hyalinum* (Lydell) Mitt., *Nat. hist. Azores*: 319, 1870 (Mitten 1870).

≡*Jungermannia hyalina* Lyell, *Brit. Jungermann.*: table 63, 1814 (Hooker 1814). Lectotype: Britain.

***GUATEMALA.** *QUETZALTENANGO: Zunil municipio, road to Fuentes Georginas, 4 km S of Zunil, NW slopes of Pico Zunil, 14°45'15.6"N, 91°28'58.4"W, 2,442 m, 13 Jan 2006, Quedensley 3951, det. Dauphin Sep 2017 (MO, W-0089084! <https://w.jacq.org/W0089084>, this publication).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa, Macaronesia, Siberia, Russian Far East, Caucasus, Western Asia, China, Eastern Asia, Indian Subcontinent(?), Indo-China, Malesia, Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, South-Central USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Solenostoma rubrum (Gottsche ex Underw.) R.M.Schust., *Hepat. Anthoc. N. Amer.* 2: 975, 1969 (Schuster 1969a).

≡*Jungermannia rubra* Gottsche ex Underw., *Bot. Gaz.* 13(5): 113, 1888 (Underwood 1888). Type: USA.

COSTA RICA. ALAJUELA: Poás National Park, 10°12'N, 84°14'W, Aug 1973, Griffin et al. (Griffin et al. 1974 as *Solenostoma* cf. *rubrum*, but this is *Jungermannia sphaerocarpa* fide Davison 1993); Poás Volcano, Griffin & Eakin 155, det. Breil (FLAS, Morales 1991 as *Jungermannia rubra*; Dauphin 2005 as *Jungermannia rubra*); Poás Volcano, Aug 1978, Griffin et al. 155 (FLAS-020507, Morales and Griffin 1983 as *Jungermannia rubra*).

Also reported from Russian Far East, Subarctic America, Western Canada, Northwestern USA, Northeastern USA, Southwestern USA.

Solenostoma sphaerocarpum (Hook.) Steph., *Bull. Herb. Boissier*, sér. 2, 1: 499 (=Spec. *Hepat. [Stephani]* 2: 61), 1901 (Stephani 1901f).

≡*Jungermannia sphaerocarpa* Hook., *Brit. Jungermann.*: Tab. 74, 1815 (Hooker 1815). Lectotype: Ireland.

COSTA RICA. S. loc. (Vána 1974a as *Jungermannia sphaerocarpa*; Gradstein et al. 1977 as *Jungermannia sphaerocarpa*; Ceballos 1985 as *Jungermannia sphaerocarpa*; Gradstein and Vána 1987 as *Jungermannia sphaerocarpa*; van Zanten and Gradstein 1987 as *Jungermannia sphaerocarpa*; Fulford and Sharp 1990 as *Jungermannia sphaerocarpa*; Gradstein 1999a as *Jungermannia sphaerocarpa*; Schuster 2002; Vána and Watling 2004a as *Jungermannia sphaerocarpa*; Dauphin 2005 as *Jungermannia sphaerocarpa*; Gradstein and Holz 2005 as *Jungermannia sphaerocarpa*; Cordillera de Talamanca (Holz 2003 as *Jungermannia sphaerocarpa*; Holz and Gradstein 2005b as *Jungermannia sphaerocarpa*). **SAN JOSÉ:** Cordillera de Talamanca, 3,325 m, 1973, Cleef, det. Vána (hb. Vána, Vána 1974b as *Jungermannia sphaerocarpa*; Morales 1991 as *Jungermannia sphaerocarpa*; Kappelle 1996 as *Jungermannia sphaerocarpa*; Dauphin 2005 as *Jungermannia sphaerocarpa*).

PANAMA. CHIRIQUÍ: Barú Volcano National Park (Rodríguez-Quiel et al. 2022).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa, West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, Siberia, Russian Far East, Caucasus, Western Asia, China, Eastern Asia, Indian Subcontinent, Malesia, Papuasias, Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, South-Central USA, Mexico, Northern South America, Western South America, Brazil.

Stephaniella J.B.Jack, *Hedwigia* 33(1): 11, 1894 (Jack 1894).

Stephaniella paraphyllina J.B.Jack, *Hedwigia* 33(1): 11, 1894 (Jack 1894). Lectotype: Argentina.

GUATEMALA. HUEHUETENANGO: S. loc., Pérez 1273 (USCG, Pérez 2009); Santiago Chimaltenango municipio, 30 km N of Huehuetenango, near town of Bacu, 15°35'56.9"N, 91°33'54.2"W, 11,139 ft (3,395 m), 5 Apr 2007, *Laeger et al.* 3680, det. Dauphin Jun 2017 (MO-6160445!, **this publication**).

NICARAGUA. S. loc. (Arnell 1963). Note: We are not aware of any firsthand report from Nicaragua.

COSTA RICA. S. loc. (Gradstein et al. 1983; Schuster 1983a; Fulford and Sharp 1990; Gradstein 1999a; Dauphin 2005; Gradstein and Holz 2005; Fuertes and Prada 2014); Cordillera de Talamanca (Holz 2003; **Holz and Gradstein 2005b**). **CARTAGO:** Cordillera de Talamanca, Páramo Buenavista, 3,400 m, *Dauphin* 2917 (NY, **Juárez-Martínez and Delgadillo 2017**); Oreamuno cantón, Irazú Volcán, Pacific side, *Svihla* 41-464 (NY, **Juárez-Martínez and Delgadillo 2017**). **GUANACASTE:** S. loc., ~1,000 m (Gradstein et al. 2001b). **SAN JOSÉ:** Oreamuno cantón, Cima del Volcán Irazú, 3,400 m, *Morales & Arrocha* 1849 (USJ, **Morales 1991; Dauphin 2005**); Pérez Zeledón cantón, Páramo Buena Vista, *Griffin & Eakin* 590, det. J. Vaña (FLAS, **Morales 1991; Dauphin 2005**).

PANAMA. CHIRIQUÍ: Along road from summit of Volcán Barú to the middle of the Oak zone, *Allen* 9104C (MO, **Stotler et al. 1998**); Barú Volcano National Park (**Rodríguez-Quiel et al. 2022**).

Also reported from Southern Africa, Mexico, Northern South America, Western South America, Brazil, Southern South America.

Stephaniella rostrata U.Schmitt., Österr. Bot. Z. 115(2): 124, 1968 (Schmitt and Winkler 1968). Type: Colombia.

COSTA RICA. Cordillera de Talamanca (Holz 2003; **Holz and Gradstein 2005b**); S. loc. (Gradstein 1999a; Dauphin 2005; Gradstein and Holz 2005). **CARTAGO:** Páramo Buenavista, *Dauphin* 1688 (CR, **Dauphin 2005**). **SAN JOSÉ:** Oreamuno cantón, Cima del Volcán Irazú, 3,400 m, *Morales & Arrocha* 1849 (USJ, **Gradstein et al. 1994; Dauphin 2005**).

Also reported from Mexico, Northern South America, Western South America.

Stephaniella uncifolia S.Winkl., Österr. Bot. Z. 115(2): 124, 1968 (Schmitt and Winkler 1968). Type: Colombia.

COSTA RICA. GUANACASTE: Liberia cantón, Guanacaste National Park, Sector Volcán Cacao, Cerro El Pedregal, 1,100 m, *Dauphin & Valdelomar* 2431 (CR-1511022, USJ, **Dauphin et al. 1998; Dauphin 2005**); Liberia cantón, Rincón de La Vieja National park, Sector Pailas, camino a Catarata La Cangreja, 2015, *Dauphin* 4592, det. Juárez-Martínez 2016 (MEXU, **this publication**).

Also reported from Northern South America, Western South America, Brazil, Southern South America.

***Stictolejeunea* (Spruce) Schiffn., Hepat. (Engl.-Prantl): 131, 1893 (Schiffner 1893a).**

Stictolejeunea balfourii (Mitt.) E.W.Jones, J. Bryol. 9(1): 50, 1976 (Jones 1976) var. *balfourii*.

≡ *Lejeunea balfourii* Mitt., Philos. Trans. 168: 398, 1879 (Mitten 1879). Type: Rodriguez.

HONDURAS. S. loc. (van Zanten and Gradstein 1988). **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, *Standley* 55741 (JE, **Gradstein 1985a; Gradstein 1994**, indicating “identification doubtful because of poor condition of the material”).

COSTA RICA. PUNTARENAS: Osa cantón, Rincón, Boscosa, 150 m, *Gradstein & Dauphin* 9337, 9340, 9344 (U, USJ, **Gradstein et al. 1994; Dauphin 2005**).

PANAMA. PANAMA WEST: La Chorrera distrito, Barro Colorado Island, Shannon 11–12, *Salazar Allen* 4325 (**Dauphin et al. 2022**); La Chorrera distrito, Barro Colorado Island, Shannon creek, *Gradstein & Salazar Allen* 15078 (**Dauphin et al. 2022**). **PANAMA:** Panamá distrito, Parque Nacional Soberanía, Sendero “Camino de Cruces,” *Gradstein* 9761 (GOET, **Stotler et al. 1998**); Panamá distrito, Parque Nacional Soberanía, Sendero “Camino de Cruces,” *Reiner-Drehwald* 60030 (PMA, **Stotler et al. 1998**); Panamá distrito, Parque Nacional Soberanía, Sendero “Camino de Cruces,” *Stotler & Crandall-Stotler* 3508 (ABSH, **Stotler et al. 1998**).

***COCOS I.** Rio Genio, 5°32'57"N, 87°03'56"W, 22 Jan 1994, *Dauphin* 943a (hb. Dauphin!, det. S. R. Gradstein and G. Dauphin Oct 2020, **this publication**).

Also reported from West Tropical Africa, West-Central Tropical Africa, Western Indian Ocean, Malesia, Papuasias, Australia, Southwestern Pacific, Northwestern Pacific, Northeastern Pacific, Mexico, Western South America, Brazil.

Stictolejeunea squamata (Willd.) Schiffn., Hepat. (Engl.-Prantl): 131, 1893 (Schiffner 1893a).

≡ *Jungermannia squamata* Willd., Hist. Musc. Hepat. Prodr.: 33, 1815 (Weber 1815). Type: West Indies.

≡ *Lejeunea squamata* var. *β kunzeana* Gottsche, Lindenb. et Nees, Syn. Hepat. 3: 322, 1845 (Gottsche et al. 1845a). Lectotype: Chile.

≡ *Stictolejeunea kunzeana* (Gottsche, Lindenb. et Nees) Schiffn., Hepat. (Engl.-Prantl): 131, 1893 (Schiffner 1893a).

≡ *Lejeunea squamata* var. *macrior* Spruce, Trans. & Proc. Bot. Soc. Edinburgh 15(1): 83, 1884 (Spruce 1884), syn. fide Gradstein (1994). Type: Brazil.

≡ *Stictolejeunea squamata* var. *macrior* (Spruce) Herzog, Rev. Bryol. Lichénol. 20(1/2): 130, 1951 (Herzog 1951).

GUATEMALA. S. loc. (Evans 1907c as *Stictolejeunea kunzeana*; Fulford and Sharp 1990; Lücking 1995; Bapna and Kachroo 2000b; Bastos 2004); S. loc., *Levier* (BM, Pérez 2009).

ALTA VERAPAZ: S. loc., 2007, Pérez, det. Pérez (USCG, **Barillas de Klee et al. 2008**); Cobán municipio, near Cubilguitz, 300–350 m, *Steyermark* 44420 (MICH, **Freire 2006; Pérez 2009**); Panzós municipio, Cahabón and/or Senahú, 2012, Pérez & López-Medina, det. M. Pérez (**Pérez and López-Medina 2012**). **GUATEMALA:** Guatemala City (BM, NY, **Gradstein 1985a, 1994; Freire 2006**). **HUEHUETENANGO:** S. loc., Pérez 1395 (USCG, Pérez 2009).

BELIZE. Near border with Guatemala, *Schipp* 874 (NY, **Gradstein 1994**); S. loc. (**Fulford 1938; Lücking 1995; Whittemore and Allen 1996; Bastos 2004**). **CAYO:** S. loc., Dec 1993,

Allen 15113 (BRH, MO, Whittemore and Allen 1996). TOLEDO: S. loc., *Gentle* 4371 (MO, Whittemore and Allen 1996); S. loc., *Hoist* 4442 (MO, Whittemore and Allen 1996); S. loc., Dec 1993, Allen 15302 (BRH, MO, Whittemore and Allen 1996); S. loc., Dec 1993, Allen 15487 (BRH, MO, Whittemore and Allen 1996).

HONDURAS. S. loc. (Jovet-Ast 1957, 1959; Miller et al. 1983; Lücking 1995; Bastos 2004); S. loc., *Wilson* 556a (NY, Gradstein 1994). **ATLÁNTIDA**: Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 53741 p.p. (Herzog 1951 as *Stictolejeunea squamata* var. *macrior*).

NICARAGUA. S. loc. (Lücking 1995; Bastos 2004). ***ATLÁNTICO NORTE**: Siuna municipio, along trail from Cerro El Inocente toward Cerro Saslaya, 13°46'N, 85°01'W, 8 Mar 1978, *Stevens* 6730, det. Dauphin May 2017 (MO-5238382!, this publication). **ATLÁNTICO SUR**: Bluefields municipio, base of Cerro San Isidro, *Proctor et al.* 27218 (NY, Gradstein 1994).

COSTA RICA. S. loc. (Pagán 1939b, 1942b; Jovet-Ast 1957, 1959; Cole 1982, 1983, both also as *Stictolejeunea kunzeana*; Fulford 1987; Fulford and Sharp 1990; Bapna and Kachroo 2000b; Oliveira-e-Silva and Yano 2000; Bastos 2004); S. loc., *Dauphin* 2134 (GOET, Ye and Wei 2021); S. loc., *Dauphin* 2134 (GOET, Wilson et al. 2007; Feldberg et al. 2014; Ye and Zhu 2018; Shu et al. 2022); S. loc., *Maxon* (Evans 1907c); S. loc., *Standley* 48616 (JE, Zwickel 1932 as *Stictolejeunea kunzeana*). **ALAJUELA**: Río Cuatre cantón, Laguna Hule, *Dauphin & Gonzáles* 2134 (GOET, CR, Dauphin 2005; Larraín et al. 2015). **CARTAGO**: Jimenéz cantón, Pejibaye, *Standley & Valerio* 47166 (JE, Gradstein 1985a, 1994); Rancho Naturalista, 900 m, *Eggers* (hb. Eggers, Eggers 2001). **GUANACASTE**: Tenorio, 500 m, *Eggers* (hb. Eggers, Eggers 2001); Tilarán cantón, El Silencio (Dauphin 2005); Tilarn cantón, El Silencio, 750 m, *Standley* 44756a (Zwickel 1932 as *Stictolejeunea kunzeana*; Herzog 1951 as *Stictolejeunea kunzeana*; Morales 1991; Dauphin 2005); Tilarán cantón, Los Ayotes (Dauphin 2005); Tilarán, *Standley & Valerio* 44756a (Gradstein 1985a; Dauphin 2005); Tilarán, *Standley & Valerio* 45403 (Gradstein 1985a, 1994; Dauphin 2005); Tilarán, El Silencio y Los Ayotes, 600–700 m, *Standley* 45403 (Zwickel 1932 as *Stictolejeunea kunzeana*; Herzog 1951 as *Stictolejeunea kunzeana*; Morales 1991). **HEREDIA**: San Isidro cantón, Cerro Zurquí, *Standley & Valerio* 50623 (JE, Gradstein 1985a, 1994); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley* 50623 (JE, Zwickel 1932 as *Stictolejeunea kunzeana*; Herzog 1951 as *Stictolejeunea kunzeana*; Morales 1991; Dauphin 2005); Sarapiquí cantón, Colonia Virgen del Socorro, *Dauphin & Gonzáles* 2102 (CR, Dauphin 2005); Sarapiquí cantón, La Selva, 100 m, *Eggers* (hb. Eggers, Eggers 2001). **LIMÓN**: Braulio Carrillo National Park, 400–500 m (Eggers 2001); Guácimo cantón, Parismina, ~5 m (Eggers 2001); Guácimo cantón, Parismina, *Valerio* 6 (Dauphin 2005; Morales 1991); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 91-39, 91-41, 92-53, 92-54, 92-55, 92-336, 92-521 (hb. Lücking, Lücking 1995); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking*

(Lücking 1997); Pococí cantón, Tortuguero, *Steere* CR-85 (NY, Gradstein 1994); Siquirres cantón, Cairo, Finca Hamburgo, on the Rio Reventazón below Cairo, 55 m, *Standley* 48716 (Herzog 1951 as *Stictolejeunea kunzeana*; Morales 1991); Siquirres cantón, Rio Reventazón below Cairo, Nov 1926, *Standley & Valerio* 48716 (JE, Gradstein 1985a). **PUNTARENAS**: Coto Brus cantón, Fila Cruces, Cerro Paraguas, *Dauphin & Chacón* 1806 (CR, Dauphin 2005); Golfito cantón, Esquinas, <100 m, *Eggers* (hb. Eggers, Eggers 2001); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (Sonnleitner et al. 2009); Golfo Dulce, *Elmore* 39-759 (AHFH, MICH, hb. Fulford, Steere 1946); Golfo Dulce, *Taylor* 39-760, 39-764 (AHFH, MICH, hb. Fulford, Steere 1946 as *Stictolejeunea kunzeana*; Morales 1991; Dauphin 2005); Monteverde (Morales 1991); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde, Oct 1967, *James*, W. (R, US, Reed and Robinson 1971; Dauphin 2005); Monteverde, 16 Mar 1969, *James*, W. 1969-66 (US, Reed and Robinson 1971; Dauphin 2005); Osa cantón, Osa Peninsula, Rincón, Centro Boscosa, 150 m, Oct 1993, *Gradstein* (Gradstein 1999b); Osa cantón, Santo Domingo de Golfo Dulce, *Taylor* 760 (hb. Fulford, Crandall 1969).

PANAMA. S. loc. (Jovet-Ast 1957, 1959; Fulford and Sharp 1990; Lücking 1995; Stotler et al. 1998; Bastos 2004); Canal Zone (Schäfer-Verwimp 2014). **CHIRIQUÍ**: Boquete distrito, forest near David, Jun 1906, *Hélion* (L, S, U, Gradstein 1985a); Boquete, 1906, *Hélion* (FH, Thiers 1985); David, *Hélion* (L, S, U, Gradstein 1994; Stotler et al. 1998); Gualaca distrito, Fortuna Forest Reserve, Cerro Hornito, 1,670–2,300 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Continental Divide, Trail Palo Seco, 900–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, foothills of Cerro Pinola, 1,280–2,000 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, NW of camping site, 1,000–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Arena, 920–1,100 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, SW of camping site, from Finca Pitti to foothills of Cerro Fortuna, 1,000–1,270 m (Salazar Allen et al. 2021); Gualaca distrito, Hornito, Fortuna, 1,000–1,200 m, *Salazar Allen* 2405 (PMA, Stotler et al. 1998); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,650 m, *Schäfer-Verwimp & Verwimp* 34447, 34495 (JE, Schäfer-Verwimp 2014). **COCLÉ**: La Pintada distrito, Corregimiento El Copé, Parque Nacional G. D. Omar Torrijos H., Sendero La Rana Dorada, 8°40'06"N, 80°35'26"W, 710 m, 1 Aug 2012, *Dauphin & Salazar Allen* 4524 p.p. (PMA, Dauphin et al. 2015); La Pintada distrito, El Copé, Parque Nacional General Division Omar Torrijos Herrera, sendero La Rana Dorada, Rio Guabal, 8°40'N, 80°35'W, 700 m, 10 Jan 2014, *Sierra & López* 696, 733, 747.3 p.p., 752 p.p., 764 p.p., 804, 820, 823 (PMA, Sierra et al. 2019a). ***COLÓN**: Colón distrito, Quebrada Bonita, 20 Dec 1934, *Dodge & Allen*

8812, det. Dauphin May 2017 (MO-5131818!, **this publication**). **DARIÉN:** S. loc. (Schäfer-Verwimp 2014); base of Cerro Pirre, *Salazar Allen & Gradstein* 9219 (PMA, U, **Gradstein 1994; Stotler et al. 1998**); Cerro Pirre (Stotler et al. 1998); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, **Gradstein and Salazar Allen 1992**); Cerro Pirre, around INRENARE field station, ~100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, **Gradstein and Salazar Allen 1992**); Pinogana distrito, ~20 km SSW of Boca de Cupé, ~200 m, *Allen* 8685 (MO, **Stotler et al. 1998**). **EMBERÁ-WOUNAAN COMARCA:** Cémaco distrito, Marra-gantí, *Williams* 1082 (NY, **Gradstein 1994; Stotler et al. 1998**). **PANAMA WEST:** S. loc. (He et al. 2016); Capi-ra distrito, Campana National Park, 800 m, *Salazar Allen et al.* 6563, 6571, 6624 (PMA, **Stotler et al. 1998**); La Chorrera distrito, Barro Colorado Island (Salazar Allen and Chung 2003); La Chorrera distrito, Barro Colorado Island, 1 Aug 1950, *Chickering* (MICH, **Crum and Arzeni 1953; Stotler et al. 1998**); La Chorrera distrito, Barro Colorado Island, *Salazar Allen et al.* 4384, 4391, 4409, etc. (PMA, **Stotler et al. 1998; Dauphin et al. 2022**); La Chorrera distrito, Barro Colorado Island, *Shattuck* 4CH p.p. (F, **Stotler et al. 1998**); La Chorrera distrito, Barro Colorado Island, *Zatek & Shattuck* (Haynes 1933); La Chorrera distrito, Barro Colorado Island, various trails, *Salazar Allen et al.* 4713 (PMA, **Stotler et al. 1998**); La Chorrera distrito, Barro Colorado, Lathrop, 2003, *Dauphin* 3090 (CR, PMA, **Dauphin et al. 2022**); La Chorrera distrito, Barro Colorado, Shannon, 2003, *Dauphin* 3068, 3071 (CR, PMA, **Dauphin et al. 2022**). ***PANAMA:** S. loc. (Bapna and Kachroo 2000b; Schäfer-Verwimp 2014); Panamá distrito, Camino de Cruces (Salazar Allen and Chung 1997a); Panamá distrito, Quebrada Culebra, 28 Dec 1934, *Steyermark* 17217, det. Dauphin May 2017 (MO-5139404!, **this publication**); Panamá distrito, River Chagres between junction with River Pequeni and Indio, 5 Dec 1934, *Steyermark & Allen* 16809, det. Dauphin May 2017 (MO-5139414!, **this publication**). **VERAGUAS:** Isla Canales de Tierra, Sendero de la vía del tren hacia el laboratorio, 7°45'N, 81°35'W, Jan 2002, *Salazar Allen et al.* 20242 (PMA, **Salazar Allen and Chung 2003, 2006**); Isla Canales de Tierra, Sendero Punta, 7°45'N, 81°35'W, Jan 2002, *Salazar Allen et al.* 20134 (PMA, **Salazar Allen and Chung 2003, 2006**); Montijo distrito, Isla de Coiba (Parque Nacional Coiba), a lo largo de Río Escondido hasta la parcela de M. A. Martínez, 7°35'59.0"N, 81°47'13.6"W, 1995–1996, *Aranda* 2371, 2372, 2376, etc. (MA, PMA, **Salazar Allen and Chung 1997a**); Montijo distrito, Isla de Coiba (Parque Nacional Coiba), camino que va hacia la cabecera del Río Negro, a la izquierda del campamento San Juan Viejo, 7°25'27.9"N, 81°44'10.4"W, 1995–1996, *Aranda* 2454 (MA, PMA, **Salazar Allen and Chung 1997a**); Montijo distrito, Isla de Coiba (Parque Nacional Coiba), Cerro La Equis, sendero Dayana, 7°36'01.9"N, 81°44'42.1"W, 1995–1996, *Aranda* 2166 (MA, PMA, **Salazar Allen and Chung 1997a**); Montijo distrito, Isla de Coiba (Parque Nacional Coiba), Ensenada Santa Cruz, río arriba por el margen

derecho, 7°36'29.0"N, 81°45'48.0"W, 1995–1996, *Aranda* 2479 (MA, PMA, **Salazar Allen and Chung 1997a**); Montijo distrito, Isla de Coiba (Parque Nacional Coiba), Filo a la izquierda de río, 7°37'02.5"N, 81°44'23.7"W, 1995–1996, *Aranda* 2137, 2157 (MA, PMA, **Salazar Allen and Chung 1997a**); Montijo distrito, Isla de Coiba (Parque Nacional Coiba), Margen izquierdo del Río Santa Cruz, rumbo sur, 7°36'29.0"N, 81°45'48.0"W, 1995–1996, *Aranda* 2220 (MA, PMA, **Salazar Allen and Chung 1997a**); Montijo distrito, Isla de Coiba (Parque Nacional Coiba), Playa Hermosa, subiendo a la falla y tomando hacia playa Santa Clara, 7°30'03.0"N, 81°52'26.9"W, 1995–1996, *Aranda* 2512 (MA, PMA, **Salazar Allen and Chung 1997a**); Montijo distrito, Isla de Coiba (Parque Nacional Coiba), Río Escondido después de la parcela de M. A. Martínez hasta la cascada del mismo nombre, 7°35'59.0"N, 81°47'13.6"W, 1995–1996, *Aranda* 2428 (MA, PMA, **Salazar Allen and Chung 1997a**); Montijo distrito, Isla de Coiba (Parque Nacional Coiba), Sendero Interpretativo, 7°37'02.5"N, 81°44'23.7"W, 1995–1996, *Aranda* 2128, 2132 (MA, PMA, **Salazar Allen and Chung 1997a**); Montijo distrito, Parque Nacional Coiba (Salazar Allen and Chung 2003); Santa Fe distrito, trail to Cerro del Piedra, 8°30'N, 81°06'W, 850–900 m, 2 Apr 2006, *Schäfer-Verwimp & Verwimp* 30815, 30830 (JE, **Schäfer-Verwimp 2014**); Soná distrito, Región de Bahía Honda, Quebrada que desemboca en Playa Los García, Jan 2002, *Salazar Allen et al.* 20430 (PMA, **Salazar Allen and Chung 2003, 2006**).

COCOS I. S. loc. (Fosberg and Klawe 1966; Miller et al. 1983; Dauphin 1995; Lücking 1995; Bapna and Kachroo 2000b; Salazar Allen and Chung 2003); S. loc., 1966, *Fosberg & Klawe* (Morales 1991); Catarata Río Genio, 5°32'57"N, 87°03'56"W, 140 m, 23 Jan 1990, *Dauphin* 1001, det. G. Dauphin Oct 2020 (USJ-47193!, CR-4468293!, W!, **this publication**); Catarata Río Genio, 5°32'57"N, 87°03'56"W, 140 m, 23 Jan 1990, *Dauphin* 1021, det. G. Dauphin Oct 2020 (USJ-47194!, CR-4468151!, **this publication**); Catarata Río Genio, 5°32'57"N, 87°03'56"W, 130 m, 15 Feb 1994, *Dauphin* 1001, 1021 (USJ, **Dauphin 1995, 1999, 2005**); Chatham Bay, Mar 1964, *Weber* 549 (COLO, U, **Gradstein 1985a, 1994; Dauphin 2005**); Chatham Bay, 28 Jun 1932, *Howell* 223 (CAS, **Clark 1953a**); Valle Wafer, 5°32'57"N, 87°03'56"W, 0–2 m, 31 May 1990, *Dauphin*, det. G. Dauphin Oct 2020 (USJ-47195!, CR-4468152!, W!, **this publication**); Wafer Bay, 0–20 m, 15 Feb 1964, *Weber* B-14312, det. Grolle (Weber 1993).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Symbiezidium Trevis., Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat. 4(13): 402, 1877 (Trevisan 1877).

Symbiezidium barbiflorum (Lindenb. et Gottsche) A. Evans, *Bull. Torrey Bot. Club* 34(11): 540, 1907 (Evans 1907b).
= *Lejeunea barbiflora* Lindenb. et Gottsche, *Linnaea* 24(6): 630, 1851 (Lindenb. et Gottsche 1851). Type: Surinam.

=*Lejeunea pogonoptera* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15(1): 128, 1884 (Spruce 1884), syn. fide Gradstein and van Beek (1985).
Lectotype: Brazil.

≡*Platylejeunea pogonoptera* (Spruce) A. Evans., *Proc. Amer. Acad. Arts* 38(4): 261, 1902 (Evans 1902a).

≡*Symbiezidium pogonopterum* (Spruce) Steph., *Sp. Hepat. (Stephani)* 5: 103, 1912 (Stephani 1912a).

=*Symbiezidium setosum* Steph., *Sp. Hepat. (Stephani)* 5: 104, 1912 (Stephani 1912a), syn. fide Gradstein and van Beek (1985). Type: Mexico.

GUATEMALA. S. loc. (Stephani 1912a as *Symbiezidium setosum*; Fulford and Sharp 1990 as *Symbiezidium setosum*). **ALTA VERAPAZ:** S. loc., 350 m, *Türckheim* (G ex hb. Levier 5822, NY, Fulford 1942a as *Symbiezidium setosum*); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Symbiezidium* aff. *barbiflorum*). **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007).

BELIZE. S. loc. (Lücking 1995; Bastos 2004). **TOLEDO:** S. loc. (Whittemore and Allen 1996); Punta Gorda, Nov 1932 (CINC, hb. Fulford, Gradstein and van Beek 1985; Gradstein 1994).

HONDURAS. S. loc. (Jovet-Ast 1957; Lücking 1995; Bastos 2004). **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, *Standley* 55337 (US, Gradstein 1994); Tela municipio, La Fragua, 20 m, *Standley* 55714 (Herzog 1951); Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 55342 (JE, Herzog 1951 as *Symbiezidium setosum*); Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 55537 (Herzog 1951); Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 55553 (S, Gradstein and van Beek 1985; Gradstein 1994); Tela municipio, Lancetilla Valley, *Standley* 55623 (US, Gradstein 1994); Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 55848 (Herzog 1951); Tela municipio, Lancetilla Valley, *Standley* (Standley 1931 also as *Symbiezidium setosum*).

NICARAGUA. S. loc. (Lücking 1995; Bastos 2004). **CHONTALES:** Villa Sandino municipio, near La Gateada, on road to Nueva Guinea, *Stevens* 2862c (MO, U, Gradstein 1994).

COSTA RICA. S. loc. (Jovet-Ast 1957; Bastos 2004); S. loc., *Gradstein & Dauphin* 9363 (GOET, Wilson et al. 2007; Feldberg et al. 2014; Ye and Wei 2021). **ALAJUELA:** San Ramón cantón, Los Ángeles (Dauphin 2005); San Ramón cantón, Los Ángeles, *Tonduz* 13613, det. NY (Gradstein 1994). **GUANACASTE:** Liberia cantón, Rincón de la Vieja National Park, Sector Santa María, *Dauphin* 2345 (CR, Dauphin 2005). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 92-459 (hb. Lücking, Lücking 1995); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (Lücking 1997). **PUNTARENAS:** S. loc. (Merwin et al. 2001); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995); Osa cantón, Osa Peninsula, Rincón, Centro Boscosa, 150 m, Oct 1993, *Gradstein* (Gradstein 1999b); Osa cantón, San Domingo, 1896, *Tonduz* 11558 (G, NY, YU, Y, Fulford 1942a; Gradstein and van Beek 1985; Morales 1991; Gradstein 1994; Dauphin 2005).

PANAMA. Canal Zone (Schäfer-Verwimp 2014); S. loc. (Jovet-Ast 1957; Lücking 1995; Stotler et al. 1998; Bastos 2004). **BOCAS DEL TORO:** Salt Creek (9°17'39.7"N, 82°06'11.2"W) on Isla Bastimento, Aug 2017 (Salazar Allen et al. 2022). **CHIRIQUÍ:** S. loc. (Schäfer-Verwimp 2014); Tierras Altas distrito, Volcán, 9 Aug 1950, *Chickering* (MICH, Crum and Arzeni 1953; Stotler et al. 1998). **DARIÉN:** Cerro Pirre (Stotler et al. 1998); Cerro Pirre, around INRENARE field station, ~100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992); Cerro Pirre, between Pirre 1 and Pirre 2, *Salazar Allen & Gradstein* 9222 p.p. (PMA, Stotler et al. 1998). **PANAMA WEST:** La Chorrera distrito, Barro Colorado Island, *Chung & Aranda* 237 (NY, Gradstein 1994); La Chorrera distrito, Barro Colorado Island, *Gradstein & Salazar Allen* 1595 (Dauphin et al. 2022); La Chorrera distrito, Barro Colorado Island, *Salazar Allen et al.* 4298, 4375, 4383, etc. (PMA, U, Gradstein 1994; Stotler et al. 1998; Dauphin et al. 2022); La Chorrera distrito, Barro Colorado, Armour, 2003, *Dauphin* 3089 (CR, PMA, Dauphin et al. 2022); La Chorrera distrito, Barro Colorado, Snyder-Molino, 2003, *Dauphin* 3057 (CR, PMA, Dauphin et al. 2022). **VERAGUAS:** Montijo distrito, Isla de Coiba (Parque Nacional Coiba), Boca Grande, 7°22'13.6"N, 81°39'26.9"W, 1995–1996, *Galdames* 3727 (MA, PMA, Salazar Allen and Chung 1997a); Montijo distrito, Isla de Coiba, near María River, across bay from Colonia Penal, 22 Oct 1979, *Antonio* 2309, det. Dauphin May 2017 (MO-2849694!, this publication); Santa Fe distrito, Piedra Alto, 8°30'–31'N, 81°07'–08'W, 800–850 m, 27 Mar 2009, *Schäfer-Verwimp & Verwimp* 34319/A (JE, Schäfer-Verwimp 2014).

COCOS I. S. loc. (Clark 1953a as *Symbiezidium pogonopterum*; Fosberg and Klawe 1966 as *Platylejeunea pogonoptera* and *Symbiezidium pogonopterum*; Dauphin 1995); S. loc., Gómez-Pignataro 17983, 18022 (MO, U, Gradstein 1994); S. loc., 1964, *Ito* 7 p.p. (COLO, Gradstein and van Beek 1985); S. loc., 1964, *Weber* 550c (COLO, Gradstein and van Beek 1985; Gradstein 1994); S. loc., 1964, *Weber* 561 (COLO, Gradstein and van Beek 1985; Gradstein 1994); S. loc., 1966, *Fosberg & Klawe* (Morales 1991); Chatham Bay, 28 Jun 1932, *Howell* 225 (CAS, Clark 1953a as *Symbiezidium pogonopterum*); Río Genio, 5°32'57"N, 87°03'56"W, 130 m, 23 Jan 1990, *Dauphin* 1037, det. G. Dauphin Jan 2021 (USJ-47192!, CR-4468166!, W!, this publication); Valle Wafer, 5°32'57"N, 87°03'56"W, 5 m, 15 Feb 1994, *Dauphin* 918 (USJ, CR, Dauphin 1995, 1999, 2005).

Also reported from Western Indian Ocean, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Symbiezidium dentatum Herzog, *Feddes Repert. Spec. Nov. Regni Veg.* 57(1/2): 175, 1955 (Herzog 1955a). Type: Colombia.

COSTA RICA. S. loc. (Gradstein 2021). **LIMÓN:** Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, *Lücking* 92-178 (USJ, Gradstein et al. 1994; Dauphin 2005); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 92-146, 92-178, 94-25 (hb. Lücking, Lücking 1995); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m,

1995, *Lücking* (Lücking 1997). PUNTARENAS: Golfito cantón, Corcovado National Park, Esquinas, *Soto* 4170 p.p. (U, USJ, Gradstein et al. 1994; Dauphin 2005).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, Quebrada Arena, 920–1,100 m (Salazar Allen et al. 2021).

COCOS I. Bahía Yglesias, Feb 1976, *Gómez-Pignataro* 6579, det. Dauphin May 2017 (MO-5228158!, *this publication*); Boca Río Genio, 5°32'57"N, 87°03'56"W, 0 m, 15 Feb 1994, *Dauphin* 952 (USJ, Dauphin 1995, 1999, 2005).

Also reported from Mexico, Northern South America, Western South America.

Symbiezidium transversale var. *hookerianum* (Gottsche, Lindenb. et Nees) Gradst. et J.Beek, *Beih. Nova Hedwigia* 80: 237, 1985 (Gradstein and van Beek 1985).

≡ *Lejeunea transversalis* β *hookeriana* Gottsche, Lindenb. et Nees, *Syn. Hepat.* 3: 311, 1845 (Gottsche et al. 1845a). Lectotype: Guadeloupe.

≡ *Lejeunea vinctina* Gottsche, *Syn. Hepat.* 3: 313, 1845 (Gottsche et al. 1845a), syn. fide Gradstein and Beek (1985). Type: St. Vincent.

≡ *Symbiezidium vinctinum* (Gottsche) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 403, 1877 (Trevisan 1877). Note: Although a formal synonym of var. *hookerianum*, material from Cocos I. reported as *Symbiezidium vinctinum* has been reidentified as belonging to var. *transversale* (cf. Gradstein 1994).

≡ *Lejeunea taeniopsis* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15(1): 126, 1884 (Spruce 1884), syn. fide Gradstein (1994). Lectotype: Brazil.

≡ *Symbiezidium taeniopsis* (Spruce) Fulford, *Lloydia* 5(4): 302, 1942 (Fulford 1942a). Note: Although a formal synonym of var. *hookerianum*, material from Panama reported as *Symbiezidium taeniopsis* has been reidentified as belonging to var. *transversale* (Gradstein 1994).

≡ *Symbiezidium laceratum* A.Evans, *Bull. Torrey Bot. Club* 35(8): 306, 1908 (Evans 1908a), syn. fide Gradstein (1994). Type: Haiti.

BELIZE. S. loc. (Fulford 1938 as *Symbiezidium laceratum*; Jovet-Ast 1959 as *Symbiezidium laceratum*; Lücking 1995; Whittemore and Allen 1996; Bastos 2004). TOLEDO: S. loc. (Whittemore and Allen 1996); Punta Gorda, Nov 1932 (CINC, hb. Fulford, Gradstein and van Beek 1985; Gradstein 1994).

?NICARAGUA. S. loc. (Bastos 2004). Note: We are not aware of any firsthand report from Nicaragua.

COSTA RICA. S. loc. (Bastos 2004). PUNTARENAS: S. loc. (Merwin et al. 2001); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a).

PANAMA. S. loc. (Jovet-Ast 1959 as *Symbiezidium taeniopsis*; Bastos 2004); S. loc., *Mannee & Gorgone* (YU, Fulford 1942a as *Symbiezidium taeniopsis*). BOCAS DEL TORO: Bocas del Toro distrito, Dolphin Bay, 9°13'16.9"N, 82°13'03.0"W, 16 m, 15 Aug 2017, *Magaña-Marcial* 247, det. Magaña-Marcial Aug 2017 (PMA, *this publication*); Dolphin Bay (9°13'14.7"N, 82°13'02.9"W), Aug 2017 (Salazar Allen et al. 2022). CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, NE of camping site, 900–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (Salazar Allen et al. 2021). PANAMA: Panamá distrito, Quebrada Culebra, *Dodge & Allen* 17076 (MO, Stotler et al. 1998).

COCOS I. S. loc. (Fosberg and Klawe 1966 as *Symbiezidium vinctinum*, Dauphin 1995); S. loc., 1964, *Ito* 7 p.p. (COLO, Gradstein and van Beek 1985); S. loc., 0–100 m, Apr 1964, *Ito* 7 (COLO, U-540267, B, JE, Gradstein 1994; Dauphin 2005); S. loc., Jun 2016, *Sanchez* 2689 (CR!, *this publication*); Valle Wafer, Estación Servicio Parques Nacionales, 5 m, 14 Feb 1994, *Dauphin* 919 (USJ, Dauphin 1995); Wafer Bay, 28 Jun 1932, *Howell* 222 (CAS, Clark 1953a as *Symbiezidium vinctinum*).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Symbiezidium transversale (Sw.) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 403, 1877 (Trevisan 1877) var. *transversale*.

≡ *Jungermannia transversalis* Sw., *Prodr.* (Swartz): 144, 1788 (Swartz 1788). Type: Jamaica.

≡ *Jungermannia subrotunda* Hook., *Syn. Pl. (Kunth)* 1: 41, 1822 (Kunth 1822), syn. fide Gradstein (1994). Type: Colombia.

≡ *Symbiezidium subrotundum* (Hook.) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 403, 1877 (Trevisan 1877).

≡ *Symbiezidium cordistipulum* Steph., *Sp. Hepat. (Stephani)* 5: 101, 1912 (Stephani 1912a), syn. fide Gradstein and van Beek (1985). Lectotype (Gradstein and van Beek 1985: 234 as “holotype”) or possibly holotype: Costa Rica, Puntarenas Boruca, 1891, *Tonduz* 15560 (G-00069939 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=131321&lang=en>).

≡ *Symbiezidium grandifolium* Steph., *Sp. Hepat. (Stephani)* 5: 101, 1912 (Stephani 1912a), syn. fide Gradstein and van Beek (1985). Lectotype (Gradstein and van Beek 1985: 237): Costa Rica, *Tonduz* 15671, Steph. hb. No. 18834 (=G-00069944 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=131316&lang=en>).

GUATEMALA. S. loc. (Stephani 1912a as *Symbiezidium subrotundum*; Arnell 1959 as *Symbiezidium subrotundum*); S. loc., 1841, *Friedrichstahl*, det. Dauphin Sep 2017 (W-2017-07326!, *this publication*). ALTA VERAPAZ: S. loc., 350 m, *Türckheim* (G ex hb. Levier 5822, NY, Fulford 1942a as *Symbiezidium subrotundum*). HUEHUETENANGO: S. loc., *Pérez* 1416 (USCG, Pérez 2009). QUICHÉ: S. loc., *Pérez* 2229 (USCG, Pérez 2009).

BELIZE. S. loc. (Fulford 1938; Lücking 1995; Whittemore and Allen 1996). TOLEDO: S. loc. (Whittemore and Allen 1996); Punta Gorda (hb. Fulford, *Crandall* 1969); Punta Gorda, Nov 1932 (CINC, hb. Fulford, Gradstein and van Beek 1985; Gradstein 1994).

HONDURAS. S. loc. (Miller et al. 1983). ATLÁNTIDA: Tela municipio, Lancetilla Valley, *Standley* 54801 (C, Fulford 1942a as *Symbiezidium subrotundum*); Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 55553 (S, *Herzog* 1951); Tela municipio, Lancetilla Valley, *Standley* (Standley 1931).

NICARAGUA. S. loc. (Lücking 1995; Ilkiu-Borges 2000). ATLÁNTICO SUR: Bluefields municipio, Cerro San Isidro, *Proctor* 27220 (Gradstein 1994).

COSTA RICA. S. loc. (Stephani 1912a as *Symbiezidium subrotundum*; Arnell 1959 as *Symbiezidium subrotundum*; Ilkiu-Borges 2000). CARTAGO: Jiménez cantón, Flumen Naranjo, *Tonduz* (NY, Gradstein 1994); Jiménez cantón, Río Naranjo,

1893, *Tonduz* 15671 (G, NY, TYPE of *Symbiezidium grandifolium*, *Stephani* 1912a as *Symbiezidium grandifolium*; *Fulford* 1942a; *Gradstein and van Beek* 1985; *Morales* 1991; *Dauphin* 2005); Jiménez cantón, Río Naranjo, Mar 1893, *Tonduz* 15571 (M, YU, NY, *Geissler and Bischler* 1990 as *Symbiezidium grandifolium*). **GUANACASTE**: La Cruz cantón, Guanacaste National Park, Cerros Santa Elena, 10°53'24"N, 85°50'55"W, 650–700 m, 27 Aug 2003, *Dauphin et al.* 3341 (CR, *Dauphin* 2005; *Dauphin and Grayum* 2005); Liberia cantón, Guanacaste National Park, Sector Pitilla, *Dauphin* 2591 (CR, *Dauphin* 2005). **LIMÓN**: Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 92-186, 92-535, 94-29 (hb. *Lücking*, *Lücking* 1995); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (*Lücking* 1997); Pococí cantón, Tortuguero National Park, Caño Mora, 10°31'N, 83°32'W, 2 Aug 1993, *Timme* 11253, det. *Dauphin* May 2017 (MO-6690000!, **this publication**); Pococí cantón, Tortuguero, *Steere* CR-150, CR-173, CR-32 (NY, *Gradstein* 1994; *Dauphin* 2005). **PUNTARENAS**: Buenos Aires cantón, Boruca, 1891, *Tonduz* 15560 (G-00069939 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=131321&lang=en>, TYPE of *Symbiezidium cordistipulum*, *Stephani* 1912a as *Symbiezidium cordistipulum*; *Geissler and Bischler* 1990 as *Symbiezidium cordistipulum*; *Dauphin* 2005); Golfito cantón, Piedras Blancas National Park, Esquinas forest (8°41.316'N, 83°12.305'W), 3 Feb 2005 (*Sonnleitner et al.* 2009).

PANAMA. Canal Zone (*Schäfer-Verwimp* 2014); S. loc. (*Stephani* 1912a as *Symbiezidium subrotundum*; *Arnell* 1959 as *Symbiezidium subrotundum*; *Fulford* 1987 as *Symbiezidium subrotundum*; *Lücking* 1995; *Stotler et al.* 1998; *Ilkiu-Borges* 2000); S. loc., *Dodge & Allen* 8847a (MO, *Fulford* 1942a as *Symbiezidium subrotundum*; *Stotler et al.* 1998); S. loc., *Dodge & Allen* 8879 (MO, *Fulford* 1942a as *Symbiezidium subrotundum*; *Stotler et al.* 1998); S. loc., *Mannee & Gorgone* (YU, *Gradstein and van Beek* 1985; *Gradstein* 1994; *Stotler et al.* 1998). **BOCAS DEL TORO**: Dolphin Bay (9°13'14.7"N, 82°13'02.9"W), Aug 2017 (*Salazar Allen et al.* 2022); Salt Creek (9°17'39.7"N, 82°06'11.2"W) on Isla Bastimento, Aug 2017 (*Salazar Allen et al.* 2022); Tranquilo Bay Eco Adventure Lodge (9°15'23.1"N, 82°08'41.4"W) in Isla Bastimento (*Salazar Allen et al.* 2022). **COLÓN**: S. loc. (*Schäfer-Verwimp* 2014); S. loc., *Dodge et al.* 16959 (MO, *Fulford* 1942a as *Symbiezidium subrotundum*; *Stotler et al.* 1998). **DARIÉN**: S. loc. (*Schäfer-Verwimp* 2014); Cerro Pirre (*Stotler et al.* 1998); Cerro Pirre, 800 m, *Salazar Allen & Gradstein* 9264 (PMA, *Stotler et al.* 1998); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992); Cerro Pirre, along trail to Rancho Mojado, 400–500 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen* 1992). **PANAMA WEST**: La Chorrera distrito, Barro Colorado Island (*Salazar Allen and Chung* 2003); La Chorrera distrito, Barro Colorado Island, Camino Snider-Molino, *Chung*

& Aranda B 237 (R7C3) (PMA, *Stotler et al.* 1998). **PANAMA**: Panamá distrito, Canal Zone Forest Preserve, Aug 1950, *Chickering* (MICH, *Stotler et al.* 1998); Panamá distrito, Parque Municipal Summit (Canal Zone Experimental Gardens), 24 Jul 1950, *Chickering* (MICH, *Crum and Arzeni* 1953). **VERAGUAS**: Santa Fe distrito, base of Cerro Tute, 8°30'N, 81°06'W, 710–890 m, 26 Mar 2009, *Schäfer-Verwimp & Verwimp* 34291 (JE, *Schäfer-Verwimp* 2014); Soná distrito, Región de Bahía Honda, Sendero de Manglarito hacia Playa Limón, Jan 2002, *Salazar Allen et al.* 20312 (PMA, *Salazar Allen and Chung* 2003, 2006); Soná distrito, Región de Bahía Honda, Sendero hacia El Edén, Jan 2002, *Salazar Allen et al.* 20521 (PMA, *Salazar Allen and Chung* 2003, 2006).

COCOS I. S. loc. (*Miller et al.* 1983; *Dauphin* 1995; *Salazar Allen and Chung* 2003); S. loc., 1966, *Fosberg & Klawe* (*Morales* 1991); Boca Río Genio, 5°32'57"N, 87°03'56"W, 0–5 m, *Dauphin* 951 p.p., det. G. Dauphin Feb 2021 (USJ-47191!, CR!, W!, **this publication**); Cerro Pelón, 5°32'57"N, 87°03'56"W, 480 m, 21 Jan 1990, *Dauphin* 990, det. G. Dauphin Oct 2020 (USJ-47187!, CR-4468169!, **this publication**); Chatham Bay, Mar 1964, *Weber* 549 (COLO, U, *Gradstein and van Beek* 1985; *Gradstein* 1994; *Dauphin* 2005); Chatham Bay, 28 Jun 1932, *Howell* 235 (CAS, *Clark* 1953a); Río Genio, 5°32'57"N, 87°03'56"W, 0–50 m, Apr 1992, *Lücking* 286 (hb. *Bernecker*, *Bernecker-Lücking* 2000); Río Genio, 5°32'57"N, 87°03'56"W, Apr 1992, *Lücking* 92-286 (hb. *Lücking*, *Lücking* 1995); Valle Wafer, 5°32'57"N, 87°03'56"W, 0–5 m, 19 Jan 1990, *Dauphin* 919, det. G. Dauphin Apr 2021 (CR-4468305!, **this publication**); Valle Wafer, Estación Servicio Parques Nacionales, 5 m, 14 Feb 1994, *Dauphin* 919 (USJ, *Dauphin* 1999); Wafer Bay, 28 Jun 1932, *Howell* 222, 231 p.p. (CAS, *Clark* 1953a); Wafer Bay, 28 Jun 1932, *Walton Clark* 230 (CAS, *Clark* 1953a); Wafer Bay, 0–20 m, 15 Feb 1964, *Weber* B-14335 (*Weber* 1993); Yglesias D, 350–500 m, Apr 1992, *Lücking* 289, 290, 589, 590 (USJ, ULM, *Bernecker-Lücking* 2000).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

***Symphyogyna* Nees et Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 5: 66, 1836 (Nees and Montagne 1836).**

Symphyogyna apiculispina Steph., *Biblioth. Bot.* 87(2): 180, 1916 (*Stephani* 1916b). Type: Bolivia.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 192 (USCG, *Freire et al.* 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al.* 2005).

Also reported from the Caribbean, Western South America.

Symphyogyna aspera Steph. ex F.A. McCormick, *Bot. Gaz.* 58(5): 403, 1914 (McCormick 1916). Type: Mexico.

GUATEMALA. ALTA VERAPAZ: Panzós municipio, Cahabón and/or Senahú, 2012, *Pérez & López-Medina*, det.

M. Pérez (Pérez and López-Medina 2012); Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, 2,300–2,500 m, Pérez 391 (USCG, Pérez 2009); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 137, 141, etc. (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as 'Symphyogina'). EL PROGRESO: San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007). QUICHÉ: S. loc., Pérez 2330 (USCG, Pérez 2009).

BELIZE. CAYO: S. loc., Dec 1993, Allen 15132 (BRH, MO, Whittemore and Allen 1996).

EL SALVADOR. S. loc. (Hell 1969; Dauphin et al. 1998; Oliveira-e-Silva and Yano 2000; Osakada and Lisboa 2004). AHUACHAPÁN: Near Ahuachapán, 800–1,000 m, 7–27 Jan 1922, Standley 20281 (US, Y, NY, Evans 1925; Hässel 1961).

COSTA RICA. S. loc. (Schäfer-Verwimp and Pócs 2009). *CARTAGO: Paraíso cantón, Tapanti National Park, 7 Dec 1982, Gómez-Pignataro 19352, det. Dauphin May 2017 (MO-6236067!, this publication). GUANACASTE: Bagaces cantón, Rincón de La Vieja National Park, Sector Santa María, "Los Naranjos" near Provision rivulet, 10°46'20"N, 85°17'15"W, 840 m, Dauphin 2330, det. J. Uribe (CR, COL, Dauphin et al. 1998; Dauphin 2005).

PANAMA. S. loc., Villarreal 668 (PMA, Forrest et al. 2006). CHIRIQUÍ: Boquete distrito, Bajo Mono, along Rio Caldera, 8°50.5'N, 82°28.9'W, 1,670–1,745 m, 5 Apr 2006, Schäfer-Verwimp & Verwimp 30947/A (JE, Schäfer-Verwimp 2014); Gualaca distrito, Fortuna Forest Reserve, foothills of Cerro Píñola, 1,280–2,000 m (Salazar Allen et al. 2021). VERAGUAS: Santa Fe distrito, Piedra Alto, 8°30–31'N, 81°07–08'W, 800–850 m, 27 Mar 2009, Schäfer-Verwimp & Verwimp 34311 (JE, Schäfer-Verwimp 2014).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Symphyogyna brasiliensis Nees et Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 5: 67, 1836 (Nees and Montagne 1836) var. *brasiliensis*. Type: Brazil.

GUATEMALA. ALTA VERAPAZ: Tukurú, Pérez 275 (USCG, Pérez 2006, 2009). BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 193, 379 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). ZACAPA: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007).

COSTA RICA. S. loc. (Cole 1984; Gradstein 1999a; Dauphin 2005; Gradstein and Holz 2005); Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); Cordillera de Talamanca, Kappelle 3490 (U, Kappelle 1996); Pan-American

Highway, Haupt (Morales 1991). ALAJUELA: Alajuela cantón, Viento Fresco, 1,600–1,900 m, Feb 1926, Standley & Torres 47978 (Evans 1927; Haupt 1942; Morales 1991; Dauphin 2005); Poás National Park, Canessa 481 (Dauphin 2005); Poás Volcano, Morales & Canessa 432 (G, Morales 1991; Dauphin 2005); Poás Volcano, 6 Aug 0972, Morales 481 (USJ, FLAS, Morales and Griffin 1983; Morales 1991); Poás Volcano, 10 Jun 1968, Morales & Canessa 432 (Morales and Griffin 1983). CARTAGO: Oreamuno cantón, Irazú Volcán, Haupt (Morales 1991; Dauphin 2005). HEREDIA: Heredia cantón, Vara Blanca, Haupt (Morales 1991; Dauphin 2005); Heredia cantón, Vara Blanca, 5,300 ft (1,615 m), 25 Aug 1940, Haupt (Haupt 1942); San Isidro cantón, Yerba Buena, ~2,000 m, Feb 1926, Standley & Valerio 49680 (Evans 1927; Morales 1991; Dauphin 2005); San Isidro cantón, Yerba Buena, Feb 1926, Standley (Haupt 1942). PUNTARENAS: S. loc. (Merwin et al. 2001). SAN JOSÉ: Aserri cantón, Tablazo Mountains, SW of Cartago, 5,500 ft (1,676 m), 9 Aug 1940, Haupt (Haupt 1942); Dota cantón, "Los Robles" (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin 2005); Montañas de Tablazo, Haupt (Morales 1991; Dauphin 2005); Moravia cantón, La Hondura, 1,300–1,700 m, 1924, Standley 36295 (US, Y, Evans 1927; Haupt 1942; Morales 1991; Dauphin 2005); Vásquez de Coronado cantón, Las Nubes, 1,500–1,900 m, Mar 1924, Standley 38569 (US, Y, Evans 1927; Haupt 1942; Morales 1991; Dauphin 2005); Vásquez de Coronado cantón, Las Nubes, 6,000 ft (1,829 m), 31 Jul 1940, Haupt (Haupt 1942; Morales 1991; Dauphin 2005).

PANAMA. CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, NW of camping site, 1,000–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna, 1,000–1,270 m, Salazar Allen et al. 605, 692 (PMA, Stotler et al. 1998); Gualaca distrito, Reserva Forestal Fortuna, Aug 2017, Dauphin et al. 4646 (PMA, this publication); Gualaca distrito, Reserva Forestal Fortuna, Aug 2017, Dauphin et al. 4647 (PMA, this publication). DARIÉN: Cerro Pirre (Stotler et al. 1998); Cerro Pirre, 1,200–1,300 m, Salazar Allen & Gradstein 9295 (PMA, Stotler et al. 1998); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, Gradstein & Salazar Allen (PMA, U, Gradstein and Salazar Allen 1992). PANAMA: Panamá distrito, Cerro Jefe (Stotler et al. 1998); Panamá distrito, Cerro Jefe, Hammel & de Nevers 13579 (MO, Stotler et al. 1998); Panamá distrito, Cerro Jefe, forest behind INTEL tower, 900–1,000 m, Salazar Allen 5217 (PMA, Stotler et al. 1998); Panamá distrito, Cerro Jefe, forest behind INTEL tower, 900–1,000 m, Spörle 0.8 (PMA, Spörle 1990; Stotler et al. 1998); Panamá distrito, Taboga, Seemann (NY, Evans 1927; Stotler et al. 1998).

Also reported from West-Tropical Africa, West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Middle Atlantic Ocean, Western Indian Ocean, Australia, New Zealand, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands.

Symphyogyna brongniartii Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 19: 265, 1843 (Montagne 1843). Type: Guadeloupe.

GUATEMALA. S. loc. (Pagán 1939a; Haupt 1942). ALTA VERAPAZ: Senahú municipio, Finca Sepacuité, 1902, *Cook & Griggs* 409 (NY, Y, Evans 1925); Tukurú municipio, Chelemhá, 15°22'32"N, 90°05'05"W, Pérez 108 (USCG, Pérez 2009); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, Freire et al. 87, 96, 314, 385, 442, 515 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). HUEHUETENANGO: Barillas municipio, San José Maxbal, Laguna Maxbal, 15°56'23"N, 91°18'19"W, Pérez 1402 (USCG, Pérez 2009). *QUETZALTENANGO: Zunil municipio, Aguas Amargas, NW slopes of Pico Zunil, 14°45'21.6"N, 91°29'21.6"W, 9 Sep 2005, *Quedensley* 2306, det. Dauphin Sep 2017 (MO, W-0089085!, this publication). QUICHÉ: S. loc., Pérez 2362 (USCG, Pérez 2009).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); Cordillera de Talamanca, Kappelle 3869 (U, Kappelle 1996); S. loc. (Pagán 1939a; Cole 1984; Dauphin 2005; Schäfer-Verwimp and Van Melick 2016); S. loc., Pittier (G, Stephani 1900b). ALAJUELA: Buena Vista, road to San Carlos Valley, 1903, *Cook & Doyle* 144 (NY, Y, Evans 1925; Haupt 1942); Poás Volcano, Aug 1977, *Griffin et al.* 103 (USJ, FLAS-020503, Morales and Griffin 1983; Morales 1991; Dauphin 2005); San Carlos cantón, Camino al valle de San Carlos, *Cook & Doyle* (Morales 1991; Dauphin 2005). CARTAGO: Jiménez cantón, Tucurrique, 1920, *Rowlee & Stark* 811 (Y, Evans 1925; Haupt 1942; Morales 1991; Dauphin 2005); La Unión cantón, Cerro de La Carpintera, *Standley* 35577 (US, Y, Haupt 1942; Morales 1991; Dauphin 2005); Paraíso cantón, Tapanti National Park, 7 Dec 1980, *Gómez-Pignataro* 19340, det. Dauphin May 2017 (MO-6236074!, this publication). HEREDIA: Heredia cantón, Vara Blanca, 5,300 ft (1,615 m), 2 Aug 1940, *Haupt* (Haupt 1942; Morales 1991; Dauphin 2005); La Uvita, Morales 238 (USJ, FLAS, Morales 1991; Dauphin 2005). LIMÓN: Pococí cantón, Río Toro Amarillo, E of Guápiles, *Woodruff*, det. Grolle (FLAS, Morales 1991; Dauphin 2005). PUNTARENAS: S. loc. (Merwin et al. 2001); Monteverde (Morales 1991); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde, 4,500 ft (1,372 m), 9 Mar 1969, *James*, W. 27 (R, Reed and Robinson 1971; Dauphin 2005). SAN JOSÉ: Aserri cantón, Tablazo Mountains, SW of Cartago, 5,500 ft (1,676 m), 9 Aug 1940, *Haupt* (Haupt 1942); Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, Copey, *Schäfer-Verwimp* 130 (CR, Dauphin 2005); Dota cantón, Los Quetzales National Park (Amengual et al. 2007); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, Sendero Robles, *Anton* 73 (CR, Dauphin 2005); Montañas de Tablazo, *Haupt* (Morales 1991; Dauphin 2005); Moravia cantón, La Palma, 1,550 m, 18 Dec 1888, *Pittier* (G, Uribe and Aguirre 1995); Moravia cantón, La Palma, 5 Feb 1922,

Greenman & Greenman 5469, det. Dauphin May 2017 (MO-5273200!, this publication).

PANAMA. S. loc. (Salazar Allen et al. 2017); S. loc., *Villarreal* 668 (PMA, Forrest and Crandall-Stotler 2005). CHIRIQUÍ: Boquete distrito, Cerro Pata de Macho, *Antonio* 2662 (MO, Stotler et al. 1998); Gualaca distrito, Fortuna (Stotler et al. 1998); Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Cerro Pata de Macho, 1,700–1,800 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, NE of camping site, 900–1,200 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna, *Spörle* 1.28 (PMA, Spörle 1990; Stotler et al. 1998); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, near southern edge of storage lake, 8°44.0'N, 82°14.5'W, 1,215 m, 30 Mar 2009, *Schäfer-Verwimp & Verwimp* 34502 (JE, Schäfer-Verwimp 2014). COCLÉ: Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, *Schäfer-Verwimp & Verwimp* 34135 (JE, Schäfer-Verwimp 2014). PANAMA: Panamá distrito, Cerro Jefe, forest behind INTEL tower, 900–1,000 m, *Salazar Allen & Chung* 5212 (PMA, Stotler et al. 1998).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Symphyogyna sinuata (Sw.) Nees et Mont., *Voy. Amér. Mérid.*, Bot. 7(1): 61, 1839 (Montagne 1839b).

≡ *Jungermannia sinuata* Sw., *Prodr.* (Swartz): 145, 1788 (Swartz 1788). Type: Jamaica.

EL SALVADOR. AHUACHAPÁN: S. loc. (Standley and Calderón 1925).

COSTA RICA. S. loc., *Pittier* (G, Stephani 1900b). CARTAGO: Jiménez cantón, Juan Viñas (Tonduz 1895b); Jiménez cantón, Juan Viñas, *Pittier* 6043 (Stephani 1893c; Morales 1991; Dauphin 2005).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

Symphyogyna trivittata Spruce, *J. Linn. Soc., Bot.* 30(210): 365, 1895 (Gepp 1895). Type: Dominica.

GUATEMALA. BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 518 (USCG, Freire et al. 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

Also reported from the Caribbean, Western South America.

***Syzygiella* Spruce, *J. Bot.* 14: 234, 1876 (Spruce 1876a).**

Syzygiella anomala (Lindenb. et Gottsche) Steph., *Bull. Herb. Boissier*, sér. 2, 2(5): 471 (=Spec. Hepat. [Stephani] 2: 190), 1902 (Stephani 1902e).

≡*Plagiochila anomala* Lindenb. et Gottsche, *Syn. Hepat.* 5: 646, 1847 (Gottsche et al. 1847). Mexico.

COSTA RICA. S. loc. (Cole 1982, 1983; Fulford and Sharp 1990; Gradstein 1999a; Dauphin 2005; Gradstein and Holz 2005; Schuster 2021); S. loc., *Gradstein & Mues* 9657 (GOET, Groth and Heinrichs 2005; Hentschel et al. 2006a, 2007c); S. loc., *Lyon* 257 (GOET, Feldberg et al. 2010b; Vilnet et al. 2012); Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b). **ALAJUELA:** San Ramón cantón, La Balsa, 10°11'N, 84°30'W, *Stevens* 13827, det. Whittemore (CR, Dauphin 2005). **CARTAGO:** Paraíso cantón, Orosi, Tapantí National Park, *Griffin & Morales* 164, det. dupl. det. H. Inoue (USJ, FLAS, Morales 1991). **SAN JOSÉ:** Cordillera de Talamanca, Cerro de la Muerte, 3,325 m, 21 Aug 1973, *Cleef*, det. S. R. Gradstein (Inoue 1975); Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, Cerro de Las Vueltas, *Dauphin et al.* 3573 (CR, Dauphin 2005); Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, *Standley* 43940 (Carl 1931a; Herzog 1938; Morales 1991); Dota cantón, San Gerardo (Dauphin 2005); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 2,600–3,000 m (Dauphin 2005); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 3,325 m, 1973, *Cleef & Fournier* 10199 (USJ, Gradstein et al. 1977; Morales 1991; Kappelle 1996); Pérez Zeledón cantón, Páramo Cuiricí, *Dauphin et al.* 3583 (CR!, this publication); Vásquez de Coronado cantón, Las Nubes, 1,500–1,900 m, *Standley* 38692 (S, B-12165, Inoue 1966; Morales 1991; Dauphin 2005); Vásquez de Coronado cantón, Las Nubes, *Standley* 38693 (Dauphin 2005).

Also reported from Mexico, the Caribbean, Western South America, Brazil.

Syzygiella autumnalis (DC.) K.Feldberg, Váña, Hentschel et Heinrichs, *Cryptog. Bryol.* 31(2): 144, 2010 (Feldberg et al. 2010a).

≡*Jungermannia autumnalis* DC., *Fl. Franç.* (DC. & Lamarck) 5(6): 202, 1815 (De Candolle and Lamarck 1815). Type: France.

≡*Jamesoniella autumnalis* (DC.) Steph., *Bull. Herb. Boissier*, sér. 2, 1(10): 1029 (=Spec. Hepat. [Stephani] 2: 92), 1901 (Stephani 1901d).

=*Notoscyphus paramicola* Herzog, *Rev. Bryol. Lichénol.* 11: 6, 1939 (Herzog 1938), syn. fide Grolle (1971a). Lectotype (Grolle 1971a as “holotype”) or possibly holotype: Costa Rica, Prov. S. José, C. de Las Vueltas, 2,700–3,000 m, 1925, *Standley* 43723a (JE-04000935 <https://je.jacq.org/JE04000935>, isoelectotype JE-04000934 <https://je.jacq.org/JE04000934>).

GUATEMALA. S. loc. (Fulford and Sharp 1990 as *Jamesoniella autumnalis*; Gradstein et al. 2001b as *Jamesoniella autumnalis*); S. loc., 1,800 m, *Sharp* 2875, 5065 (TENN, Grolle 1971a as *Jamesoniella autumnalis*). **QUETZALTENANGO:** San Carlos Sija municipio, Getenagre near Sija, 9,500 ft (2,896 m), 1 Jan 1945, *Sharp* 1133 (TENN, Gradstein and Váña 1987 as *Jamesoniella autumnalis*).

COSTA RICA. S. loc. (Herzog 1939 as *Jamesoniella autumnalis*; Gradstein and Váña 1987 as *Jamesoniella autumnalis*; Fulford and Sharp 1990 as *Jamesoniella autumnalis*). **SAN JOSÉ:**

Dota cantón, Cerro de Las Vueltas, *Standley* 43723 (Morales 1991 as *Jamesoniella autumnalis*; Dauphin 2005 as *Jamesoniella autumnalis*); Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, *Standley* 43723a (JE, B, S, Herzog 1938 as *Notoscyphus paramicola*; Grolle 1971a as *Jamesoniella autumnalis*; Geissler and Bischler 1989 as *Notoscyphus paramicola*); Dota cantón, El Jardín, Morales 297 (FLAS, USJ, Morales 1991 as *Jamesoniella autumnalis*; Kappelle 1996 as *Jamesoniella autumnalis*; Dauphin 2005 as *Jamesoniella autumnalis*); Salsipuedes, *Dauphin et al.* 3577 (CR!, this publication).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, Siberia, Russian Far East, Middle Asia, Caucasus, Western Asia, China, Mongolia, Eastern Asia, Indian Subcontinent(?), Indo-China, Malesia, Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, South-Central USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America.

Syzygiella bilobata Inoue, *J. Hattori Bot. Lab.* 29: 186, 1966 (Inoue 1966). Holotype: Panama, Bois pr. de David, Oct 1906, *Hélion*, ex hb. Renauld (NY-1163176 <http://sweetgum.nybg.org/science/vh/specimen-details/?irn=1309984>, isotype G-00042019 <https://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=56841&lang=en>).

COSTA RICA. S. loc. (Schäfer-Verwimp et al. 2013; Gradstein 2021). **CARTAGO:** Paraíso cantón, Orosi, Tapantí National Park, *Griffin & Morales* 164, det. dupl. det. H. Inoue (USJ, FLAS, Dauphin 2005).

PANAMA. S. loc. (Schäfer-Verwimp et al. 2013; Gradstein 2021; Schuster 2021; Ellis et al. 2022b); S. loc., 1906, *Hélion* (PC, Inoue 1966; Stotler et al. 1998); S. loc., 1907, *Hélion* (NY, Geissler and Bischler 1990). **CHIRIQUÍ:** Boquete distrito, forest near David, Oct 1906, *Hélion* (NY-1163176 <http://sweetgum.nybg.org/science/vh/specimen-details/?irn=1309984>, G-00042019, TYPE).

Also reported from Western South America.

Syzygiella campanulata Herzog, *Rev. Bryol. Lichénol.* 11(1): 9, 1939 (Herzog 1938). Lectotype (Inoue 1966: 199, supplemented by Söderström and Hentschel 2023: 24): Costa Rica, southern slope of the Volcán de Turrialba, 2,000–2,400 m, on tree, *Standley* 35157 (JE-04007067 <https://je.jacq.org/JE04007067>, isoelectotypes JE-04007066 <https://je.jacq.org/JE04007066>, US-00070931 <http://n2t.net/ark:/65665/3e614bf39-67f4-43ad-a9e8-15365855ae6e>, B-30001256 <https://herbarium.bgbm.org/object/B30001256>).

COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Cole 1982, 1983; León et al. 1998; Gradstein 1999a; Dauphin 2005; Gradstein and Holz 2005; Schäfer-Verwimp and Pócs 2009; Gradstein 2021; Gradstein and Pócs 2021; Schuster 2021; Oliveira-da-Silva et al. 2022). **CARTAGO:** Turrialba cantón, Turrialba Volcano, 2,000–2,400 m, *Standley* 35157 (JE-04007067, B-12156, Herzog 1938; Inoue 1966; Geissler and Bischler 1990; Morales 1991; Dauphin 2005;

Váña et al. 2014b); Turrialba cantón, Volcán Turrialba, S slope, 2,000–2,400 m, *Standley 50418* (JE, Inoue 1966; Dauphin 2005). SAN JOSÉ: Pérez Zeledón cantón, Páramo Buena Vista, *Griffin & Eakin 569* (FLAS, Morales 1991; Dauphin 2005).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Syzygiella concreta (Gottsche) Spruce, *J. Bot.* 14: 274, 1876 (Spruce 1876a).

≡*Jungermannia concreta* Gottsche, *Mexik. Leverm.*: 82, 1863 (Gottsche 1863). Type: Mexico.

=*Syzygiella longifolia* Steph., *Sp. Hepat.* 6: 118, 1917 (Stephani 1917b), syn. in Feldberg et al. (2011), who rejects the synonymy with *Syzygiella perfoliata* in Inoue (1966). Lectotype (Inoue 1966: 202, supplemented by Söderström et al. 2023a: 155): Costa Rica, Alto del Pito, Mar 1893, *Tonduz s.n.* (G-00069926 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=132565&lang=en>, isoelectotypes Y, M).

=*Syzygiella appendiculata* Herzog, *Rev. Bryol. Lichénol.* 11(1): 7, 1939 (Herzog 1938), syn. in Feldberg et al. (2011), who rejects the synonymy with *Syzygiella perfoliata* in Inoue (1966). Lectotype (Inoue 1966: 202, supplemented by Söderström and Hentschel 2023: 23): Costa Rica, Las Nubes, S. José, 1,500–1,900 m, *Standley 38435* (M-0082572, isoelectotypes JE-04007029 <https://je.jacq.org/JE04007029>, US-00072916, B-300012155, S-B47753 <https://herbarium.nrm.se/specimens/B47753>).

COSTA RICA. S. loc., *Holz & Schäfer-Verwimp CR-991142* (GOET, Feldberg et al. 2010b). SAN JOSÉ: Dota cantón, Alto de Pito, Mar 1893, *Tonduz* (G-00069926 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=132565&lang=en>, M, Y, TYPE of *Syzygiella longifolia*, Stephani 1917b as *Syzygiella longifolia*; Geissler and Bischler 1990 as *Syzygiella longifolia*; Dota cantón, Alto de Pito, San Marcos, *Tonduz 15677* (M, Feldberg et al. 2011); Dota cantón, San Gerardo de Dota, 1,950 m, *Holz & Schäfer-Verwimp CR 99-1142* (GOET, Feldberg et al. 2010c, 2011); Vásquez de Coronado cantón, Las Nubes, 1,500–1,900 m, *Standley 38494, 38770* (Herzog 1938 as *Syzygiella appendiculata*; Geissler and Bischler 1990 as *Syzygiella appendiculata*; Feldberg et al. 2011); Vásquez de Coronado cantón, Las Nubes, 1,500–1,900 m, 20 Mar 1924, *Standley 38435* (JE-04007029 <https://je.jacq.org/JE04007029>, M, US-00072916, B-300012155, S-B47753, Herzog 1938 as *Syzygiella appendiculata*, TYPE of *Syzygiella appendiculata*; Geissler and Bischler 1990 as *Syzygiella appendiculata*; Feldberg et al. 2011).

Also reported from West-Central Tropical Africa, East Tropical Africa, Western Indian Ocean, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Subantarctic Islands.

Syzygiella macrocalyx (Mont.) Spruce, *J. Bot.* 14: 234, 1876 (Spruce 1876a).

≡*Jungermannia macrocalyx* Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 19: 248, 1843 (Montagne 1843). Type: Martinique.

=*Syzygiella apiculata* Herzog, *Beih. Bot. Centralbl.* 61B(3): 563, 1942 (Herzog 1942b), syn. fide Inoue (1966). Lectotype (Inoue 1966: 198): Costa Rica, La Palma, S. José, ~1,600 m, *Standley 32927a* (JE-04007064

<https://je.jacq.org/JE04007064>, isoelectotype JE-04007063 <https://je.jacq.org/JE04007063>, B-300012154).

*HONDURAS. *LEMPIRA: Gracias municipio, Montaña de Celaque, Rio Naranjo, ~10 km SW of Gracias, 14°32'N, 88°39'W, 2,100–2,370 m, 12 May 1992, *Allen 11997 p.p.*, det. Dauphin May 2017 (MO-6699955! <http://tropicos.org/specimen/100986362>, this publication).

COSTA RICA. S. loc. (Cole 1982, 1983; Schuster 2021; Ellis et al. 2022b). CARTAGO: Paraíso cantón, Oroquieta National Park, *Griffin & Eakin 226* (FLAS, Morales 1991; Dauphin 2005). SAN JOSÉ: Moravia cantón, Camino a La Hondura, *Griffin et al. 367, 385* (FLAS, Morales 1991; Dauphin 2005); Moravia cantón, La Palma, ~1,600 m, *Standley 32927a* (JE, Inoue 1966); Moravia cantón, La Palma, ~1,600 m, *Standley 32937a* (JE, B-12154, Herzog 1942b, 1951 both as *Syzygiella apiculata*; Geissler and Bischler 1990 as *Syzygiella apiculata*; Morales 1991; Dauphin 2005).

PANAMA. PANAMA: Panamá distrito, Cerro Jefe, behind INTEL tower, 900 m, *Salazar Allen & Gradstein 9393* (PMA, Stotler et al. 1998); Panamá distrito, Cerro Jefe, behind INTEL tower, 900 m, *Salazar Allen et al. 9392* (GOET, Feldberg et al. 2010b).

Also reported from the Caribbean, Northern South America, Brazil(?).

Syzygiella pectiniformis Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 501, 1885 (Spruce 1885). Type: Ecuador.

COSTA RICA. S. loc. (Gradstein 2021); S. loc., *Gradstein & Mues 9657* (GOET, Feldberg et al. 2010b as *Syzygiella cf. pectiniformis*); S. loc., *Holz CR 00-544* (GOET, Feldberg et al. 2010b as *Syzygiella cf. pectiniformis*). PUNTARENAS: S. loc. (Merwin et al. 2001); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde cantón, Sendero Brillante, 1,550 m, *Lyon 273*, det. Whittemore (CR, Dauphin 2005); Monteverde, 1,550 m, *Gradstein & Solano 9500, 9524* (U, USJ, Gradstein et al. 1994; Dauphin 2005).

Also reported from Northern South America, Western South America.

Syzygiella perfoliata (Sw.) Spruce, *J. Bot.* 14: 234, 1876 (Spruce 1876a).

≡*Jungermannia perfoliata* Sw., *Prodr. (Swartz)*: 143, 1788 (Swartz 1788). Type: Jamaica.

=*Syzygiella gracillima* Herzog, *Rev. Bryol. Lichénol.* 11: 9, 1939 (Herzog 1938), syn. fide Inoue (1968). Lectotype (Inoue 1968: 306): Costa Rica; El Gallito, 2,000 m alt., 28 Oct 1928, *Valerio 60* (JE-04007078 <https://je.jacq.org/JE04007078>, isoelectotype B-300012160 <https://herbarium.bgbm.org/object/B300012160>).

GUATEMALA. S. loc. (Pérez 2009).

*BELIZE. *CAYO: Southern Maya Mountains, summit of Doyle's Delight, 16°48'45"N, 89°37'13"W, 1,140 m, 9 Dec 1993, *Allen 15317B*, det. Dauphin May 2017 (MO-4421607! <http://tropicos.org/specimen/90019387>, this publication).

***HONDURAS.** ***LEMPIRA:** Gracias municipio, Montaña de Celaque, Rio Naranjo, ~10 km SW of Gracias, 14°32'N, 88°39'W, 12 May 1992, *Allen 11997 p.p.*, det. Dauphin May 2017 (MO-6699955! <http://tropicos.org/specimen/100986362>, **this publication**).

COSTA RICA. S. loc. (Cole 1982, 1983; Fulford et al. 1970; Fulford 1987; Fulford and Sharp 1990; Schuster 2021); Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); Cordillera de Talamanca, *Kappelle 139* (CR, *Kappelle 1996*). **HEREDIA:** Barva cantón, Cerro Gallito, 2,000 m, 28 Oct 1928, *Valerio 60* (JE-04007078 <https://je.jacq.org/JE04007078>, B-300012160, **TYPE** of *Syzygiella gracillima*, Geissler and Herzog 1938 as *Syzygiella gracillima*; Inoue 1968; Bischler 1990 as *Syzygiella gracillima*; Dauphin 2005; Feldberg et al. 2011). **SAN JOSÉ:** Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, Alto de Pito, Mar 1893, *Tonduz* (G-00069926 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=132565&lang=en>, M, Y, Inoue 1966, but rejected as *Syzygiella concreta* by Feldberg et al. 2011; Morales 1991); Dota cantón, San Gerardo (Dauphin 2005); Moravia cantón, La Palma, *Pittier 6002* (Dauphin 2005); Tarrazú cantón, La Palma Forest, Feb 1891, *Pittier 6002* (G-5273, *Stephani 1893c*; Morales 1991); Vásquez de Coronado cantón, Las Nubes, 1,500–1,900 m, *Standley 38692* (S, B-12165, Dauphin 2005); Vásquez de Coronado cantón, Las Nubes, 1,500–1,900 m, 20 Mar 1924, *Standley 38435* (JE-04007029 <https://je.jacq.org/JE04007029>, M, US-00072916, B-300012155, S-B47753, Inoue 1966; Morales 1991; Dauphin 2005).

PANAMA. S. loc. (Ellis et al. 2022b). **NASO TJËR DI COMARCA:** Cerro Fábrega, *De Gracia 260* (PMA, Dauphin 2007).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Syzygiella rubricaulis (Nees) Steph., *Bull. Herb. Boissier*, sér. 2, 2(5): 468 (=Spec. *Hepat. [Stephani]* 2: 187), 1902 (Stephani 1902e).

≡*Jungermannia rubricaulis* Nees, *Fl. Bras. (Martius)* 1(1): 344, 1833 (Nees 1833b). Type: Brazil.

≡*Jamesoniella rubricaulis* (Nees) Grolle, *Bryologist* 71(4): 355, 1968 (Grolle 1968b).

GUATEMALA. S. loc. (Fulford 1987 as *Jamesoniella rubricaulis*; Fulford and Sharp 1990 as *Jamesoniella rubricaulis*). **ALTA VERAPAZ:** Cobán, 1,600 m, *Lüchheim* (G, Inoue 1966); Cobán, 1,350 m, *Türckheim 5495* (FI, Grolle 1971a as *Jamesoniella rubricaulis*); Cobán, Las Victorias National Park, 1,700 m, 2002 (Andersohn 2004 as *Jamesoniella 'rubricaria'*); Tucurú, Pérez 184 (USCG, Pérez 2006 as *Jamesoniella rubricaulis*, 2009 as *Jamesoniella rubricaulis*). **EL PROGRESO:** San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007 as *Jamesoniella rubricaulis*). **SACATEPÉQUEZ:** Volcán de Agua, det. Inoue 1967 (NY, Pérez 2009).

BELIZE. TOLEDO: S. loc., Dec 1993, *Allen 15317B* (BRH, MO, Whittemore and Allen 1996 as *Jamesoniella rubricaulis*).

***HONDURAS.** ***ATLÁNTIDA:** El Porvenir municipio, Pico Bonito National Park, upper slopes and summit of Pico Bonito, 15°37'N, 86°53'W, 23 Apr 1996, *Allen 17573*, det. Dauphin 2017 (MO-4428672! <http://tropicos.org/specimen/90039820>, **this publication**). ***CORTÉS:** San Pedro Sula municipio, Cusuco National Park, from Rio Cusuco to summit of Cerro Jilincó ~22 km W of San Pedro Sula, 16 km S of Cuyamel, 15°31'N, 88°14'W, 20 Mar 1993, *Allen 14250*, det. Whittemore 1994 (MO-3982134! <http://tropicos.org/specimen/90019192>, **this publication**). ***LEMPIRA:** Gracias municipio, Montaña de Celaque, trail overlooking waterfall of Rio Arquecal, 14°33'N, 88°40'W, 16 May 1992, *Allen 12188*, det. Whittemore 1992 (MO-3965010! <http://tropicos.org/specimen/100955946>, **this publication**). ***OLANCHO:** Catacamas municipio, Sierra de Algalta, La Chorrera, 13 km NNW of Catacamas, 14°57'N, 85°55'W, 2 Jun 1992, *Allen 12735*, det. Whittemore 1992 (MO-3964991!, **this publication**).

COSTA RICA. S. loc. (Pagán 1939c; Cole 1982, 1983; Fulford 1987 as *Jamesoniella rubricaulis*; Fulford and Sharp 1990 as *Jamesoniella rubricaulis*; Gradstein 1993, 1999a both as *Jamesoniella rubricaulis*; Dauphin 2005 as *Jamesoniella rubricaulis*; Gradstein and Holz 2005 as *Jamesoniella rubricaulis*; Mandl 2007 as *Jamesoniella rubricaulis*; Ellis et al. 2022b); S. loc., *Pittier* (G, *Stephani 1902e*); Cordillera de Talamanca (Holz and Gradstein 2005b as *Jamesoniella rubricaulis*; Holz 2006 as *Jamesoniella rubricaulis*); Cordillera de Talamanca, *Kappelle 3391* (U, *Kappelle 1996* as *Jamesoniella rubricaulis*). **ALAJUELA:** Poás Volcano, Morales & Canessa 443 (USJ, Morales 1991 as *Jamesoniella rubricaulis*; Dauphin 2005 as *Jamesoniella rubricaulis*). **CARTAGO:** El Guarco cantón, La Chonta, *Mata 42 p.p.* (USJ, Dauphin 2005 as *Jamesoniella rubricaulis*); Pococí cantón, La Georgina, *Griffin et al. 442, 489* (FLAS, Morales 1991 as *Jamesoniella rubricaulis*; Dauphin 2005 as *Jamesoniella rubricaulis*); Turrialba cantón, Turrialba Volcano, Morales 521 (Morales 1991 as *Jamesoniella rubricaulis*; Dauphin 2005 as *Jamesoniella rubricaulis*). **HEREDIA:** San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, *Standley 51999* (Morales 1991 as *Jamesoniella rubricaulis*; Dauphin 2005 as *Jamesoniella rubricaulis*); San Isidro cantón, Cerro de Caricias, *Standley 52237, 52239* (Morales 1991 as *Jamesoniella rubricaulis*); San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, *Standley 52259, 52277* (Dauphin 2005 as *Jamesoniella rubricaulis*); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley 50345, 50437, 50488, 50501, 50535, 50677* (Morales 1991 as *Jamesoniella rubricaulis*; Dauphin 2005 as *Jamesoniella rubricaulis*); San Isidro cantón, Cerro Zurquí, 2,000–2,400 m, *Standley 50694* (Morales 1991 as *Jamesoniella rubricaulis*; Dauphin 2005 as *Jamesoniella rubricaulis*). **LIMÓN:** Chirripó Grande, 3,700 m, *Kupper 1144* (JE, M, S, Grolle 1971a as *Jamesoniella rubricaulis*). **PUNTARENAS:** S. loc. (Merwin et al. 2001 as *Jamesoniella rubricaulis*); Monteverde, <1,500 m (Dauphin 2005 as *Jamesoniella rubricaulis*); Monteverde cantón, west-facing slope of the

Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,470–1,545 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995 as *Jamesoniella rubricaulis*); Monteverde, Mar 1963, *James*, det. Dauphin Jun 2017 (MO-6167934!, **this publication**). **SAN JOSÉ**: Acosta cantón, Cangrejal, Cerro Caraigres, *Dauphin* 3382 (CR, *Dauphin* 2005 as *Jamesoniella rubricaulis*); Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, *Holz et al.* 2002 as *Jamesoniella rubricaulis*); Dota cantón, San Gerardo (*Dauphin* 2005 as *Jamesoniella rubricaulis*); Dota cantón, San Gerardo, *Holz* (*Holz* 2003 as *Jamesoniella 'rubricaulis'*); Los Santos Forest Reserve, ~2,900 m (*Holz and Gradstein* 2005a as *Jamesoniella rubricaulis*); Moravia cantón, Cerro Zurquí, 2,000–2,500 m, *Standley* 48176, 48183, 48211 (*Grolle* 1971a as *Jamesoniella rubricaulis*; *Morales* 1991 as *Jamesoniella rubricaulis*; *Dauphin* 2005 as *Jamesoniella rubricaulis*); Moravia cantón, La Hondura, *Griffin et al.* 349, det. Grolle (FLAS, *Morales* 1991 as *Jamesoniella rubricaulis*; *Dauphin* 2005 as *Jamesoniella rubricaulis*); Moravia cantón, La Hondura, 1,200–1,500 m, *Standley* 51816 (*Grolle* 1971a as *Jamesoniella rubricaulis*; *Morales* 1991 as *Jamesoniella rubricaulis*; *Dauphin* 2005 as *Jamesoniella rubricaulis*); Moravia cantón, La Palma, 1,550 m, *Pittier* 2 (M, *Inoue* 1966; *Morales* 1991 as *Jamesoniella rubricaulis*; *Dauphin* 2005 as *Jamesoniella rubricaulis*); Moravia cantón, La Palma, *Pittier* 6007 (*Morales* 1991 as *Jamesoniella rubricaulis*; *Dauphin* 2005 as *Jamesoniella rubricaulis*); Pan-American Highway Sur, km 54–61, *Boza* 2014, det. *Gradstein* (B-274003, *Dauphin* 2005 as *Jamesoniella rubricaulis*); Pérez Zeledón cantón, Chirripó National Park, Valle de Los Conejos, *Kubbiér* 609, det. Grolle (B-225735, *Dauphin* 2005 as *Jamesoniella rubricaulis*); Pérez Zeledón cantón, Páramo Buena Vista, *Dauphin* 2629 (CR, *Dauphin* 2005 as *Jamesoniella rubricaulis*); Pérez Zeledón cantón, Páramo Buena Vista, *Kubbiér* 340, det. Grolle (B-225745, *Dauphin* 2005 as *Jamesoniella rubricaulis*); Vásquez de Coronado cantón, Las Nubes, ~1,900 m, *Standley* 38431, 38461, 38836 (*Morales* 1991 as *Jamesoniella rubricaulis*; *Dauphin* 2005 as *Jamesoniella rubricaulis*).

PANAMA. S. loc. (*Gradstein* 1999a as *Jamesoniella rubricaulis*; Ellis et al. 2022b). ***CHIRIQUÍ**: Barú Volcano National Park (*Rodríguez-Quiel et al.* 2022). **NASO TJËR DI COMARCA**: Cerro Fábrega, *De Gracia* 321 (PMA, *Dauphin* 2007 as *Jamesoniella rubricaulis*); Parque Internacional La Amistad, Cerro Fábrega, 3,150–3,353 m, *Dauphin* 1557, 1568, 1576 p.p. (GOET, CR, PMA, U, *Stotler et al.* 1998 as *Jamesoniella rubricaulis*); Parque Internacional La Amistad, Cerro Fábrega, 3,200 m, 1995, *Dauphin et al.* 1576 (GOET, *Feldberg et al.* 2010b).

Also reported from Macaronesia, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Syzygiella setulosa Steph., *Bull. Herb. Boissier*, sér. 2, 2(5): 489 (=Spec. *Hepat. [Stephani]* 2: 188), 1902 (Stephani 1902e). Lectotype: Guadeloupe.

COSTA RICA. S. loc. (Schäfer-Verwimp et al. 2013). **ALAJUELA**: San Ramón cantón, La Balsa, 10°11'N, 84°30'W,

1,050–1,150 m, 10 Sep 1979, *Stevens* 14260, det. Whittemore (CR, *Dauphin* 2005).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Syzygiella sonderi (Gottsche) K.Feldberg, Váňa, Hentschel et Heinrichs, *Cryptog. Bryol.* 31: 143, 2010 (Feldberg et al. 2010a).

≡*Jungermannia sonderi* Gottsche, *Linnaea* 28(5): 550, 1856 (Gottsche 1856).

Type: Australia.

≡*Jungermannia grandiflora* Lindenb. et Gottsche, *Syn. Hepat.* 5: 673, 1847 (Gottsche et al. 1847), syn. fide Feldberg et al. (2010a). Type: Chile.

≡*Cryptochila grandiflora* (Lindenb. et Gottsche) Grolle, *Feddes Repert.* 82(1): 19, 1971 (Grolle 1971a).

GUATEMALA. S. loc. (Engel 1978 as *Cryptochila grandiflora*, 1990 as *Cryptochila grandiflora*; Fulford and Sharp 1990 as *Cryptochila grandiflora*; Váňa 1991 as *Cryptochila grandiflora*; Bednarek-Ochyra et al. 2000 as *Cryptochila grandiflora*; Schuster 2002 as *Cryptochila grandiflora*; Váňa and Gremmen 2005 as *Cryptochila grandiflora*; Váňa and Engel 2013; Váňa et al. 2014c; Ellis et al. 2015a). **ALTA VERAPAZ**: Cobán, 1,600 m, *Türkheim* 1349a (FI, *Grolle* 1971a as *Cryptochila grandiflora*). **ZACAPA**: S. loc., 2,200–2,400 m, *Steyermark* 42657 (F, hb. Fulford, *Grolle* 1971a as *Cryptochila grandiflora*).

***HONDURAS**. ***LEMPIRA**: Gracias municipio, Montaña de Celaque, SE portion of the massif, valley of Rio Arcagual on the plateau, 14°33'26"N, 88°40'00"W, 26–27 May 1991, *Davidse* 34793, det. Whittemore (MO-4424315! <http://tropicos.org/specimen/90042976>, **this publication**); Gracias municipio, Montaña de Celaque, SE portion of the massif, valley of Rio Arcagual on the plateau, 2,400 m, 14°33'26"N, 88°40'00"W, 26–27 May 1991, *Davidse* 34794, det. Whittemore (MO-4424312! <http://tropicos.org/specimen/90042975>, **this publication**); Gracias municipio, Rio Arcagual, 14°35'N, 88°41'W, 16 Nov 1991, *Allen* 11515, det. Dauphin Jun 2017 (MO-5227635! <http://tropicos.org/specimen/90096762>, **this publication**).

COSTA RICA. S. loc. (*Gradstein* and *Holz* 2005 as *Cryptochila grandiflora*; Váňa and Engel 2013; Váňa et al. 2014c; Ellis et al. 2015a); Cordillera de Talamanca (*Holz* 2003 as *Cryptochila grandiflora*; *Holz and Gradstein* 2005b as *Cryptochila grandiflora*). **ALAJUELA**: Poás Volcano, 30 Jul 1977, *Griffin & Araya* 2, 9, 11 (USJ, FLAS, *Morales and Griffin* 1983 as *Cryptochila grandiflora*; *Morales* 1991 as *Cryptochila grandiflora*; *Dauphin* 2005 as *Cryptochila grandiflora*). **CARTAGO**: Páramo Buenavista, 3,300 m, *Dauphin* 2237 (CR, *Dauphin* 2005 as *Cryptochila grandiflora*).

PANAMA. S. loc. (*Gradstein* 1999a as *Cryptochila grandiflora*; Váňa and Engel 2013; Váňa et al. 2014c; Ellis et al. 2015a). **CHIRIQUÍ**: Barú Volcano National Park (*Rodríguez-Quiel et al.* 2022). **NASO TJËR DI COMARCA**: Parque Internacional La Amistad, Cerro Fábrega, 3,150–3,353 m, *Dauphin* 1575 (GOET, CR, PMA, U, *Stotler et al.* 1998 as *Cryptochila grandiflora*; *Dauphin* 2007 as *Cryptochila grandiflora*).

Also reported from South Tropical Africa, Southern Africa, Western Indian Ocean, Malesia, Papuasia, Australia, New

Zealand, Mexico, Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands, Antarctic Continent.

Syzygiella tonduziana Steph., *Sp. Hepat. (Stephani)* 6: 118, 1917 (Stephani 1917b). Lectotype (Inoue 1966: 190 as “type”) if not holotype: Costa Rica, Alajuela, P. N. V. Poás, 2,500 m, 1896, *Tonduz s.n., hb. Levier* 6275 (G-00042069 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=82824&lang=en>).

=*Syzygiella tonduziana* f. *setulosa* Herzog ex Carl, *Hedwigia* 71(5): 288, 1931 (Carl 1931a), syn. fide Inoue (1966). Lectotype (Söderström and Hentschel 2023: 24): Costa Rica, La Palma, prov. San José, 1,600 m, 17 Mar 1924, *Standley* 38013 (JE-04007164 <https://je.jacq.org/JE04007164>, isoelectotypes B-12171, US-00072919 <http://n2t.net/ark:/65665/3290ca1e1-3f9b-48c9-ba28-b90d80f36c50>).

=*Syzygiella tonduziana* var. *setulosa* (Herzog ex Carl) Herzog, *Rev. Bryol. Lichénol.* 11(1): 7, 1939 (Herzog 1938).

=*Syzygiella tonduziana* f. *depauperata* Herzog, *Rev. Bryol. Lichénol.* 11(1): 7, 1938 (Herzog 1938), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. fide Söderström and Hentschel (2023). Original material: Costa Rica, La Hondura, province of San José, altitude 1,300 to 1,700 m, on tree, 2–4 Mar 1924, *Standley* 36299 (JE-04007163 <https://je.jacq.org/JE04007163>).

COSTA RICA. S. loc. (Cole 1982, 1983; Nöske et al. 2003; So and Grolle 2003; Gradstein 2021; Schuster 2021; Ellis et al. 2022b); S. loc., *Gradstein* 9500 (GOET, Feldberg et al. 2010b); S. loc., *Lyon* 48 (GOET, Feldberg et al. 2010b); S. loc., *Tonduz* (Stephani 1917b; Geissler and Bischler 1990 also as *Syzygiella tonduziana* var. *setulosa*). **ALAJUELA:** Poás Volcano, *Tonduz Levier* 6275 (G, Morales 1991; Dauphin 2005); Poás Volcano, 2,500 m, *Tonduz* (Inoue 1966 as *Syzygiella tonduziana* f. *depauperata*). **SAN JOSÉ:** Moravia cantón, La Hondura, 1,300–1,700 m, *Standley* 36299 (Herzog 1938 as *Syzygiella tonduziana* f. *depauperata*); Moravia cantón, La Hondura, *Standley* 51803 (B-12171, Dauphin 2005); Moravia cantón, La Hondura, 1,200–1,500 m, *Standley* 51813 (S, B-12131, Herzog 1938 as *Syzygiella tonduziana* var. *setulosa*; Inoue 1966; Morales 1991); Moravia cantón, La Palma, 1,600 m, 17 Mar 1924, *Standley* 38013 (JE-04007164, B-12171, **TYPE** of *Syzygiella tonduziana* f. *setulosa*, Carl 1931a as *Syzygiella tonduziana* f. *setulosa*; Herzog 1938 as *Syzygiella tonduziana* var. *setulosa*; Geissler and Bischler 1990 as *Syzygiella tonduziana* f. *setulosa*).

PANAMA. **CHIRIQUÍ:** Boquete, Los Naranjos, buffer zone of Parque Internacional La Amistad (PILA) along trail of El Pianista, 8°49'07.4"N, 82°25'20"W, 1,410 m, 5 Mar 2022, det. Á. Benítez, *Arrocha* 3295 (UCH, Ellis et al. 2022b).

Also reported from Western South America.

Syzygiella trigonifolia (Steph.) Herzog, *Hedwigia* 74(2): 87, 1934 (Herzog 1934).

=*Jamesoniella trigonifolia* Steph., *Biblioth. Bot.* 21(87): 185, 1916 (Stephani 1916b). Lectotype: Bolivia.

=*Syzygiella liberata* Inoue, *Bull. Natl. Sci. Mus. Tokyo*, n.s., 17(4): 301, 1974 (Inoue 1974), syn. fide Váňa et al. (2014b). Type: Colombia.

COSTA RICA. S. loc. (Gradstein 1999a as *Syzygiella liberata*; Dauphin 2005 as *Syzygiella liberata*; Gradstein and Holz 2005 as *Syzygiella liberata*; Santos 2008 as *Syzygiella liberata*; Costa and Santos 2009 as *Syzygiella liberata*); Cordillera de Talamanca (Holz 2003 as *Syzygiella liberata*; Holz and Gradstein 2005b as *Syzygiella liberata*).

Also reported from Western South America, Brazil.

Targionia L., Sp. Pl. 1: 1136, 1753 (Linnaeus 1753).

Targionia hypophylla L., *Sp. Pl.* 1: 1136, 1753 (Linnaeus 1753).

Type: Italy?

GUATEMALA. **BAJA VERAPAZ:** S. loc., *Standley* 69741 (NY, Pérez 2009). **CHIMALTENANGO:** S. loc., *Standley* 57834 (NY, Pérez 2009). ***HUEHUETENANGO:** San Rafael Petzal municipio, ~20 km N Huehuetenango, 15°28'45.8"N, 91°31'47.7"W, 4 Apr 2007, *Laeger et al.* 3677, det. Brinda and Dauphin 2017 (MO-6160449!, **this publication**). ***QUETZALTENANGO:** Zunil, Zunil municipio, road to Fuentes Georginas, 4 km S of Zunil, NW slopes of Pico Zunil, 14°45'15.6"N, 91°28'58.4"W, 25 May 2005, *Quedensley* 493, det. Dauphin Sep 2017 (F, MO, W-0089086!, **this publication**). **SACATEPÉQUEZ:** S. loc., *Standley* 58986 (NY, Pérez 2009).

EL SALVADOR. S. loc. (Haynes et al. 1923; Bischler-Causse et al. 2005). **SAN SALVADOR:** S. loc. (*Standley and Calderón* 1925; *Svihla* 1942); near San Salvador, 1921–1922, *Standley* 19590 (US, Evans 1923b); near San Salvador, 1921–1922, *Standley* (Haupt 1942).

NICARAGUA. **ESTELÍ:** Estelí municipio, Loma Ocotezal, 13°10'N, 86°18'W, 1,260–1,300 m, 15 Nov 1979, *Stevens & Grijalva* 15688 (MO-5223960, Bischler-Causse et al. 2005).

COSTA RICA. S. loc. (Cole 1984; Arrocha et al. 2020; Ruklani and Rubasinghe 2022). **CARTAGO:** Oreamuno cantón, Irazú Volcán, Pacific side, 6 Jul 1941, *Svihla* 41–456 (*Svihla* 1942). **SAN JOSÉ:** Escazú cantón, Escazú, 4 mi W of San José, 5,000 ft (1,524 m), 18 Jul 1940, *Haupt* (Haupt 1942; Morales 1991; Dauphin 2005); Pérez Zeledón cantón, Cerro Buenavista, 9°33'–34'N, 83°41'–46'W, 20 Sep 1983, *Davidse* 24958B, det. Brinda and Dauphin Jun 2017 (MO-5223959!, **this publication**); Santa Ana cantón, El Rodeo, 26 Aug 1979, *Jovet-Ast* (PC, Bischler-Causse et al. 2005).

PANAMA. **CHIRIQUÍ:** Boquerón distrito, Parque Nacional Volcán Barú, Localidad, Finca El Aguacatal, 8°47'22.2"N, 82°34'33.6"W, 2072, 4 Aug 2014, *Arrocha* 2967 (UCH, Arrocha et al. 2020).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa, Macaronesia, West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Middle Atlantic Ocean, Western Indian Ocean, Siberia, Russian Far East, Middle Asia, Western Asia, Arabian Peninsula, China, Mongolia, Eastern Asia, Indian Subcontinent, Indo-China, Malesia(?), Papuasias, Australia, New Zealand, Southeastern Pacific, Northeastern Pacific,

Western Canada, Northwestern USA, Southwestern USA, South-Central USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

***Taxilejeunea* (Spruce) Schiffn., *Hepat.*
(Engl.-Prantl): 125, 1893 (Schiffner 1893a).**

Note: The type of *Taxilejeunea* is now a *Lejeunea* species, but several taxa have yet to be transferred.

Taxilejeunea coilantha Herzog, *Rev. Bryol. Lichénol.* 20: 159, 1951 (Herzog 1951). Lectotype (Söderström and Hentschel 2023: 24) if not holotype: Costa Rica, La Hondura, Prov. San José, 1,200–1,500 m, *Standley 51801* (JE-04002598 <https://je.jacq.org/JE04002598>).

COSTA RICA. SAN JOSÉ: Moravia cantón, La Hondura, 1,200–1,500 m, *Standley 51801* (JE-04002598 <https://je.jacq.org/JE04002598>), **TYPE**, Herzog 1951; Geissler and Bischler 1990; Morales 1991).

Not found outside Central America.

Taxilejeunea dissitifolia Steph., *Symb. Antill.* 2: 472, 1901 (Stephani 1901b). Type: Guadeloupe.

PANAMA. S. loc., 1906, *Hélion* (PC, Bischler 1966).

Also reported from the Caribbean, Western South America(?).

Taxilejeunea grandifolia Steph., *Biblioth. Bot.* 21(87): 261, 1916 (Stephani 1916b). Type: Bolivia.

COSTA RICA. †ALAJUELA: Alajuela cantón, Viento Fresco, 1,600–1,900 m, *Standley 47982* (B-26125, Herzog 1951; Morales 1991). Note: The specimen of *Taxilejeunea grandifolia* examined by Dauphin (2005, *Standley 47982*, B-26125), among those reported by Herzog (1951), contains sterile material of *Lejeunea lancifolia*. **GUANACASTE:** Tilarán cantón, La Tejona, N of Tilarán, 600–700 m, *Standley 45926* (Herzog 1951; Morales 1991). **SAN JOSÉ:** Dota cantón, Santa María, 1,500–1,800 m, *Standley 43239* (US, Herzog 1951; Morales 1991; Kappelle 1996).

Also reported from Western South America.

Taxilejeunea herzogiana Steph., *Biblioth. Bot.* 21(87): 262, 1916 (Stephani 1951), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Bolivia.

COSTA RICA. CARTAGO: Moravia cantón, La Hondura, 1,200–1,500 m, *Standley 47128a* (Herzog 1951). **SAN JOSÉ:** Moravia cantón, Bajo de La Hondura, *Standley 51842* (US, Morales 1991); Moravia cantón, La Hondura, 1,200–1,500 m, *Standley 51842 p.p.* (JE, Herzog 1951); Moravia cantón, La Hondura, *Standley 57128a* (Morales 1991).

Also reported from Western South America.

Taxilejeunea jamaicensis A.Evans, *Bull. Torrey Bot. Club* 48(4): 117, 1921 (Evans 1921b). Type: Jamaica.

BELIZE. S. loc. (Fulford 1938; Whittimore and Allen 1996). Also reported from the Caribbean.

Taxilejeunea maxima Steph., *Sp. Hepat. (Stephani)* 5: 473, 1914 (Stephani 1914). Lectotype (Söderström et al. 2023a: 155) if not holotype: Guatemala, Alta Verapaz, near Cobán, 1,600 m, Mar 1908, *Türckheim* (G-00047593 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=146432&lang=en>).

GUATEMALA. ALTA VERAPAZ: Cobán, 1,600 m, Mar 1908, *Türckheim* (G-00047593 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=146432&lang=en>), **TYPE**, Stephani 1914). Not found outside Central America.

Taxilejeunea mucronata Steph., *Sp. Hepat. (Stephani)* 5: 473, 1914 (Stephani 1914). Lectotype (Söderström et al. 2023a: 155) if not holotype: Guatemala, s. loc., *Türckheim*, hb. *Levier 5072* (G-00113327 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=147592&lang=en>).

GUATEMALA. S. loc., *Türckheim* hb. *Levier 5072* (G-00113327, **TYPE**, Stephani 1914).

Not found outside Central America.

Taxilejeunea parvibracteata Steph., *Hedwigia* 35: 136, 1896 (Stephani 1914). Lectotype (Söderström et al. 2023a: 155): Costa Rica, Cartago, Turrialba, Río Naranjo, 200–250 m, 1893, *Tonduz*, hb. Vetter 3077/F (G-00124029 <https://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=147571&lang=en>, G-00124030 <https://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=147580&lang=en>, G-00124031 <https://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=147577&lang=en>).

COSTA RICA. S. loc. (Stephani 1914; Fulford and Sharp 1990). **CARTAGO:** Jiménez cantón, Río Naranjo, 200–250 m, 1893, *Tonduz*, hb. Vetter 3077f (G-00124029, G-00124030, G-00124031, **TYPE**, Stephani 1896; Geissler and Bischler 1990; Lee et al. 2018).

Also reported from Mexico.

Taxilejeunea planilobula Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 160, 1951 (Herzog 1951). Lectotype (Söderström and Hentschel 2023: 24) if not holotype: Costa Rica, El Muñeco, S of Navarro, Prov. Cartago, ~1,400 m, *Standley 33470 p.p.* (JE-04002558 <https://je.jacq.org/JE04002558>).

COSTA RICA. CARTAGO: Cartago cantón, El Muñeco, S of Navarro, ~1,400 m, *Standley 33470 p.p.* (JE-04002558 <https://je.jacq.org/JE04002558>), **TYPE**, Herzog 1951; Geissler and Bischler 1990; Morales 1991).

Not found outside Central America.

Taxilejeunea surinamensis (Lindenb. et Gottsche) Steph., *Hedwigia* 29(3): 142, 1890 (Stephani 1890a).

≡ *Omphalanthus surinamensis* Lindenb. et Gottsche, *Linnaea* 24(6): 628, 1851 (Lindenberg and Gottsche 1851). Type: Surinam.

COSTA RICA. LIMÓN: Pococí cantón, Braulio Carrillo National Park, Botarrama trail, 480 m, *Lücking 92-139* (Dauphin 2005); Pococí cantón, Braulio Carrillo National Park,

Botarrama trail, 480 m, Mar 1991–Jun 1992, *Lücking* 91-139 (hb. *Lücking*, USJ, *Lücking* 1995; *Dauphin et al.* 1998); *Lücking* 92-226, 92-447, 92-448 (hb. *Lücking*, *Lücking* 1995); Pococí cantón, Braulio Carrillo National Park, Botarrama trail, valley of the Río Sucio, 480 m, 1995, *Lücking* (*Lücking* 1997).

Also reported from the Caribbean, Northern South America.

Taxilejeunea umbonata Steph., *Sp. Hepat. (Stephani)* 5: 481, 1914 (Stephani 1914). Lectotype (Söderström et al. 2023a: 156) if not holotype: Guatemala, Alta Verapaz, in silva primaeva prope Cobán, 1,600 m, Mar 1908, *Türkheim*, Bryotheca Levier 5827 (G-00047596 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=146435&lang=en>).

GUATEMALA. ALTA VERAPAZ: Cobán, 1,600 m, Mar 1908, *Türkheim*, Bryotheca Levier 5827 (G-00047596 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=146435&lang=en>, *Stephani* 1914, TYPE).

Not found outside Central America.

***Telaranea Spruce ex Schiffn., Hepat.*
(Engl.-Prantl): 103, 1893 (Schiffner 1893a).**

Telaranea apiahyna (Steph.) Fulford, *Brittonia* 15(1): 71, 1963 (Fulford 1963b).

≡ *Lepidozia apiahyna* Steph., *Sp. Hepat. (Stephani)* 3: 572, 1909 (Stephani 1909b). Type: Brazil.

COSTA RICA. CARTAGO: Paraíso cantón, NW of Cerro La Asunción, 3,130 m, *Engel* 8444 (F, *Engel and Smith Merrill* 2004).

Also reported from Northern South America, Western South America, Brazil.

Telaranea diacantha (Mont.) J.J.Engel et G.L.Merr., *Fieldiana, Bot.*, n.s., 44: 145, 2004 (Engel and Smith Merrill 2004).

≡ *Jungermannia diacantha* Mont., *Ann. Sci. Nat. Bot.*, sér. 4, 5: 349, 1856 (Montagne 1856a). Type: Peru.

≡ *Arachniopsis diacantha* (Mont.) M.Howe, *Bull. Torrey Bot. Club* 29(5): 288, 1902 (Howe 1902).

GUATEMALA. ALTA VERAPAZ: Tucurú municipio, Chelémhá, 15°22'32"N, 90°05'05"W, *Pérez* 217 (USCG, *Pérez* 2006 as *Arachniopsis diacantha*, 2009 as *Arachniopsis diacantha*). BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 1, 39, 40, 145, etc. (USCG, *Freire et al.* 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al.* 2005 as *Arachniopsis diacantha*). EL PROGRESO: San Agustín Acasaguastlán municipio, Caserío Albores del Carmen, Sierra de Las Minas, 15°03'30"N, 89°57'50"W, 1,380 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007 as *Arachniopsis diacantha*). ZACAPA: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007 as *Arachniopsis diacantha*).

COSTA RICA. S. loc. (Gradstein et al. 2001b as *Arachniopsis diacantha*). CARTAGO: Paraíso cantón, Tapanti National

Park, 24 Apr 1983, *Herrera*, det. Morales (USJ, Morales 1991 as *Arachniopsis diacantha*). GUANACASTE: Liberia cantón, Rincón de la Vieja National Park, Sector Santa María, Dos Ríos, *Dauphin* 2333 (CR, *Dauphin* 2005 as *Arachniopsis diacantha*). HEREDIA: Sarapiquí cantón, at confluence of Río Sarapiquí and Río Puerto Viejo, *Grayum* 9640.1 (CR, *Dauphin* 2005 as *Arachniopsis diacantha*). PUNTARENAS: Coto Brus cantón, Fila Cruces, Cerro Paraguas, *Dauphin* 1752 (CR, *Dauphin* 2005 as *Arachniopsis diacantha*); Osa cantón, Rincón, trail Boscosa–Cerro Chocuaco, 450 m, *Gradstein & Dauphin* 9320a (U, USJ, *Gradstein et al.* 1994 as *Arachniopsis diacantha*; *Dauphin* 2005 as *Arachniopsis diacantha*).

PANAMA. CHIRIQUÍ: Barú Volcano National Park (*Rodríguez-Quiel et al.* 2022). COCLÉ: La Pintada distrito, Corregimiento El Copé, Parque Nacional G. D. Omar Torrijos H., Sendero La Rana Dorada, 8°40'06"N, 80°35'26"W, 710 m, 1 Aug 2012, *Dauphin & Salazar Allen* 4518 p.p. (PMA, *Dauphin et al.* 2015).

COCOS I. S. loc., 250 m, 14 Feb 1994, *Dauphin* A-5 (USJ, *Dauphin* 1995, 1999, both as *Arachniopsis diacantha*); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 15 Feb 1994, *Dauphin* 960 p. p (USJ, *Dauphin* 1995, 1999, 2005, all as *Arachniopsis diacantha*); Mirador a Bahía Wafer, 5°32'57"N, 87°03'56"W, 250 m, *Dauphin* A-5/10, det. G. Dauphin Feb 2021 (USJ-47178!, CR-4468324!, W!, this publication); Mirador a Bahía Wafer, 5°32'57"N, 87°03'56"W, 250 m, *Dauphin* A-7 sp. 10, det. G. Dauphin Mar 2021 (USJ-47178!, CR!, this publication); Mirador a Bahía Wafer, 5°32'57"N, 87°03'56"W, 250 m, 15 Feb 1995, *Dauphin* A-5/10 (USJ, *Gradstein et al.* 1994 as *Arachniopsis diacantha*; *Dauphin* 1995, 2005, both as *Arachniopsis diacantha*).

Also reported from West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, the Caribbean, Northern South America, Western South America, Brazil.

Telaranea nematodes (Gottsche ex Austin) M.Howe, *Bull. Torrey Bot. Club* 29(5): 284, 1902 (Howe 1902).

≡ *Cephalozia nematodes* Gottsche ex Austin, *Bull. Torrey Bot. Club* 6(52): 302, 1879 (Austin 1879). Type: Cuba.

GUATEMALA. S. loc. (Fulford 1987; Fulford and Sharp 1990; Schäfer-Verwimp and Pócs 2009; Cañiza et al. 2017; Lavocat Bernard 2018). ALTA VERAPAZ: Panzós municipio, Cahabón and/or Senahú, 2012, *Pérez & López-Medina*, det. M. Pérez (*Pérez and López-Medina* 2012); Tucurú, *Pérez* 80 (USCG, *Pérez* 2006, 2009). BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 81, 136, 141, 143, 169, 196, 209, 249 (USCG, *Freire et al.* 2013); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al.* 2005). CHIQUIMULA: Jocotán municipio, Cerro Tixixi (Tishishi), 3–5 mi (4.8–8 km) N Jocotán, 500–1,500 m, *Steyermark* 31629 (F, *Engel and Smith Merrill* 2004). HUEHUETENANGO: S. loc., *Pérez* 1194 (USCG, *Pérez* 2009). QUETZALTENANGO: Zunil municipio, Fuentes

Georginas, W slope of Volcán de Zunil, Quezaltenango, ~2,850 m, *Standley 67425* (DUKE, Engel and Smith Merrill 2004). QUICHÉ: S. loc., Pérez 2339 (USCG, Pérez 2009).

BELIZE. TOLEDO: S. loc., Dec 1993, *Allen 15304B* (BRH, MO, Whittemore and Allen 1996); S. loc., Dec 1993, *Allen 15348, 15365* (BRH, MO, Whittemore and Allen 1996).

HONDURAS. S. loc. (Fulford 1987; Fulford and Sharp 1990; Schäfer-Verwimp and Pócs 2009; Cañiza et al. 2017; Lavocat Bernard 2018). EL PARAÍSO: El Paraíso municipio, region of Agua Amarilla, above El Zamorano, 900–1,100 m, *Standley et al. 5115* (F, Engel and Smith Merrill 2004).

COSTA RICA. S. loc. (Fulford 1987; Fulford and Sharp 1990; Gradstein 1999a; Dauphin 2005; Gradstein and Holz 2005; Lavocat Bernard 2018); Cordillera de Talamanca (**Holz and Gradstein 2005b**; Holz 2006). ALAJUELA: San Ramón cantón, La Balsa, 10°11'N, 84°30'W, *Stevens 13722* (CR, Dauphin 2005). GUANACASTE: Liberia cantón, Guanacaste National Park, Sector Pitilla, *Dauphin 1904* (CR, Dauphin 2005); Liberia cantón, Guanacaste National Park, Sector Volcán Cacao, 10°55'43"N, 85°28'10"W, *Dauphin 2471* (CR, Dauphin 2005). HEREDIA: Barva cantón, Braulio Carrillo National Park, Sector Volcán Barva, *Morales 1958* (Morales 1991; Dauphin 2005); Sarapiquí cantón, El Plástico, *Dauphin 2176* (CR, Dauphin 2005). PUNTARENAS: S. loc. (Merwin et al. 2001); Coto Brus cantón, Fila Cruces, *Dauphin 1721* (CR, Dauphin 2005); Monteverde, <1,500 m (Dauphin 2005); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a); Monteverde cantón, west-facing slope of the Cordillera de Tilarán, adjacent to the Monteverde Cloud Forest Reserve, 10°18'N, 84°48'W, 1,545–1,560 m, 1990, *Gradstein et al.* (U, Sillett et al. 1995). SAN JOSÉ: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, *Holz* (Holz 2003); Dota cantón, south of El Empalme, *Little 5643* (FULF, hb. Little, Morales 1991; Kappelle 1996; Dauphin 2005); Los Santos Forest Reserve, ~2,900 m, Holz and Gradstein 2005a); S de San José, *Little 5511* (hb. Little, Morales 1991; Dauphin 2005).

PANAMA. S. loc. (Gradstein 1999a; Lavocat Bernard 2018). CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, Quebrada Bonita, 920–1,150 m (**Salazar Allen et al. 2021**); Gualaca distrito, Hornito, Fortuna, *Gradstein 9775b* (GOET, Stotler et al. 1998); Gualaca distrito, Hornito, Fortuna, *Stotler & Crandall-Stotler 3499* (ABSH, Stotler et al. 1998); Barú Volcano National Park (**Rodríguez-Quiel et al. 2022**). DARIÉN: Cerro Pirre (Stotler et al. 1998); Cerro Pirre, above Rancho Mojado, 800–1,150 m, *Salazar Allen & Gradstein 9270, 9271* (PMA, Stotler et al. 1998); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992); Cerro Pirre, summit, 1,100–1,200 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, Gradstein and Salazar Allen 1992); Summit of Pirre Massif, 1,200–1,350 m, *Allen 8851B* (MO, Stotler et al. 1998). NASO TÍJER DI COMARCA: Cerro Fábrega, *De Gracia 298* (PMA,

Dauphin 2007). **PANAMA**: Panamá distrito, Altos de Cerro Azul, Sendero El Cantar, *Stotler & Crandall-Stotler 3501* (ABSH, Stotler et al. 1998). **VERAGUAS**: Santa Fe distrito, N of Santa Fe, *Mori & Kallunki 2644* (MO, Stotler et al. 1998).

Also reported from West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

***Temnoma* Mitt., *Handb. N. Zeal. fl.* 2: 750, 1867 (Hooker 1867).**

Temnoma chaetophyllum R.M.Schust., *Phytologia* 39(4): 239, 1978 (Schuster 1978a). Type: Venezuela.

COSTA RICA. ALAJUELA: San Ramón cantón, Nectandra Cloud Forest, Quebrada Verde, 23 Mar 2010, *Fenton* (UC-2053637, Norris et al. 2017).

Also reported from Northern South America, Western South America.

***Thysananthus* Lindenb., *Nov. Stirp. Pug.* 8: 24, 1844 (Lindenberg 1844).**

Thysananthus amazonicus (Spruce) Schiffn. *Hepat. (Engl.-Prantl)*: 130, 1893 (Schiffner 1893a).

≡ *Lejeunea amazonica* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15(1): 106, 1884 (Spruce 1884). Type: Brazil.

COSTA RICA. S. loc. (Stephani 1912b; Gradstein et al. 2001b; Gradstein and Costa 2003; Zartman and Ilkiu-Borges 2007; Gradstein and Uribe 2016; Costa et al. 2017, 2020; Gradstein 2021). LIMÓN: Pococí cantón, Cuatro Esquinas de San Juan, 40 m, *Dauphin et al. 1670* (CR, Dauphin et al. 1998; Dauphin 2005); Pococí cantón, Tortuguero National Park, north slope of Cerro Coronel, 0 m, *Cleef & Kappelle* (USJ, GOET, Dauphin et al. 1998; Dauphin 2005; Sukkharak 2011, 2015); Pococí cantón, Tortuguero, 10°31'N, 83°32'W, *Timme 11158* (GOET, Sukkharak 2011, 2015); Pococí cantón, Tortuguero, 10°31'N, 83°32'W, 2 Aug 1993, *Timme 11159*, det. Dauphin Jun 2017 (MO-6690026!, this publication).

PANAMA. S. loc. (Gradstein 2021). COCLÉ: La Pintada distrito, Corregimiento El Copé, Parque Nacional G. D. Omar Torrijos H., Sendero La Rana Dorada, 8°40'06"N, 80°35'26"W, 710 m, 1 Aug 2012, *Dauphin & Salazar Allen 4524 p.p.* (PMA, Dauphin et al. 2015).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Thysananthus auriculatus (Wilson et Hook.) Sukkharak et Gradst., *Phytotaxa* 326(2): 102, 2017 (Sukkharak and Gradstein 2017) var. *auriculatus*.

≡ *Jungermannia auriculata* Wilson et Hook., *Musci Amer., S. States*: no. 170, 1841 (Wilson 1841; non vidi). Type: USA.

≡ *Mastigolejeunea auriculata* (Wilson et Hook.) Steph., *Bot. Gaz.* 17(6): 171, 1892 (Stephani 1892).

=*Lejeunea versicolor* Mitt., *Bot. Voy. Herald (Fl. Isthmus Panama)*: 246, 1854 (Mitten 1854b), nom. inval. (ICN2018 Art. 38.1(a); no description), syn. in Spruce (1844). Type: USA.

=*Phragmicoma salvadorica* Ångstr., Öfers. Förh. Kongl. Svenska Vetensk.-Akad. 33(7): 83, 1876 (Ångström 1876), syn. fide Geissler and Gradstein (1994). Lectotype (Geissler and Gradstein 1994: 206): “San Salvador, Honduras, Dr. Hjalmarsson, S” (S-B53950 <https://herbarium.nrm.se/specimens/B53950>).

=*Mastigolejeunea crispula* Steph., *Hedwigia* 27(3/4): 111, 1888 (Stephani 1888d), nom. inval. (ICN2018 Art. 35.1; genus not valid), syn. fide Gradstein and Inoue (1980). Type: Nigeria.

=*Mastigolejeunea crispula* Steph. ex A.Evans, *Bull. Torrey Bot. Club* 34(11): 550, 1907 (Evans 1907b).

=*Mastigolejeunea pittieri* Steph., *Sp. Hepat.* 4: 766, 1912 (Stephani 1912b), syn. fide Gradstein (1994). Lectotype (Gradstein 1994: 77 as “holotype”) or possibly holotype: Costa Rica, Boruca, 27 Feb 1891, *Pittier & Durand* 6070 (G-00067066 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=113289&lang=en>).

=*Mastigolejeunea innovans* (Spruce) Steph. var. *parciflora* Herzog., *Rev. Bryol. Lichénol.* 20(1/2): 132, 1951 (Herzog 1951), syn. fide Gradstein (1994). Lectotype (Gradstein 1994: 77 as “holotype”): Honduras, Atlántida, Lancetilla Valley, near Tela, *Standley* 55342 p.p. (JE-04001656 <https://je.jacq.org/JE04001656>). Note: The specimen in Jena is marked as “var. *latistipula*,” but it is almost certain that it was the base for Herzog’s name (he may have changed the epithet before publishing it without indicating it on the specimen).

GUATEMALA. S. loc. (Bastos 2004 as *Mastigolejeunea auriculata*). **ALTA VERAPAZ:** Panzós municipio, Cahabón and/or Senahú, 2012, *Pérez & López-Medina*, det. M. Pérez (*Pérez and López-Medina* 2012 as *Mastigolejeunea auriculata*); Santa María Cahabón municipio, Secanquim, *Maxon & Hay* 3205 (US, *Gradstein* 1994 as *Mastigolejeunea auriculata*; *Freire* 2006 as *Mastigolejeunea auriculata*; *Pérez* 2009 as *Mastigolejeunea auriculata*). **EL PETÉN:** Flores Municipio, Dos Lagunas, *Can et al.* (USCG, *Morales* 2011 as *Mastigolejeunea auriculata*); Flores municipio, SW side of Laguna Yaxhá, Reserva Privada Yaxhá, 17°03.295’N, 89°23.236’W, 25 Jan 2006, *Quedensley* 4226, det. Dauphin Sep 2017 (MO, W-0089058! in packet of *Cheilolejeunea clausa*, **this publication**); San Andres municipio, Estación Biológica Las Guacamayas, Laguna del Tigre, *Can et al.* (USCG, *Morales* 2011 as *Mastigolejeunea auriculata*); San José municipio, Cerro Cahuí, *Can et al.* (USCG, *Morales* 2011 as *Mastigolejeunea auriculata*); San José municipio, El Zotz, *Can et al.* (USCG, *Morales* 2011 as *Mastigolejeunea auriculata*).

BELIZE. S. loc. (*Fulford* 1938 as *Mastigolejeunea auriculata*; *Frye and Clark* 1947 as *Mastigolejeunea auriculata*; *Schuster* 1980d as *Mastigolejeunea auriculata*; *Fulford and Sharp* 1990 as *Mastigolejeunea auriculata*; *Whittemore and Allen* 1996 as *Mastigolejeunea auriculata*; *Bastos* 2004 as *Mastigolejeunea auriculata*). **TOLEDO:** S. loc. (*Whittemore and Allen* 1996 as *Mastigolejeunea auriculata*); Wild Cane Cay, *Robertson* (NY, U, *Gradstein* 1994 as *Mastigolejeunea auriculata*).

HONDURAS. S. loc. (Ångström 1876 as *Phragmicoma salvadorica*; *Bastos* 2004 as *Mastigolejeunea auriculata*). **ATLÁN-TIDA:** Tela municipio, La Fragua, 20 m, *Standley* 55751 (NY,

Herzog 1951 as *Mastigolejeunea auriculata*; *Gradstein* 1994 as *Mastigolejeunea auriculata*); Tela municipio, Lancetilla Valley, 20–600 m, *Standley* 55342 p.p. (JE-04001656 <https://je.jacq.org/JE04001656>, **TYPE** of *Mastigolejeunea innovans* var. *parciflora*, *Herzog* 1951 as *Mastigolejeunea innovans* var. *parciflora*; *Geissler and Bischler* 1985 as *Mastigolejeunea innovans* var. *parciflora*). ***COPÁN:** Copán municipio, Copán ruins, 25 Jun 1992, *D’Arcy* 18154, det. Dauphin May 2017 (MO-5280470!, **this publication**).

EL SALVADOR. S. loc. (Ångström 1876 as *Phragmicoma salvadorica*; *Geissler and Bischler* 1989 as *Phragmicoma salvadorica*). **SAN SALVADOR:** S. loc., *Hjalmarsson* (S-B53950 <https://herbarium.nrm.se/specimens/B53950>, **TYPE** of *Phragmicoma salvadorica*, *Geissler and Gradstein* 1994 as *Phragmicoma salvadorica*).

NICARAGUA. S. loc. (*Bastos* 2004 as *Mastigolejeunea auriculata*). **ATLÁNTICO SUR:** El Rama municipio, El Recreo 15 W of Rama, *Danin* 2-G (MO, U, *Gradstein* 1994 as *Mastigolejeunea auriculata*); Paiwas municipio, 4.3 km S of Wilikon along road to Rio Blanco, 13°03’13”N, 85°05’39”W, *Stevens & Montiel* 30592, det. Dauphin May 2017 (MO-6239580!, **this publication**).

COSTA RICA. S. loc. (Evans 1907b as *Mastigolejeunea crispula*; *Robinson* 1967 as *Mastigolejeunea pittieri*; *Schuster* 1980d as *Mastigolejeunea auriculata*; *Fulford and Sharp* 1990 as *Mastigolejeunea auriculata*; *Bastos* 2004 as *Mastigolejeunea auriculata*; S. loc., 1967, *Robinson* (*Morales* 1991 as *Mastigolejeunea pittieri*). **PUNTARENAS:** S. loc. (*Gradstein* 1994 as *Mastigolejeunea auriculata*); Buenos Aires cantón, Boruca (*Geissler and Bischler* 1985 as *Mastigolejeunea pittieri*; *Tonduz* 1895a as *Mastigolejeunea crispula*; *Dauphin* 2005 as *Mastigolejeunea auriculata*); Buenos Aires cantón, Boruca, *Pittier* 6070 (*Stephani* 1893c as *Mastigolejeunea crispula*; *Morales* 1991 as *Mastigolejeunea crispula*); Buenos Aires cantón, Boruca, 27 Feb 1891, *Pittier & Durand* 6070 (G-00067066 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=113289&lang=en>, **TYPE** of *Mastigolejeunea pittieri*, *Stephani* 1912b as *Mastigolejeunea pittieri*); Osa cantón, Osa Peninsula, Rincón, Centro Boscosa, 150 m, Oct 1993, *Gradstein* (*Gradstein* 1999b as *Mastigolejeunea auriculata*).

PANAMA. S. loc. (Mitten 1854b as *Lejeunea versicolor*; *Stotler et al.* 1998 as *Mastigolejeunea auriculata*; *Bastos* 2004 as *Mastigolejeunea auriculata*); Canal Zone (Schäfer-Verwimp 2014 as *Mastigolejeunea auriculata*). **CHIRIQUÍ:** S. loc. (Schäfer-Verwimp 2014 as *Mastigolejeunea auriculata*); Gualaca distrito, Fortuna Forest Reserve, NE of camping site, 900–1,200 m (*Salazar Allen et al.* 2021); Gualaca distrito, Hornito, Fortuna, 1,000–1,200 m, *Salazar Allen* 709 (PMA, *Stotler et al.* 1998 as *Mastigolejeunea auriculata*); Tierras Altas distrito, Volcán, 9 Aug 1950, *Chickering* (MICH, *Crum and Arzeni* 1953 as *Mastigolejeunea auriculata*; *Stotler et al.* 1998 as *Mastigolejeunea auriculata*). **COCLÉ:** Antón distrito, El Valle de Antón, Golden Frog Inn and near surroundings, 8°36.6’N, 80°06.6’W, 640–650 m, 7 Apr 2006, *Schäfer-Verwimp & Verwimp* 31061 (JE, *Schäfer-Verwimp* 2014 as *Mastigolejeunea auriculata*). **DARIÉN:** S. loc. (Schäfer-Verwimp 2014 as *Mastigolejeunea auriculata*); Cerro Pirre (*Stotler et al.* 1998 as *Mastigolejeunea auriculata*); Cerro

Pirre, Trail El Real–Pirre, along Río Pirre, ~50 m, 4–8 Jun 1991, *Gradstein & Salazar Allen* (PMA, U, *Gradstein and Salazar Allen 1992* as *Mastigolejeunea auriculata*); Pinogana distrito, ~20 km SSW of Boca de Cupé, 200–700 m, *Allen 8721, 8722* (MO, *Stotler et al. 1998* as *Mastigolejeunea auriculata*); trail El Real to Pirre, *Salazar Allen & Gradstein 9216* (PMA, U, *Gradstein 1994* as *Mastigolejeunea auriculata*; *Stotler et al. 1998* as *Mastigolejeunea auriculata*). PANAMA WEST: La Chorrera distrito, Barro Colorado Island, *Gradstein & Salazar Allen 15096* (*Dauphin et al. 2022*); La Chorrera distrito, Barro Colorado Island, Basilisk Bay, 2003, *Dauphin 3160* (CR, PMA, *Dauphin et al. 2022*); La Chorrera distrito, Barro Colorado Island, behind laboratory, *Salazar Allen & Chung 4725* (PMA, *Stotler et al. 1998* as *Mastigolejeunea auriculata*; *Dauphin et al. 2022*); La Chorrera distrito, Barro Colorado, Lathrop, 2003, *Dauphin 3096* (CR, PMA, *Dauphin et al. 2022*); La Chorrera distrito, Barro Colorado, Zetek, 2003, *Dauphin 3116* (CR, PMA, *Dauphin et al. 2022*). PANAMA: S. loc. (Schäfer-Verwimp 2014 as *Mastigolejeunea auriculata*); Panamá distrito, Summit Garden, *Salazar Allen & Gradstein 9497* (PMA, U, *Gradstein 1994* as *Mastigolejeunea auriculata*; *Stotler et al. 1998* as *Mastigolejeunea auriculata*).

Also reported from West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Western Indian Ocean, Indian Subcontinent, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

***Triandrophyllum* Fulford et Hatcher, *Bryologist* 64(4): 349, 1961 (Fulford and Hatcher 1961).**

Triandrophyllum subtrifidum (Hook.f. et Taylor) Fulford et Hatcher, *Bryologist* 64(4): 350, 1961 (Fulford and Hatcher 1961) var. *subtrifidum*.

≡ *Jungermannia subtrifida* Hook.f. et Taylor, *London J. Bot.* 3: 579, 1844 (Hooker and Taylor 1844b). Type: Tasmania.

= *Isotachis ripensis* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 339, 1885 (Spruce 1885), syn. fide Hässel and Solari (1975). Type: Ecuador.

GUATEMALA. S. loc. (Fulford and Hatcher 1961; Grolle 1969a, 1972d; Hässel and Solari 1975, 1985; Engel 1978, 1990; Schäfer-Verwimp and Vital 1989; Fulford and Sharp 1990; León et al. 1998; Váña and Engel 2013). SAN MARCOS: 10 mi (16 km) S of San Marcos, en camino a San Rafael, 2,100 m, 13 Jul 1977, *Croat 41022*, det. Whittemore (USCG, MOBOT, Freire 2006); Sibinal municipio, Tacaná Volcán, *Steyermark 32451* (hb. Fulford, *Crandall 1969*); Sibinal municipio, Tacaná Volcán, *Steyermark 36008* (F, *Fulford 1963a*; *Freire 2006*; *Pérez 2009*); Sibinal municipio, Tacaná Volcán, *Steyermark 36451* (F, *Fulford 1963a*; *Freire 2006*).

COSTA RICA. S. loc. (Cole 1982, 1983; Fulford and Hatcher 1961; Hässel and Solari 1975, 1985; Schäfer-Verwimp and Vital 1989; Fulford and Sharp 1990; León et al. 1998; Gradstein 1999a; Dauphin 2005; Gradstein and Holz 2005; Váña and Engel 2013); Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b). ALAJUELA: Poás Volcano, 31 Jul 1977, *Griffin & Araya 57*, det. Váña (USJ, FLAS, Morales and Griffin 1983;

Morales 1991; Dauphin 2005). CARTAGO: Turrialba cantón, Volcán Turrialba, S slope near the Finca, 2,000–2,400 m, 1924, *Standley 35279* (JE-04004922 <https://je.jacq.org/JE04004922>, US-00289478, *Fulford 1963a*). LIMÓN: Chirripó National Park, Laguna Roja, *Quesada 1255* (CR, *Dauphin 2005*). SAN JOSÉ: Vásquez de Coronado cantón, Las Nubes, 1,500–1,900 m, *Standley 38361* (US, *Herzog 1938* as *Isotachis ripensis*; *Fulford 1963a*; *Morales 1991*; *Dauphin 2005*).

PANAMA. S. loc. (León et al. 1998; Gradstein 1999a; Váña and Engel 2013). NASO TJËR DI COMARCA: Parque Internacional La Amistad, Cerro Fábrega, 3,150–3,353 m, *Dauphin 1582* (GOET, CR, PMA, U, *Stotler et al. 1998*; *Dauphin 2007*).

Also reported from Malesia, Australia, New Zealand, Mexico, Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands.

Triandrophyllum subtrifidum var. *trifidum* (Gottsche) Solari, *Bol. Soc. Argent. Bot.* 15(2/3): 201, 1973 (Solari 1973).

≡ *Sendtnera trifida* Gottsche, *Ann. Sci. Nat. Bot.*, sér. 5, 1: 142, 1864 (Gottsche 1864). Type: Colombia.

≡ *Triandrophyllum trifidum* (Gottsche) Fulford et Hatcher, *Bryologist* 64(4): 348, 1961 (Fulford and Hatcher 1961).

= *Isotachis ripensis* Spruce var. *armata* Herzog, *Rev. Bryol. Lichénol.* 11(1/2): 38, 1939 (Herzog 1938), syn. fide Grolle (1964e). Lectotype (Grolle 1964e: 240): Costa Rica, Volcán de Turrialba, 2,000–2,400 m, on tree, 1924, *Standley 35279* (JE-04004922 <https://je.jacq.org/JE04004922>, isoelectotype US-00289478 <http://n2t.net/ark:/65665/3ed61fec0-b1ee-4e11-9dc2-448452c121a4>).

?GUATEMALA. S. loc. (Gradstein et al. 1977). Note: We are not aware of any firsthand report from Guatemala.

COSTA RICA. S. loc. (Gradstein et al. 1977; Grolle 1969a as *Triandrophyllum trifidum*). CARTAGO: Turrialba cantón, Volcán Turrialba, S slope near the Finca, 2,000–2,400 m, 1924, *Standley 35279* (JE-04004922 <https://je.jacq.org/JE04004922>, US-00289478, TYPE of *Isotachis ripensis* var. *armata*, *Herzog 1938* as *Isotachis ripensis* var. *armata*; *Grolle 1964e* as *Triandrophyllum trifidum*; *Bonner 1966* as *Isotachis ripensis* var. *armata*; *Engel 1978*; *Morales 1991*; *Dauphin 2005* as *Triandrophyllum trifidum*).

Also reported from Western South America, Brazil, Southern South America.

***Trichocolea* Dumort., *Commentat. Bot. (Dumortier)*: 113, 1822 (Dumortier 1822).**

Trichocolea filicaulis Steph., *Sp. Hepat. (Stephani)* 4: 59, 1909 (Stephani 1909a). Type: Guadeloupe, Dominica.

GUATEMALA. S. loc. (Fulford 1987; Schuster 2000c as *Trichocolea filicaulis* var. *filicaulis*; Schäfer-Verwimp and Pócs 2009; Katagiri 2013; Lavocat Bernard 2018). BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). QUICHÉ: Nebaj, *Sharp 2514* (TENN, *Fulford 1963a*; *Freire 2006*; *Pérez 2009*).

*NICARAGUA. *GRANADA: Granada municipio, Volcán Mombacho, 10–1,222 m, 8 Jun 1981, *Heinrichs & Moreno 186*

p.p., det. Dauphin May 2017 (MO-6699906! <http://tropicos.org/specimen/100988674>, **this publication**).

COSTA RICA. S. loc. (Katagiri 2013; Lavocat Bernard 2018). **ALAJUELA:** San Ramón cantón, Nectandra Cloud Forest, Quebrada Verde, *Norris 110000* (UC, *Norris et al. 2017*); San Ramón cantón, Nectandra Cloud Forest, Quebrada Verde, *Norris 110081* (UC, *Norris et al. 2017*). **PUNTARENAS:** Coto Brus cantón, Santa María de Pittier, *Dauphin 1532* (CR, *Dauphin 2005*). **SAN JOSÉ:** Rancho Redondo, Cañon del Río Tiribí, *Stiles & Morales 2169*, det. Morales (*Morales 1991*); Vásquez de Coronado cantón, Rancho Redondo, Río Tiribí, 2,040–2,300 m, *Morales 2169* (*Dauphin 2005*).

PANAMA. **COCLÉ:** La Pintada distrito, Corregimiento El Copé, Parque Nacional G. D. Omar Torrijos H., Sendero La Rana Dorada, 8°40'06"N, 80°35'26"W, 696 m, 31 Jul 2017, *Dauphin & Gudiño 4446* (PMA, *Dauphin et al. 2015*).

Also reported from Papuasia, the Caribbean, Northern South America, Western South America, Southern South America.

Verdoornianthus Gradst., Bryologist 80(4): 607, 1977 (Gradstein 1977).

Verdoornianthus marsupiiifolius (Spruce) Gradst., *Bryologist* 80(4): 609, 1977 (Gradstein 1977).

≡ *Lejeunea marsupiiifolia* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 118, 1884 (Spruce 1884). Type: Brazil.

GUATEMALA. **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez 2007*).

Also reported from Northern South America, Western South America, Brazil.

Xylolejeunea Xiao L.He et Grolle, Ann. Bot. Fenn. 38(1): 27, 2001 (He and Grolle 2001).

Xylolejeunea aquarius (Spruce) X.L.He et Grolle, *Ann. Bot. Fenn.* 38(1): 29, 2001 (He and Grolle 2001).

≡ *Lejeunea aquarius* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15(1): 185, 1884 (Spruce 1884). Type: Venezuela.

≡ *Trachylejeunea aquarius* (Spruce) A.Evans, *Bull. Torrey Bot. Club* 30(10): 561, 1903 (Evans 1903c).

GUATEMALA. **BAJA VERAPAZ:** Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (*Freire et al. 2005* as *Trachylejeunea 'aquaris'*).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

Xylolejeunea crenata (Nees et Mont.) Xiao L.He et Grolle, *Ann. Bot. Fenn.* 38(1): 36, 2001 (He and Grolle 2001).

≡ *Lejeunea crenata* Nees et Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 9: 48, 1838 (Montagne 1838). Type: French Guiana.

GUATEMALA. **ZACAPA:** Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez 2007*).

COSTA RICA. S. loc. (Schäfer-Verwimp et al. 2013). **HEREDIA:** Sarapiquí cantón, La Selva Biological Station, LOC 2000, 40–100 m, 30 Dec 2002, *Kaczmarek 900*, det. Dauphin (CR, *Dauphin 2005*).

***PANAMA.** ***BOCAS DEL TORO:** Bocas del Toro distrito, Bastimentos, Salt Creek, Sendero a Long Beach, 9.29456°N, 82.10303°W, 70 m, 16 Aug 2017, *Dauphin 4635*, det. Dauphin Aug 2017 (PMA, **this publication**).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Zoopsidella R.M.Schust., Nova Hedwigia 10(1/2): 24, 1965 (Schuster 1965).

Zoopsidella antillana (Steph.) H.Rob., *Bol. Soc. Venez. Ci. Nat.* 32(132/133): 254, 1976 (Steyermark and Brewer-Carías 1976) subsp. *antillana*.

≡ *Zoopsis antillana* Steph., *Bull. Herb. Boissier*, sér. 2, 8(4): 268 (=Sp. *Hepat. [Stephani]* 2: 282), 1908 (Stephani 1908f). Type: Dominica.

Note: We assume that all reports of *Zoopsidella antillana* from Central America belong to subsp. *antillana*.

COSTA RICA. S. loc. (Schäfer-Verwimp and Reiner-Drehwald 2009; Schäfer-Verwimp 2014). **PUNTARENAS:** Osa cantón, Rincón, Boscosa trail to Cerro Chocuaco, 400 m, *Dauphin 539* (Gradstein et al. 1994; *Dauphin 2005*); Osa cantón, Rincón, Boscosa trail to Cerro Chocuaco, 300–400 m, *Gradstein & Dauphin 9318* (U, USJ, *Dauphin 2005*).

PANAMA. **COCLÉ:** Antón distrito, El Valle de Antón, Cerro Gaital, along trail from Alto de La Mesa to summit region, 8°37.4–8°N, 80°06.9–7.0°W, 860–1,015 m, 25 Mar 2009, *Schäfer-Verwimp & Verwimp 34234/B, 34235/A* (JE, Schäfer-Verwimp 2014). **VERAGUAS:** Isla Canales de Tierra, Sendero camino a Ensenada Guabo, 7°45'N, 81°35'W, Jan 2002, *Salazar Allen et al. 19990, 20066* (PMA, *Salazar Allen and Chung 2003, 2006*); Soná distrito, Región de Bahía Honda, Sendero de Manglarito hacia Playa Limón, Jan 2002, *Salazar Allen et al. 20421* (PMA, *Salazar Allen and Chung 2003, 2006*); Soná distrito, Región de Bahía Honda, Sendero hacia Playa Limón, Jan 2002, *Salazar Allen et al. 20501* (PMA, *Salazar Allen and Chung 2003, 2006*).

COCOS I. S. loc. (Salazar Allen and Chung 2003; Schäfer-Verwimp and Reiner-Drehwald 2009; Schäfer-Verwimp 2014); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 21 Jan 1990, *Dauphin 960*, det. G. Dauphin Mar 2021 (USJ-47206!, CR-4468312!, W!, **this publication**); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 10 Mar 1990, *Dauphin A9/13*, det. G. Dauphin Mar 2021 (USJ-47205!, CR-4468313!, W!, **this publication**); Cerro Yglesias, 5°32'57"N, 87°03'56"W, 600 m, 15 Feb 1994, *Dauphin 960*, det. M. I. Morales (USJ, *Dauphin 1995, 1999, 2005*).

Also reported from the Caribbean, Northern South America, Brazil.

Zoopsideella integrifolia (Spruce) R.M.Schust., *Bull. Natl. Sci. Mus. Tokyo*, n.s., 12(3): 666, 1969 (Schuster 1969b).

≡ *Cephalozia integrifolia* Spruce, *Cephalozia*: 29, 1882 (Spruce 1882). Type: Brazil.

PANAMA. *BOCAS DEL TORO: Bocas del Toro distrito, Dolphin Bay, 9°13'16.9"N, 82°13'03.0"W, 16 m, 15 Aug 2017, *Gudiño 3350*, det. Gudiño Aug 2017 (PMA, **this publication**). **CHIRIQUÍ:** Gualaca distrito, Fortuna Forest Reserve, SW of camping site, from Finca Pittí to foothills of Cerro Fortuna, 1,000–1,270 m (Salazar Allen et al. 2021); Gualaca distrito, Hornito, Fortuna, ~1,100 m, *Gradstein 9775a* (GOET, Stotler et al. 1998); Gualaca distrito, Hornito, Fortuna, 1,170 m, *Stotler & Crandall-Stotler 3487* (ABSH, PMA, Stotler et al. 1998). **PANAMA WEST:** La Chorrera distrito, Barro Colorado, Barbour Point, 2003, *Dauphin 3151* (CR, PMA, Dauphin et al. 2022).

Also reported from Northern South America, Western South America, Brazil.

Zoopsideella macella (Spruce) R.M.Schust., *Bull. Natl. Sci. Mus. Tokyo*, n.s., 12(3): 666, 1969 (Schuster 1969b).

≡ *Cephalozia macella* Spruce, *Cephalozia*: 29, 1882 (Spruce 1882). Type: Brazil.

PANAMA. **PANAMA WEST:** La Chorrera distrito, Barro Colorado Island, Barbour Point, 9°09'N, 79°51'W, 20–170 m, *Dauphin 3151* (PMA, Dauphin et al. 2006).

Also reported from Northern South America, Western South America, Brazil.

REPORTS NOT ABLE TO BE PLACED INTO ANY ACCEPTED TAXON

The reports below are those that we have not been able to place under any currently accepted name. Several of them are either invalidly published or subspecific taxa where the parent taxon is synonymized with something, but the subspecific taxon is not treated in any earlier publication and we do not know if they should follow the parent taxon.

ANTHOCEROTOPHYTA

Anthoceros L., *Sp. Pl.* 1: 1139, 1753 (Linnaeus 1753).

Anthoceros tetrandrus Steph. ex Bonner, *Index Hepat.* 2: 225, 1962 (Bonner 1962a), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Guatemala, Aug 1867, *G. Bernoulli 453*, ex hb. Schiffner (G-00048009 <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=127527&lang=en>).

Note: *Anthoceros tetrandrus* is a *nomen herbariorum* published without description by Bonner (1962a) from a specimen named in G, and it is unclear to us which species it belongs to.

GUATEMALA. S. loc., Aug 1867, *Bernoulli 453* (G, TYPE, Bonner 1962a).

Not found outside Central America.

MARCHANTIOPHYTA

Archilejeunea (Spruce) Steph., *Hedwigia* 27(3/4): 113, 1888 (Stephani 1888d).

Archilejeunea ovata Herzog, *Rev. Bryol. Lichénol.* 20(1/2): 130, 1951 (Herzog 1951). Type: Honduras, Atlántida, Lancetilla Valley, near Tela, 20–600 m, *Standley 55669 p.p.*

Note: *Archilejeunea ovata* is conspecific with *Lopholejeunea nigricans* or *Lopholejeunea subfusca* (Gradstein 1994). Type material has not been found in JE or any other herbarium searched (see also Gradstein 1994).

HONDURAS. **ATLÁNTIDA:** Tela municipio, Lancetilla Valley, 20–600 m, *Standley 55669 p.p.* (TYPE, Herzog 1951; Bonner 1962a).

Not found outside Central America.

Cheilolejeunea (Spruce) Steph., *Bot. Gaz.* 15(11): 284, 1890 (Stephani 1890d).

Cheilolejeunea condensata (Spruce) B.M.Thiers, *Nova Hedwigia* 42: 249, 1986 (Thiers 1986) nom. inval. (ICN2018 Art 33.4; basionym not cited).

≡ *Lejeunea fragrantissima* var. *condensata* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15(1): 244, 1884 (Spruce 1884). Type: Peru.

≡ *Euosmolejeunea condensata* (Spruce) Steph., *Hedwigia* 35(3): 95, 1896 (Stephani 1896).

Note: We do not know where to refer this invalid name, and we do not know of any firsthand report from Central America.

COSTA RICA. S. loc. (Bonner 1965 as *Euosmolejeunea condensata*; Stephani 1914 as *Euosmolejeunea condensata*).

Also reported from Western South America.

Frullania Raddi, *Jungermannioogr. Etrusca*: 9, 1818 (Raddi 1818b).

Frullania falciflora Herzog ex Bonner, *Index Hepat.* 5: 300, 1965 (Bonner 1965), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Costa Rica, San José, La Palma, 1,600 m, 17 Mar 1924, *Standley 38016* (US <http://n2t.net/ark:/65665/3d665b1ea-bd5c-45cf-9f9b-6b13f028b426>).

Note: *Frullania falciflora* was published without description by Bonner (1965). It is probably a *nomen herbariorum* possibly also present in G. It is unclear to us to which species it belongs.

COSTA RICA. **SAN JOSÉ:** Moravia cantón, La Palma, 1,600 m, 17 Mar 1924, *Standley 38016* (Bonner 1965).

Not found outside Central America.

Frullania vueltensis Herzog ex Bonner, *Index Hepat.* 5: 465, 1965 (Bonner 1965), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Costa Rica, Prov. S. José, Cerro de las Vueltas, 2,700–3,000 m., 29 Dec 1925–1 Jan 1926, *Standley 43851* (G, also in S-B24325 <https://herbarium.nrm.se/specimens/B24325>).

Note: *Frullania vueltensis* is an herbarium name mentioned by Bonner (1965) without description. We do not know where to refer it.

COSTA RICA. SAN JOSÉ: Dota cantón, Cerro de Las Vueltas, 2,700–3,000 m, 29 Dec 1925–1 Jan 1926, *Standley 43851* (G, Bonner 1965).

Not found outside Central America.

Madotheca* Dumort., *Commentat. Bot. (Dumortier): 111, 1822 (Dumortier (1822), nom. illeg. (ICN2018 Art. 52.1; earlier name included, cf. Porella).

Note: *Madotheca* is now a synonym of *Porella*, but one name has not yet been transferred.

Madotheca costaricensis Gottsche ex Pol., *J. Bot.* 15: 226, 1877 (Polakowsky 1877), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Costa Rica, Alajuela, Jun 1875, *Polakowsky 120B*.

Note: *Madotheca costaricensis* is an invalid name that has not been synonymized or validated under any name. We do not know where to place it, and we have not found any original material.

COSTA RICA. ALAJUELA: S. loc., Jun 1875, *Polakowsky 120b* (Polakowsky 1877, 1879; Geissler and Bischler 1985).

Not found outside Central America.

***Mastigolejeunea* Steph., *Hedwigia* 30(5): 206, 1891 (Stephani 1891a).**

Mastigolejeunea lobulata Herzog ex Standl., *Field Mus. Nat. Hist., Bot. Ser.* 10: 62, 1931 (Standley 1931), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Honduras Lancetilla Valley, *Standley s.n.*

Note: No specimen corresponding to the report of *Mastigolejeunea lobulata* has been found. It may have been described by Herzog under another name, but as no collection number is mentioned, the only way its identity can be known is if a specimen with the name on the label is found in any herbarium (preferably US or JE).

HONDURAS. ATLÁNTIDA: Tela municipio, Lancetilla Valley, *Standley* (Standley 1931; Geissler and Bischler 1985).

Not found outside Central America.

***Nardia* Gray, *Nat. Arr. Brit. Pl.* 1: 694, 1821 (Gray 1821).**

Nardia guatemalensis M.E. Pérez, *Brenesia* 71–72: 8, 2009 (Pérez 2009), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Guatemala, Volcán de Fuego (NY-636523 <http://sweetgum.nybg.org/science/vh/specimen-details/?irn=360786>).

Note: *Nardia guatemalensis* was mentioned as a specimen in NY, but this specimen cannot be found now in spite of it being barcoded (L. Briscoe, New York Botanical Garden, personal communication, 2023).

GUATEMALA. SACATEPÉQUEZ: Volcán de Fuego (NY-636523 <http://sweetgum.nybg.org/science/vh/specimen-details/?irn=360786>, Pérez 2009; Söderström et al. 2012a).

Not found outside Central America.

***Plagiochila* (Dumort.) Dumort., *Recueil Observ. Jungerm.*: 14, 1835 (Dumortier 1835).**

Plagiochila angulifolia Steph., *Spec. Hepat. [Stephani]* 6: 122, 1917 (Stephani 1917b), nom. illeg. (ICN2018 Art. 53.1; hom. illeg. [non Steph. 1905]). Type: Costa Rica, *Arséne*.

Note: *Plagiochila angulifolia* is only known from the original material. No material corresponding to this record exists in G (M. Price, Conservatoire et Jardin Botaniques, Genève, personal communication). It is likely that the description is an error by Stephani, and either the collector should be Breuer (and then this is the same taxon as described by Stephani in 1905e; =*Plagiochila adianthoides*), or if it was actually collected by Arséne, it must have been in Mexico because Arséne did not collect in Costa Rica.

COSTA RICA. S. loc., *Arséne* (Stephani 1917b).

Not found outside Central America.

***Ptychocoleus* Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3 Cl. Sci. Mat.* 4(13): 404, 1877 (Trevisan 1877).**

Note: *Ptychocoleus* is now *Frullanoides*.

Ptychocoleus subfalcatus Herzog ex Standl., *Field Mus. Nat. Hist., Bot. Ser.* 10: 62, 1931 (Standley 1931), nom. inval. (ICN2018 Art. 38.1(a); no description). Original material: Honduras: Atlántida: Lancetilla Valley, *Standley*.

Note: We do not know where to refer the invalidly described *Ptychocoleus subfalcatus*. It seems to be known only from the original collection, which nobody seems to have studied later. According to Gradstein (1975), the original material is lost (“nowwhere available”).

HONDURAS. ATLÁNTIDA: Tela municipio, Lancetilla Valley, *Standley* (Standley 1931; Geissler and Bischler 1989).

Not found outside Central America.

TAXA REPORTED BUT NOT CONFIRMED TO OCCUR IN CENTRAL AMERICA

ANTHOCEROTOPHYTA

***Anthoceros* L., *Sp. Pl.* 1: 1139, 1753 (Linnaeus 1753).**

Anthoceros venosus Lindenb. et Gottsche, *Syn. Hepat.* 4: 584, 1846 (Gottsche et al. 1846). Type: Mexico.

Note: We are not aware of any positively identified specimen from Central America.

?**COSTA RICA.** ?CARTAGO: Paraíso cantón, Tapanti National Park, 1,615 m, *Salazar Allen et al.* 20654 (PMA, Villarreal

et al. 2015, 2017, both as *Anthoceros* cf. *venosus*; Cargill et al. 2022 as *Anthoceros* cf. *venosus*).

Also reported from Mexico, Western South America, Brazil, Southern South America.

***Phaeoceros* Prosk., Bull. Torrey Bot. Club 78(4): 346, 1951 (Proskauer 1951b).**

Phaeoceros laevis (L.) Prosk., Bull. Torrey Bot. Club 78(4): 347, 1951 (Proskauer 1951a).

≡ *Anthoceros laevis* L., Sp. Pl. 1: 1139, 1753 (Linnaeus 1753). Type: Italy.

Note: *Phaeoceros laevis* has been reported from all continents, but global distribution is unclear due to frequent confusion with *Phaeoceros carolinianus*. No dioicous specimen has been seen from the tropics (J. C. Villarreal, unpubl.).

?GUATEMALA. S. loc. (Freire et al. 2012).

?COSTA RICA. ?ALAJUELA: San Ramón, 3 Nov 2010, Norris 111204 (Norris et al. 2017 as *Anthoceros laevis*).

?PANAMA. ?CHIRIQUÍ: Gualaca distrito, Fortuna Forest Reserve, NE of camping site, 900–1,200 m, Salazar Allen 609, det. Steere Oct 1980 (Salazar Allen et al. 2021).

Also reported from Northern Europe, Middle Europe(?), Southwestern Europe, Southeastern Europe, Eastern Europe(?), North Africa, Macaronesia, West Tropical Africa?, Middle Atlantic Ocean(?), Russian Far East(?), Caucasus, Western Asia, China(?), Eastern Asia(?), Indian Subcontinent(?), Indo-China(?), Malesia(?), Papuasias(?), Australia(?), Southwestern Pacific(?), Southeastern Pacific(?), Northwestern Pacific(?), Northeastern Pacific(?), Mexico(?), the Caribbean(?), Northern South America(?), Western South America(?), Brazil(?), Southern South America(?), Subantarctic Islands(?).

Phaeoceros mohrii (Austin) Hässel, Candollea 44(2): 721, 1989 (Hässel 1989).

≡ *Anthoceros mohrii* Austin, Bull. Torrey Bot. Club 6(52): 304, 1879 (Austin 1879). Type: USA.

Note: We are not aware of any positively identified specimen from Central America. The taxon itself may be conspecific with *Phaeoceros microsporus* (Schuster 1992c).

?PANAMA. ?CHIRIQUÍ: Tierras Altas distrito, Parque Internacional La Amistad, along trail to Cerro Punta, 2,462 m, Stotler & Crandall-Stotler 3497 (ABSH, PMA, Stotler et al. 1998 as *Phaeoceros* cf. *mohrii*).

Also reported from Southwestern USA, Southeastern USA.

MARCHANTIOPHYTA

***Archilejeunea* (Spruce) Steph., Hedwigia 27(3/4): 113, 1888 (Stephani 1888d).**

Archilejeunea ludoviciana subsp. *porelloides* (Spruce) Gradst., Fl. Neotrop. Monogr. 62: 58, 1994 (Gradstein 1994).

≡ *Lejeunea porelloides* Spruce, Trans. & Proc. Bot. Soc. Edinburgh 15(1): 90, 1884 (Spruce 1884). Type: Venezuela.

≡ *Archilejeunea porelloides* (Spruce) Schiffn., Hedwigia 33(4): 181, 1894 (Schiffner 1894).

Note: We are not aware of any firsthand report from Central America.

?HONDURAS. S. loc. (Fulford 1942b as *Archilejeunea porelloides*).

?COSTA RICA. S. loc. (Costa et al. 2020).

Also reported from Northern South America, Western South America, Brazil.

***Calypogeia* Raddi, Jungermannioogr. Etrusca: 31, 1818 (Raddi 1818b).**

Calypogeia tenax (Spruce) Steph., Bull. Herb. Boissier, sér. 2, 8(9): 664 [=Sp. Hepat. (Stephani) 3: 396], 1908 (Stephani 1908g).

≡ *Kantius tenax* Spruce, Trans. & Proc. Bot. Soc. Edinburgh 15: 416, 1885 (Spruce 1885). Type: Brazil.

Note: We are not aware of any positively identified specimen from Central America.

?GUATEMALA. ?IZABAL: Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007 as *Calypogeia* aff. *tenax*).

Also reported from Northern South America, Western South America, Brazil.

***Cheilolejeunea* (Spruce) Steph., Bot. Gaz. 15(11): 284, 1890 (Stephani 1890d).**

Cheilolejeunea fragrantissima (Spruce) R.M.Schust., Phytologia 45(5): 431, 1980 (Schuster 1980b).

≡ *Lejeunea fragrantissima* Spruce, Trans. & Proc. Bot. Soc. Edinburgh 15: 243, 1884 (Spruce 1884). Type: Brazil, Venezuela, Ecuador.

Note: We are not aware of any positively identified specimen from Central America.

?COSTA RICA. ?GUANACASTE: La Cruz cantón, Guanacaste National Park, Cerros Santa Elena, 10°53'24"N, 85°50'55"W, 650–700 m, 27 Aug 2003, Dauphin et al. 3356 (CR, Dauphin and Grayum 2005 as *Cheilolejeunea* cf. *fragrantissima*).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

***Cololejeunea* (Spruce) Steph., Hedwigia 30(5): 208, 1891 (Stephani 1891a).**

Cololejeunea lanciloba Steph., Hedwigia 34(5): 250, 1895 (Stephani 1895c). Type: Nicobar Is.

≡ *Cololejeunea tonkinensis* Steph., Hedwigia 34(5): 252, 1895 (Stephani 1895c), syn. fide Zhu and So (2001). Type: Vietnam.

Note: We are not aware of any positively identified specimen from Central America. Gradstein (2021) considered the species a synonym of the pantropic *C. planissima*.

¿GUATEMALA. ¿ALTA VERAPAZ: S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008 as *Cololejeunea* cf. *tonkinensis*).

Also reported from West Tropical Africa, West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Western Indian Ocean, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasias, Australia, Southwestern Pacific, Northeastern Pacific(?), the Caribbean, Northern South America(?), Western South America, Brazil.

***Crossocalyx* Meyl., Bull. Soc. Vaud. Sci. Nat. 60(249): 266, 1939 (Meylan 1939).**

Crossocalyx hellerianus (Nees ex Lindenb.) Meyl., Bull. Soc. Vaud. Sci. Nat. 60(249): 266, 1939 (Meylan 1939).

≡ *Jungermannia helleriana* Nees ex Lindenb., Syn. Hepat. Eur.: 64, 1829 (Lindenberg 1829). Type: Germany.

≡ *Anastrophyllum hellerianum* (Nees ex Lindenb.) R.M.Schust., Amer. Midl. Naturalist 42(3): 575, 1949 (Schuster 1949).

Note: We are not aware of any firsthand report from Central America.

¿GUATEMALA. S. loc. (Gradstein et al. 2001b as *Anastrophyllum hellerianum*).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, Siberia, Russian Far East, Western Asia, China, Mongolia, Eastern Asia, Indian Subcontinent, Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southeastern USA, Mexico.

***Diplasiolejeunea* (Spruce) Schiffn., Hepat. (Engl.-Prantl): 121, 1893 (Schiffner 1893a).**

Diplasiolejeunea buckii Grolle, Beitr. Phytotax. 15: 105, 1992 (Grolle 1992). Type: Brazil.

Note: We are not aware of any positively identified specimen from Central America.

¿GUATEMALA. ¿ALTA VERAPAZ: Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Diplasiolejeunea* cf. *buckii*).

Also reported from Western South America, Brazil.

***Frullania* Raddi, Jungermanniogr. Etrusca: 9, 1818 (Raddi 1818b).**

Frullania gaudichaudii (Nees et Mont.) Nees et Mont., Syn. Hepat. 3: 435, 1845 (Gottsche et al. 1845a) var. *gaudichaudii*.

≡ *Jubula gaudichaudii* Nees et Mont., Ann. Sci. Nat. Bot., sér. 2, 5: 64, 1836 (Nees and Montagne 1836). Type: Brazil.

Note: We are not aware of any positively identified specimen from Central America.

¿GUATEMALA. ¿ALTA VERAPAZ: Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Frullania* cf. *gaudichaudii*).

Also reported from Southern Africa(?), Western Indian Ocean(?), China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasias, Australia(?), New Zealand(?), Southwestern Pacific, Northwestern Pacific, Northern South America, Brazil.

Frullania griffithsiana Gottsche, Syn. Hepat. 4: 466, 1846 (Gottsche et al. 1846). Type: In America meridionali (a cl. *Griffithia* communicata adest in hb. Gourlieano).

Note: The type of *Frullania griffithsiana* was indicated to come from Central America. However, no other specimens are known outside SE Brazil except for a recent report from Peru. We are thus not convinced that the original locality is within the current delimitation of Central America.

¿CENTRAL AMERICA. S. loc. (Gottsche et al. 1844).

Also reported from Western South America, Brazil.

Frullania rio-janeirensis var. *megalostipa* (Spruce) Gradst., Mem. New York Bot. Gard. 121: 379, 2021 (Gradstein 2021).

≡ *Frullania megalostipa* Spruce, Trans. & Proc. Bot. Soc. Edinburgh 15: 15, 1884 (Spruce 1884). Type: Ecuador.

Note: We are not aware of any firsthand report from Central America.

¿PANAMA. S. loc. (Bonner 1965 as *Frullania megalostipa*).

Also reported from Northern South America, Western South America.

Frullania vitalii Yuzawa et S.Hatt., J. Jap. Bot. 63(1): 30, 1988 (Yuzawa and Hattori 1988). Type: Brazil.

Note: We are not aware of any positively identified specimen from Central America.

¿GUATEMALA. ¿BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as *Frullania* cf. *vitalii*).

Also reported from Brazil.

***Gongylanthus* Nees, Naturgesch. Eur. Leberm. 2: 405, 1836 (Nees 1836).**

Gongylanthus granatensis (Gottsche) Steph., Bull. Herb. Boissier, sér. 2, 6(5): 385 (=Spec. Hepat. [Stephani] 3: 41), 1906 (Stephani 1906b).

≡ *Lindigina granatensis* Gottsche, Ann. Sci. Nat. Bot., sér. 5 1: 138, 1864 (Gottsche 1864). Type: Colombia.

Note: We are not aware of any firsthand report from Central America.

¿COSTA RICA. S. loc. (Gradstein and Uribe 2016; Gradstein 2021). ¿ALAJUELA: S. loc. (Vaña et al. 2012a).

Also reported from Western South America.

***Gymnocoleopsis* R.M.Schust., Phytologia 39(4): 243, 1978 (Schuster 1978a).**

Gymnocoleopsis cylindriciformis (Mitt.) R.M.Schust., J. Hattori Bot. Lab. 78: 126, 1995 (Schuster 1995b).

≡*Jungermannia cylindriformis* Mitt., *J. Linn. Soc., Bot.* 15(84): 196, 1876 (Mitten 1877b).

Note: We are not aware of any positively identified specimens from Central America. This was reidentified as *Gymnocolopsis* cf. *cylindriformis* by S. R. Gradstein, G. Dauphin, and A. Sierra in Feb 2023.

?**COSTA RICA.** ?**PUNTARENAS:** Coto Brus cantón, Parque Internacional La Amistad, Estación Pittier, *Dauphin 1421* (Dauphin 2005 as *Cylindrocolea* cf. *planifolia*).

Also reported from West-Central Tropical Africa, East Tropical Africa, Mexico, Northern South America, Western South America, Southern South America, Subantarctic Islands.

***Lejeunea* Lib., *Ann. Gen. Sci. Phys.* 6: 373, 1820 (Libert 1820).**

Lejeunea acanthogona var. *diversicuspis* (Spruce) Gradst. et C.J.Bastos, *Phytotaxa* 453(2): 61, 2020 (Bastos and Gradstein 2020a).

≡*Lejeunea diversicuspis* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15(1): 176, 1884 (Spruce 1884). Type: Brazil.

=*Lejeunea erostrata* M.E.Reiner et Goda, *J. Hattori Bot. Lab.* 89: 25, 2000 (Reiner-Drehwald and Goda 2000), syn. fide Reiner-Drehwald et al. (2018). Type: Brazil.

Note: We are not aware of any positively identified specimens from Central America.

?**GUATEMALA.** ?**IZABAL:** Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007 as *Lejeunea* aff. *erostrata*).

Also reported from the Caribbean, Northern South America, Western South America(?), Brazil, Southern South America.

Lejeunea concava Lindenb. et Gottsche, *Syn. Hepat.* 5: 759, 1847 (Gottsche et al. 1847). Type: Mexico.

≡*Rectolejeunea concava* (Lindenb. et Gottsche) Steph., *Sp. Hepat. (Stephani)* 5: 683, 1914 (Stephani 1914).

Note: We are not aware of any firsthand report from Central America.

?**COSTA RICA.** S. loc. (Stephani 1914 as *Rectolejeunea concava*; Fulford and Sharp 1990 as *Rectolejeunea concava*).

Also reported from Mexico.

Lejeunea elongella Gottsche, *Ann. Sci. Nat. Bot., sér.* 5, 1: 161, 1864 (Gottsche 1864). Type: Colombia.

≡*Hygrolejeunea elongella* (Gottsche) Steph., *Sp. Hepat. (Stephani)* 5: 535, 1914 (Stephani 1914).

Note: We are not aware of any firsthand report from Central America.

?**COSTA RICA.** S. loc. (Stephani 1914 as *Hygrolejeunea elongella*; Bonner 1966 as *Hygrolejeunea elongella*).

Also reported from Western South America.

Lejeunea laevicalyx Gottsche, *Mexik. Leberm.*: 221, 1863 (Gottsche 1863). Type: Mexico.

≡*Taxilejeunea laevicalyx* (Gottsche) Steph., *Sp. Hepat. (Stephani)* 5: 469, 1917 (Stephani 1914).

Note: We are not aware of any firsthand report from Central America.

?**GUATEMALA.** S. loc. (Stephani 1914 as *Taxilejeunea laevicalyx*; Fulford and Sharp 1990 as *Taxilejeunea laevicalyx*).

Also reported from Mexico, Western South America.

Lejeunea oerstediana Lindenb. et Hampe, *Linnaea* 24(6): 641, 1852 (Hampe 1851a). Type: Jamaica.

Note: This taxon has not been reported from Central America for more than 150 years, and we question the original identification.

?**PANAMA.** S. loc. (Mitten 1854b; Stotler et al. 1998).

Also reported from the Caribbean.

Lejeunea sordida (Nees) Nees, *Naturgesch. Eur. Leberm.* 3: 278, 1838 (Nees 1838b).

≡*Jungermannia sordida* Nees, *Enum. Pl. Crypt. Javae*: 41, 1830 (Nees 1830). Type: Java.

Note: This is a mainly Asiatic taxon with no other reports from South America after 1835. The report from Panama is also only tentatively assigned to this species.

?**PANAMA.** ?**PANAMA WEST:** Barro Colorado Island, *Gradstein & Salazar Allen 15111, 15135*; Balboa trail, *Salazar Allen & Chung 4338, Salazar Allen et al. 6048* (all reported by Dauphin et al. 2022 as *Lejeunea* cf. *sordida*).

Also reported from the Western Indian Ocean, China, Eastern Asia, Indian Subcontinent, Inco-China, Malaysia, Papuasia, Australia, Southwestern Pacific, Northwestern Pacific.

***Marchantia* L., *Sp. Pl.* 1: 1137, 1753 (Linnaeus 1753).**

Marchantia quadrata Scop., *Fl. Carniol. (ed. 2)* 2: 355, 1772 (Scopoli 1772). Type: Slovenia.

≡*Preissia quadrata* (Scop.) Nees, *Naturgesch. Eur. Leberm.* 4: 135, 1838 (Nees 1838a).

Note: Reports of *Marchantia quadrata* from tropical and subtropical areas are all rejected, mostly as *Marchantia chenopoda*.

?**PANAMA.** ?**CHIRIQUÍ:** Boquete, 2 Sep 1940, *Svihla 40-447* (Svihla 1942 as *Preissia quadrata*; Stotler et al. 1998 as *Preissia quadrata*).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa, Siberia, Russian Far East, Middle Asia, Caucasus, Western Asia, China, Mongolia, Eastern Asia, Indian Subcontinent, Australia, Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, Southeastern USA, Southern South America(?).

***Metzgeria Raddi, Jungermannigr.*
*Etrusca: 34, 1818 (Raddi 1818b).***

Metzgeria bahiensis Schiffn., *Österr. Bot. Z.* 61(7/8): 262, 1911 (Schiffner 1911). Type: Brazil.

Note: We are not aware of any positively identified specimens from Central America.

?GUATEMALA. S. loc., 2007, Pérez, det. Pérez (USCG, Barillas de Klee et al. 2008 as *Metzgeria* cf. *bahiensis*). ?ALTA VERAPAZ: Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Metzgeria* cf. *bahiensis*).

Also reported from Brazil.

Metzgeria epiphylla A.Evans, *Proc. Amer. Acad. Arts* 58(7): 303, 1923 (Evans 1923a). Type: Chile.

Note: This is a southern temperate species, and its presence in the tropics must be questioned. According to Costa (2008), this must be a synonym of *Metzgeria ciliata*, but she did not examine the type.

?EL SALVADOR. S. loc. (Kuwahara 1986). ?SANTA ANA: Metapán municipio, SE-hang des Cerro Miramundo bei der Hacienda Montecristo, *Winkler A/1/1, A/16/5, A/18/a, etc.* (Winkler 1967).

Also reported from Southern South America, Subantarctic Islands.

Metzgeria hegwaldii Kuwah., *Nova Hedwigia* 34: 784, 1981 (Kuwahara 1981). Type: Peru.

Note: We are not aware of any positively identified specimens from Central America.

?GUATEMALA. ?ALTA VERAPAZ: Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Metzgeria* cf. *hegwaldii*).

Also reported from Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Metzgeria subaneura Schiffn., *Österr. Akad. Wiss., Math.-Naturwiss. Kl., Denkschr.* 111: 22, 1964 (Schiffner and Arnell 1964). Type: Brazil.

Note: We are not aware of any positively identified specimens from Central America.

?GUATEMALA. ?ALTA VERAPAZ: Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006 as *Metzgeria* cf. *subaneura*).

Also reported from Brazil.

***Mnioloma Herzog, Ann. Bryol.* 3: 115,
1930 (Herzog 1930).**

Mnioloma elliottii (Steph.) R.M.Schust., *Fragm. Florist. Geobot.* 40(2): 841, 1995 (Schuster 1995a).

≡*Calypogeia elliottii* Steph., *Bull. Herb. Boissier*, sér. 2, 8(9): 663 [=*Sp. Hepat. (Stephani)* 3: 395], 1908 (Stephani 1908g). Type: Dominica.

Note: We are not aware of any positively identified specimens from Central America.

?GUATEMALA. ?IZABAL: Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007 as *Calypogeia* aff. *elliottii*).

Also reported from the Caribbean.

***Odontoschisma (Dumort.) Dumort., Recueil
Observ. Jungerm.: 19, 1835 (Dumortier 1835).***

Odontoschisma denudatum (Mart.) Dumort., *Recueil Observ. Jungerm.:* 19, 1835 (Dumortier 1835) subsp. *denudatum*.

≡*Jungermannia scalaris* var. *denudata* Nees, in Mart., *Fl. crypt. erlang.*: 183, 1817 (Martius 1817). Type: Germany.

=*Odontoschisma cordifolium* Steph., *Sp. Hepat. (Stephani)* 6: 445, 1924 (Stephani 1924), syn. fide Gradstein and Ilkiu-Borges (2015). Type: Mexico.

Note: *Odontoschisma denudatum* is widely distributed in temperate areas of the Northern Hemisphere. The species is very rare in tropical America, where it has been found in Mexico, Cuba, and the northern Andes (Gradstein and Ilkiu-Borges 2015). Gradstein and Ilkiu-Borges did not cite the species from Central America, and according to them, most tropical records belong to *Odontoschisma variabile*.

?GUATEMALA. S. loc. (Fulford 1987; Fulford and Sharp 1990; Schuster 2002). ?ALTA VERAPAZ: S. loc., Pérez 219 (USCG, Pérez 2009); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). ?BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005). ?IZABAL: Near Lago Izabal, 400–500 m, Jones & Facey 3306 (NY, Fulford 1968; Freire 2006; Pérez 2009); near Lago Izabal, 400–500 m, Jones & Facey 3308 p.p. (NY, Fulford 1968; Freire 2006).

?BELIZE. S. loc. (Fulford 1987; Fulford and Sharp 1990; Schuster 2002). ?CAYO: S. loc. (Whittemore and Allen 1996). ?STANN CREEK: Sarawee Pine Ridge, *Gentle* 2697 (MICH, Fulford 1968). ?TOLEDO: S. loc., Dec 1993, Allen 15349 (BRH, MO, Whittemore and Allen 1996).

?COSTA RICA. Cordillera de Talamanca, *Kappelle* 3568 (U, Kappelle 1996). ?ALAJUELA: Poás National Park, *Griffin et al. D 153* (Dauphin 2005 as *Odontoschisma cordifolium*); Poás National Park, 10°12'N, 84°14'W, Aug 1973, *Griffin et al.* (Griffin et al. 1974 as *Odontoschisma cordifolium*); Poás Volcano, Jul 1977, *Griffin & Araya* 41 (FLAS, Gradstein and Vaña 1987; Morales 1991; Dauphin 2005); Poás Volcano, 30 Jul 1977, *Griffin & Araya* 19 (FLAS, Morales and Griffin 1983; Morales 1991; Dauphin 2005); Poás Volcano, 30 Jul 1977, *Griffin & Araya* 6 (FLAS, PRC, Morales and Griffin 1983; Gradstein and Vaña 1987; Morales 1991; Dauphin 2005); Poás Volcano, Aug 1977, *Griffin et al.* 153 (USJ, FLAS-020511, Morales and Griffin 1983 as *Odontoschisma cordifolium*; Morales 1991 as *Odontoschisma cordifolium*).

?PANAMA. ?COCLÉ: Antón distrito, El Valle de Antón, Alto de La Mesa, 8°38.3'N, 82°07.6'W, 850–870 m, 3 Apr 2009,

Schäfer-Verwimp & *Verwimp* 34741 (JE, Schäfer-Verwimp 2014). ?DARIÉN: Cerro Pirre (Stotler et al. 1998); Cerro Pirre, above Rancho Mojado, 800–1,100 m, 4–8 Jun 1991, *Gradstein* & *Salazar Allen* (PMA, U, *Gradstein* and *Salazar Allen* 1992); S. loc. (Schäfer-Verwimp 2014).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, Macaronesia, Western Indian Ocean, Russian Far East, Caucasus, China, Eastern Asia, Indian Subcontinent, Indo-China, Malaysia, Western Canada, Eastern Canada, North-Central USA, Northeastern USA, Southeastern USA, Mexico, the Caribbean, Western South America.

Odontoschisma portoricense (Hampe et Gottsche) Steph., *Hedwigia* 27(11/12): 296, 1888 (Stephani 1888a).

≡*Sphagnoecetis portoricensis* Hampe et Gottsche, *Limnaea* 25(3): 343, 1853 (Hampe and Gottsche 1852). Type: Puerto Rico.

Note: We are not aware of any firsthand report from Central America.

?PANAMA. S. loc. (Gradstein and Ilkiu-Borges 2009).

Also reported from the Caribbean, Northern South America, Western South America, Brazil.

***Plagiochila* (Dumort.) Dumort., *Recueil Observ. Jungerm.*: 14, 1835 (Dumortier 1835).**

Plagiochila bunburii Taylor, *London J. Bot.* 5: 269, 1846 (Taylor 1846b). Type: Brazil.

≡*Plagiochila parvistipula* Lindenb., *Syn. Hepat.* 5: 643, 1847 (Gottsche et al. 1847), syn. fide Stephani (1905a). Type: Central America, “in America meridionali, (leg. *Chamisso*, *Hb. Ac. Petr.*).”

Note: This species is only reported from “Central America,” but it is not confirmed within the current limitation of Central America and probably originates from somewhere in the Caribbean.

?CENTRAL AMERICA. S. loc. (Gottsche et al. 1847 as *Plagiochila parvistipula*).

Also reported from the Caribbean, Brazil.

Plagiochila caduciloba H.L. Blomq., *Bryologist* 42(5): 114, 1939 (Blomquist 1939). Type: USA.

Note: The report is a remarkable range extension, and the identification should be checked. It is otherwise only known from the Appalachian Mountains.

?COSTA RICA. ?ALAJUELA: San Ramón cantón, Nectandra Cloud Forest Reserve, Quebrada Verde, *Risk* 17178 (UC-2053751, Norris et al. 2017).

Also reported from Southeastern USA.

Plagiochila cuneata Lindenb. et Gottsche, *Syn. Hepat.* 5: 632, 1847 (Gottsche et al. 1847). Type: Mexico.

Note: Reports of *Plagiochila cuneata* belong to var. *bicuspidata* (= *Plagiochila bicuspidata*) or *Plagiochila cuneata* s. lat. We

are not aware of any report of *Plagiochila cuneata* s. str. from Central America.

?COSTA RICA. ?ALAJUELA: Alajuela cantón, Fraijanes, 1,500–1,700 m, *Standley* 47469 (Dauphin 2005). ?CARTAGO: La Estrella, *Standley* 39174 (Carl 1931b; Dauphin 2005). ?PUNTARENAS: Buenos Aires, Río de Volcán, *Pittier* 6067 (Morales 1991; Dauphin 2005); Monteverde (Morales 1991). ?SAN JOSÉ: Vásquez de Coronado cantón, Las Nubes, 1,500–1,900 m, *Standley* 38379 (Dauphin 2005).

Also reported from Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America.

Plagiochila tambillensis Loitl., *Diagn. pl. nov.*: 22, 1894 (Loitlesberger 1894). Type: Peru.

Note: We are not aware of any firsthand report from Central America.

?COSTA RICA. S. loc. (Fulford and Sharp 1990).

Also reported from Mexico, Western South America.

Plagiochila undata subsp. *crispata* (Gottsche) R.M. Schust., *Amer. Midl. Naturalist* 63(1): 122, 1960 (Schuster 1960).

≡*Plagiochila crispata* Gottsche, *Mexik. Leverm.*: 71, 1863 (Gottsche 1863). Type: Mexico.

Note: We are not aware of any firsthand report from Central America.

?PANAMA. S. loc. (Schuster 1980d; Stotler et al. 1998).

Also reported from Mexico, the Caribbean.

Plagiochila viminea Spruce, *Mem. Torrey Bot. Club* 1(3): 134, 1890 (Spruce 1890). Type: Bolivia.

Note: *Plagiochila viminea* is known only from the Bolivian type and the report from Costa Rica. The identity of the Costa Rican specimen remains to be verified.

?COSTA RICA. S. loc., *Motelay* (G, Stephani 1905c).

Also reported from Western South America.

***Protocephalozia* (Spruce) K.I. Goebel, *Flora* 77(2): 83, 1893 (Goebel 1893a).**

Protocephalozia ephemeroides (Spruce) K.I. Goebel, *Flora* 77(2): 83, 1893 (Goebel 1893a).

≡*Cephalozia ephemeroides* Spruce, *Cephalozia*: 24, 1882 (Spruce 1882). Type: Brazil.

Note: This species is frequently misidentified and referred to sterile green algae or moss protonema (Gradstein, pers. comm.). All specimens except the types should be reidentified.

?GUATEMALA. ?IZABAL: Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007). ?ZACAPA: Río Hondo, Caserío Morán, Sierra de Las Minas, 15°09'25"N, 89°29'08"W, 1,500 m, 2007, *Ramírez* (USCG, BIGU, *Ramírez* 2007).

Also reported from Northern South America, Western South America, Brazil.

***Radula Dumort., Commentat. Bot. (Dumortier):*
112, 1822 (Dumortier 1822).**

Radula carringtonii J.B.Jack, *Flora* 64: 385, 1881 (Jack 1881).

Type: Ireland.

Note: Patiño et al. (2013) doubted the identifications of *Radula carringtonii* from the Neotropics.

?COSTA RICA. S. loc. (Arts and Yamada 1998; Paton 1999; Yamada 2000; Holz et al. 2001; Dauphin 2005; Patiño et al. 2013). ?HEREDIA: Barva cantón, road from Montane to the Volcán Barva National Park, 2,000 m, 1985, *Eggers CR 1/133* (NICH, Yamada 1995).

Also reported from Northern Europe, Macaronesia, Western South America(?).

***Riccardia Gray, Nat. Arr. Brit. Pl. 1:*
679, 1821 (Gray 1821).**

Riccardia latifrons (Lindb.) Lindb., *Acta Soc. Sci. Fenn.* 10: 513, 1875 (Lindberg 1875).

≡*Aneura latifrons* Lindb., *Bot. Not.* 26: 62, 1873 (Anonymous 1873). Lectotype: Finland.

Note: All reports of *Riccardia latifrons* from the Neotropical area should be treated as doubtful until the identity has been verified. Stotler et al. (1998) also considered them doubtful. It is possible that they represents *Riccardia parasitans* (Steph.) Meenks et de Jong, which was recently treated as a subspecies of *Riccardia latifrons* (Gradstein and Reeb 2018).

?PANAMA. S. loc. (Schäfer-Verwimp et al. 2013; Gradstein and Reeb 2018). ?CHIRIQUÍ: Tierras Altas distrito, Volcán, 9 Aug 1950, *Chickering* (MICH, Crum and Arzeni 1953; Stotler et al. 1998).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa, Macaronesia, Siberia, Russian Far East, Caucasus, Western Asia, China, Eastern Asia, Indian Subcontinent(?), Indo-China(?), Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, South-Central USA(?), Southeastern USA, the Caribbean(?), Northern South America(?), Western South America(?), Southern South America(?).

Riccardia multifida (L.) Gray, *Nat. Arr. Brit. Pl. 1:* 684, 1821 (Gray 1821).

≡*Jungermannia multifida* L., *Sp. Pl. 1:* 1136, 1753 (Linnaeus 1753). Type: Britain.

Note: Reports of *Riccardia multifida* from outside boreal areas need verification.

?COSTA RICA. S. loc. (Cole 1984; Davison 1993). ?ALAJUELA: San Ramón cantón, Nectandra Cloud Forest, Quebrada Verde, 2007, *Norris 110294* (UC-2053224, Norris et al. 2017). ?PUNTARENAS: Monteverde (Morales 1991); Monteverde, 4,300 ft (1,310 m), Feb 1969, *James, W. 1969-03* (R, Reed and Robinson 1971).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa, Macaronesia, Southern Africa, Western Indian Ocean, Siberia, Russian Far East, Caucasus, Western Asia, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuaasia(?), New Zealand, Southwestern Pacific(?), Southeastern Pacific(?), Northwestern Pacific(?), Northeastern Pacific(?), Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, South-Central USA, Southeastern USA, Mexico, the Caribbean, Northern South America(?), Western South America, Brazil, Southern South America.

Riccia L., Sp. Pl. 1: 1138, 1753 (Linnaeus 1753).

Riccia fluitans L., *Sp. Pl. 1:* 1139, 1753 (Linnaeus 1753). Type: Sweden.

Note: Bischler-Causse et al. (2005) questioned the identification of specimens of *Riccia fluitans* from Latin America, but the *Riccia fluitans* complex also includes, and may be conspecific with, *Riccia oerstediana*.

?COSTA RICA. S. loc. (Haynes et al. 1923, including *Riccia canaliculata*; Cole 1984; Morales 1991; Dauphin 2005; Bischler-Causse et al. 2005). ?CARTAGO: Paraíso cantón, Ujarrás, junto a las ruinas, *Crow 6141* (CR, Dauphin 2005).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa, West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Siberia, Russian Far East, Middle Asia, Caucasus, Western Asia, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Australia(?), New Zealand, Southwestern Pacific, Northeastern Pacific, Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, South-Central USA(?), Southeastern USA, Mexico, the Caribbean(?), Brazil(?), Southern South America(?).

Scapania (Dumort.) Dumort., Recueil Observ. Jungerm.: 14, 1835 (Dumortier 1835).

Scapania nemorea (L.) Grolle, *Rev. Bryol. Lichénol.* 32(3/4): 160, 1963 (Grolle 1963a).

≡*Jungermannia nemorea* L., *Syst. Nat., ed. 10, 2:* 1337, 1759 (Linnaeus 1759). Type: Europe.

Note: Old reports from Central America were rejected by Schuster (1974). The record below also needs verification.

?GUATEMALA. ?BAJA VERAPAZ: Purhullá municipio, Biotope Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa(?), Macaronesia, Siberia, Russian Far East, Caucasus,

Western Asia, China, Eastern Asia, New Zealand, Western Canada(?), Eastern Canada, North-Central USA, Northeastern USA, South-Central USA, Southeastern USA.

***Symphyogyna* Nees et Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 5: 66, 1836 (Nees and Montagne 1836).**

Symphyogyna podophylla (Thunb.) Nees et Mont., *Flora* 29(9): 135, 1846 (Krauss 1846).

≡ *Jungermannia podophylla* Thunb., *Prodr. Pl. Cap.* 2: 174, 1800 (Thunberg 1800). Type: South Africa.

Note: We are not aware of any firsthand report from Central America. Its absence in the region is surprising in view of its commonness in Colombia (Gradstein 2021).

?**COSTA RICA.** S. loc. (Grolle 1993, 2002; Vána and Engel 2013). Note: We are not aware of any firsthand report from Central America.

Also reported from West-Central Tropical Africa, North-east Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, Australia, New Zealand, Mexico, the Caribbean(?), Western South America, Brazil, Southern South America, Subantarctic Islands.

***Telaranea* Spruce ex Schiffn., *Hepat. (Engl.-Prantl)*: 103, 1893 (Schiffner 1893a).**

Telaranea sejuncta (Ångstr.) S.W.Arnell, *Bot. Not.* 110(1): 18, 1957 (Arnell 1957).

≡ *Blepharostoma sejunctum* Ångstr., *Öfvers. Kongl. Vetensk.-Akad. Förh.* 33: 78, 1876 (Ångström 1876). Type: Brazil.

Note: Due to past synonymization of *Telaranea sejuncta* with *Telaranea nematodes* the distribution needs to be reevaluated. Most reports from Central America have been reidentified as *Telaranea nematodes*, but the specimens cited here do not seem to have been restudied.

?**GUATEMALA.** S. loc. (Fulford et al. 1970); S. loc., *Standlei* 89500 (F, Fulford 1963b as *Telaranea sejuncta* var. *sejuncta*). ?**CHIQUIMULA:** Jocotán municipio, Cerro Tixixi (Tishishi), 3–5 mi (4.8–8 km) N Jocotán, 500–1,500 m, *Steyermark* 31629 (F, Fulford 1963b as *Telaranea sejuncta* var. *sejuncta*, 1966; Freire 2006, including *Telaranea nematodes* as synonym; Pérez 2009). ?**SUCHITEPÉQUEZ:** SW slope of Volcán Zunil, *Steyermark* 35289 (F, Fulford 1966; Freire 2006, including *Telaranea nematodes* as synonym; Pérez 2009).

?**HONDURAS.** S. loc. (Fulford et al. 1970). ?**EL PARAÍSO:** El Paraíso municipio, region of Agua Amarilla, 900–1,100 m, *Standlei et al.* 5108 (F, Fulford 1966); El Paraíso municipio, region of Agua Amarilla, above El Zamorano, 900–1,100 m, *Standlei et al.* 5115 (F, Fulford 1966).

?**COSTA RICA.** S. loc. (Fulford et al. 1970; Cole 1982, 1983). ?**SAN JOSÉ:** Dota cantón, south of El Empalme, *Little* 5643 (FULF, hb. Little, Fulford 1966); S de San José, *Little* 5511 (hb. Little, Fulford 1966).

Also reported from Northeastern USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil, Southern South America.

***Trichocolea* Dumort., *Commentat. Bot. (Dumortier)*: 113, 1822 (Dumortier 1822).**

Trichocolea tomentella (Ehrh.) Dumort., *Syll. Jungerm. Europ.*: 67, 1831 (Dumortier 1831).

≡ *Jungermannia tomentella* Ehrh., *Hannover. Mag.* 21(18): 277, 1783 (Ehrhart 1783). Type: Germany.

Note: *Trichocolea tomentella* is a largely boreal taxon, and all reports from Neotropical areas should be questioned.

?**GUATEMALA.** ?**QUETZALTENANGO:** S. loc., *Steyermark* 33838 (NY, Pérez 2009). ?**ZACAPA:** S. loc., *Steyermark* 29963 (NY, Pérez 2009).

?**COSTA RICA.** S. loc. (Haupt 1942). ?**ALAJUELA:** San Ramón cantón, Nectandra Cloud Forest (UC, Norris et al. 2017). ?**HEREDIA:** Barva cantón, Volcán Barva, *Pittier* 6045 (Stephani 1893c).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, Macaronesia, Siberia, Russian Far East, Caucasus, Western Asia, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Southwestern Pacific(?), Southeastern Pacific(?), Northwestern Pacific(?), Eastern Canada, North-Central USA, Northeastern USA, Southeastern USA, Mexico, the Caribbean(?), Northern South America(?), Western South America(?), Southern South America(?).

TAXA REJECTED FROM CENTRAL AMERICA

ANTHOCEROTOPHYTA

***Anthoceros* L., *Sp. Pl.* 1: 1139, 1753 (Linnaeus 1753).**

Anthoceros caucasicus Steph., *Izv. Kavkazsk. Muz.* 8: 87, 1914 (Voronov' 1914). Type: Caucasus, Georgia.

≡ *Anthoceros mandonii* Steph., *Sp. Hepat. (Stephani)* 5: 997, 1916 (Stephani 1916a), syn. fide Sérgio (1987). Type: Madeira.

Note: *Anthoceros caucasicus* is a Eurasian species and cited from "Central America" (Proskauer 1958) without any information on what the report is based on, and we are not aware of any other report.

†**CENTRAL AMERICA.** S. loc. (Proskauer 1958).

Also reported from middle Europe, southwestern Europe, southeastern Europe, Macaronesia, Caucasus, western Asia.

Anthoceros punctatus L., *Sp. Pl.* 1: 1139, 1753 (Linnaeus 1753).

Type: Britain.

Note: This species is cited without any information on what the report is based on, and we are not aware of any other report. It probably refers to the Caribbean. In addition, all reports

outside Europe and surroundings should be compared to *Anthoceros agrestis*.

†CENTRAL AMERICA. S. loc. (Damsholt 2002).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe(?), North Africa, Macaronesia, West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa(?), Southern Africa, Western Indian Ocean, Russian Far East(?), Caucasus, Western Asia, China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Australia, New Zealand(?), Southwestern Pacific, Western Canada(?), Eastern Canada(?), Northwestern USA, North-Central USA(?), Northeastern USA(?), Southwestern USA, South-Central USA(?), Southeastern USA, Mexico(?), the Caribbean, Western South America, Brazil, Southern South America, Subantarctic Islands(?).

***Notothylas* Sull., Amer. J. Sci. Arts, ser. 2, 1(1): 74, 1846 (Gray 1846).**

Notothylas indica Kashyap, *Proc. Lahore Philos. Soc.* 4: 54, 1925 (Kashyap and Dutt 1925). Type: India.

Note: This species is from India, and the report from an accession list for a molecular study must certainly be an error.

†PANAMA. S. loc., *Duckett IE38* (M, Villarreal et al. 2015).

Also reported from West Tropical Africa, Indian Subcontinent, Indo-China.

MARCHANTIOPHYTA

***Acrobolbus* Nees, Syn. Hepat. 1: 5, 1844 (Gottsche et al. 1844).**

Acrobolbus antillanus R.M.Schust., *J. Hattori Bot. Lab.* 90: 143, 2001 (Schuster 2001b). Type: Dominica.

Note: Plants from Costa Rica identified as *Acrobolbus antillanus* ("Costa Rican phase"; Schuster 2001b:146) belong to *Acrobolbus cuneifolius* (Gradstein 2021).

†COSTA RICA. Cordillera de Talamanca (Holz 2003; Holz and Gradstein 2005b); S. loc. (Schuster 1980d, 1983a; Gradstein and Uribe 2016; Schäfer-Verwimp and Van Melick 2016). †SAN JOSÉ: Between El Cañón and Ojo de Agua, 2,800–3,000 m, *Schuster RMS 71-950* (Morales 1991; Schuster 2001b; Dauphin 2005; Schuster 2021); Pérez Zeledón cantón, Cerro Buenavista (Cerro de la Muerte), 2,600–3,000 m (Gradstein et al. 2001b).

Also reported from the Caribbean, Northern South America, Western South America.

***Asterella* P.Beauv., Dict. Sci. Nat. [F. Cuvier] 3: 257, 1805 (Palisot de Beauvois 1805a).**

Asterella venosa (Lehm. et Lindenb.) A.Evans, *Contr. U.S. Natl. Herb.* 20(8): 286, 1920 (Evans 1920).

≡*Fimbraria venosa* Lehm. et Lindenb., *Nouv. Stirp. Pug.* 4: 29, 1832 (Lehmann 1832). Type: Brazil.

Note: This is a South American species mainly from SE Brazil and NE Argentina with some reports from Peru, Colombia, and Mexico. We are not aware of any specimen or firsthand reports to support the above general reports.

†CENTRAL AMERICA. S. loc. (Timme 1985; Long 2005).

Also reported from Mexico, Northern South America(?), Western South America, Brazil, Southern South America.

***Bazzania* Gray, Nat. Arr. Brit. Pl. 1: 704, 1821 (Gray 1821).**

Bazzania praeurupta (Reinw., Blume et Nees) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 414, 1877 (Trevisan 1877).

≡*Jungermannia praeuruptum* Reinw., Blume et Nees, *Nova Acta Phys.-Med. Acad. Caes. Leop.-Carol. Nat. Cur.* 12(1): 229, 1825 (Reinwardt et al. 1824a). Type: Java.

≡*Jungermannia longa* Nees, *Linnaea* 6(4): 623, 1831 (Nees 1831). Type: Mauritius.

≡*Bazzania longa* (Nees) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 415, 1877 (Trevisan 1877).

Note: *Bazzania praeurupta* is a Paleotropical species frequently reported from the Neotropics under the name *Bazzania longa* following Fulford (1946). However, Gradstein (2017b) showed that the type of *Bazzania longa* is identical to *Bazzania praeurupta* and does not occur in the Neotropics. Neotropical specimens named *Bazzania longa* belong to *Bazzania hookeri*.

†GUATEMALA. †BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, *Freire et al.* 298, 323 (USCG, Freire et al. 2013 as *Bazzania longa*); Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as *Bazzania longa*).

†COSTA RICA. †ALAJUELA: Poás Volcano, *Griffin & Araya* 32 (USJ, FLAS, Morales 1991 as *Bazzania longa*; Dauphin 2005 as *Bazzania longa*); Poás Volcano, *Griffin & Araya* 36, det. Bernecker (Dauphin 2005 as *Bazzania longa*); San Ramón cantón, Nectandra Cloud Forest, 3 Nov 2010, *Norris 17153* (UC, Norris et al. 2017 as *Bazzania longa*). †PUNTARENAS: S. loc. (Merwin et al. 2001 as *Bazzania longa*); Coto Brus cantón, Fila Cruces, Laguna Gamboa, 8°57'00"N, 83°04'20"W, 1,400 m, *Dauphin & Chacón 1729* (CR, Dauphin 2005 as *Bazzania longa*); Monteverde cantón, Monteverde Cloud Forest Preserve, 10°18'N, 84°48'W, Nov 1992–Jan 1994, *Gradstein et al.* (FLAS, U, USJ, Gradstein et al. 2001a as *Bazzania longa*).

†PANAMA. †CHIRIQUÍ: Gualaca distrito, Fortuna, 1,000 m, *Salazar Allen et al.* 616a, 628, 698 (PMA, Stotler et al. 1998 as *Bazzania longa*). †COCLÉ: La Pintada distrito, El Potroso, *Sytsma 1776* (MO, Stotler et al. 1998 as *Bazzania longa*); Penonomé distrito, ~2 km W of Cerro Pilón, *Croat 37464* (MO, Stotler et al. 1998 as *Bazzania longa*).

Also reported from West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Middle Atlantic Ocean, Western Indian Ocean,

China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasia, Southeastern Pacific(?), Northeastern Pacific.

***Calypogeia Raddi, Jungermanniogr.*
*Etrusca: 31, 1818 (Raddi 1818b).***

Calypogeia lophocoleoides Steph., *Bull. Herb. Boissier*, sér. 2, 8(9): 677 (409), 1908 (Stephani 1908g). Type: Dominica.

Note: Whittemore and Allen (1996) reported *Calypogeia lophocoleoides* from Belize based on misidentifications of *Calypogeia peruviana* and *Calypogeia subintegra*. The report from Costa Rica is also based on misidentification (G. Dauphin, unpubl.).

†BELIZE. †CAYO: Southern Maya Mountains, summit of Doyle's Delight, 16°29'N, 89°02'W, 1,140 m, 10 Dec 1993, Allen 15333, det. Dauphin May 2017 (MO-3981762! <https://tropicos.org/specimen/90019402>, Whittemore and Allen 1996). †TOLEDO: S. loc., Dec 1993, Allen 15345A (BRH, MO, Whittemore and Allen 1996).

†COSTA RICA. †PUNTARENAS: Coto Brus cantón, Fila Cruces, Cerro Paraguas, 1,400 m, Dauphin & Chacón 1768 (CR, Dauphin 2005).

Also reported from the Caribbean, Northern South America.

***Cololejeunea (Spruce) Steph., Hedwigia*
*30(5): 208, 1891 (Stephani 1891a).***

Cololejeunea marginata (Lehm. et Lindenb.) Pearson, *Forb. Vidensk.-Selsk. Kristiania* 1892(8): 9, 1892 (Pearson 1892). ≡ *Jungermannia marginata* Lehm. et Lindenb., *Nov. Stirp. Pug.* 5: 11, 1833 (Lehmann 1833). Type: Mauritius.

Note: This is an African species rejected from America mostly as *Cololejeunea submarginata* by Grolle (1981).

†HONDURAS. †ATLÁNTIDA: Tela municipio, Lancetilla Valley, 20–600 m, Standley 56785 (Herzog 1951); Tela municipio, Lancetilla Valley, 20–600 m, Standley 56811 p.p. (Herzog 1951); Tela municipio, Lancetilla Valley, 20–600 m, 6 Jul 1927–20 Mar 1928, Standley 56758 (US, Herzog 1951).

Also reported from Western Indian Ocean.

Colura (Dumort.) Dumort., Recueil Observ. Jungerm.: 12, 1835 (Dumortier 1835).

Colura calyptrifolia (Hook.) Dumort., *Recueil Observ. Jungerm.:* 12, 1835 (Dumortier 1835).

≡ *Jungermannia calyptrifolia* Hook., *Brit. Jungermann.:* table 43, 1813 (Hooker 1813). Type: Ireland.

Note: This species has never been reported specifically from any Central American country, and the mention of “Central America” probably refers to the Caribbean, although it may well also occur in Central America.

†CENTRAL AMERICA. S. loc. (Zhu and So 2001; Zhu and Long 2003; Fischer 2013).

Also reported from Northern Europe, Southwestern Europe, Macaronesia, West-Central Tropical Africa, Northeast Tropical

Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Middle Atlantic Ocean, Western Indian Ocean, Indian Subcontinent, Indo-China, the Caribbean, Northern South America, Western South America, Brazil, Southern South America, Subantarctic Islands.

Cylindrocolea R.M.Schust., Bull. Natl. Sci. Mus. Tokyo, n.s., 12(3): 666, 1904 (Schuster 1969b).

Cylindrocolea planifolia (Steph.) R.M.Schust., *Nova Hedwigia* 22: 164, 1972 (Schuster 1971b).

≡ *Cephaloziella planifolia* Steph., *Hedwigia* 32(5): 317, 1893 (Stephani 1893a). Type: Brazil.

Note: This specimen was reidentified as *Gymnocoleopsis cf. cylindriformis* by S. R. Gradstein, G. Dauphin, and A. Sierra in Feb 2023.

†COSTA RICA. †PUNTARENAS: Coto Brus cantón, Parque Internacional La Amistad, Estación Pittier, Dauphin 1421 (Dauphin 2005 as *Cylindrocolea cf. planifolia*).

Also reported from South-Central USA(?), Southeastern USA, Northern South America, Brazil, Southern South America.

***Drepanolejeunea (Spruce) Steph., Hedwigia*
*30(5): 209, 1891 (Stephani 1891a).***

Drepanolejeunea angustifolia (Mitt.) Grolle, *J. Jap. Bot.* 40(7): 206, 1965 (Grolle 1965b).

≡ *Lejeunea angustifolia* Mitt., *J. Proc. Linn. Soc., Bot.* 5(18): 116, 1860 (Mittén 1860a). Type: India.

≡ *Jungermannia cucullata* γ *tenuis* Nees, *Enum. Pl. Crypt. Javae:* 57, 1830 (Nees 1830), syn. fide Mizutani (1963). Type: Java.

≡ *Drepanolejeunea tenuis* (Nees) J.B.Jack et Steph., *Hedwigia* 31(1): 12, 1892 (Jack and Stephani 1892).

Note: This is a SE Asian species already rejected from America by Bischler (1964).

†COSTA RICA. S. loc. (Schiffner 1898a as *Drepanolejeunea tenuis*; Evans 1903a as *Drepanolejeunea tenuis*; Bischler et al. 1961 as *Drepanolejeunea tenuis*). †HEREDIA: Rancho Flores forest, Pittier 6041 p.p. (Stephani 1893c as *Drepanolejeunea tenuis*; Morales 1991 as *Drepanolejeunea tenuis*).

Also reported from China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasia, Southwestern Pacific, Southeastern Pacific(?), Northwestern Pacific.

***Frullania Raddi, Jungermanniogr.*
*Etrusca: 9, 1818 (Raddi 1818b).***

Frullania caulisequa (Nees) Mont., *Ann. Sci. Nat. Bot., sér. 2,* 12: 51, 1839 (Montagne 1839a).

≡ *Jungermannia caulisequa* Nees, *Fl. Bras. (Martius)* 1(1): 373, 1833 (Nees 1833b). Type: Brazil.

Note: *Frullania caulisequa* included *Frullania obcordata* in Söderström et al. (2016), following Yuzawa and Koike (1989), but they were shown to be separate species by Winter and

Schäfer-Verwimp (2020), and all synonyms proposed by Yuzawa (1988) belong to the latter. *Frullania caulisequa* has not been confirmed to occur in Central America and is therefore excluded here.

†**GUATEMALA**. †**ALTA VERAPAZ**: Cobán, Las Victorias National Park, 2002 (Andersohn 2004); Tukurú municipio, Reserva Privada Chelemhá (Pérez 2006). †**IZABAL**: Los Amates municipio, Caserío El Paraíso, Sierra de Las Minas, 15°15'12"N, 89°05'43"W, 300 m, 2007, Ramírez (USCG, BIGU, Ramírez 2007).

†**BELIZE**. S. loc. (Whittemore and Allen 1996).

†**COSTA RICA**. Cordillera de Talamanca (Holz and Gradstein 2005b; Holz 2006). †**ALAJUELA**: Poás Volcano, Morales & Canessa 476 (Morales 1991; Dauphin 2005). †**CARTAGO**: Alvarado cantón, Coliblanco, ~1,950 m, 30 Apr–2 May 1906, Maxon 259 (Morales 1991; Dauphin 2005). †**HEREDIA**: Heredia cantón, Finca Isla Bonita, Vara Blanca, Atlantic slope, 1,524 m, 2–3 Feb 1947, Svihla 47-941, 47-984, 47-985, 47-986, 47-993, 47-1006 (Morales 1991; Dauphin 2005). †**SAN JOSÉ**: Dota cantón, “Los Robles” (Los Santos Forest Reserve, 9°32'N, 83°51'W), 2,200–2,500 m, Sep 1999–May 2000 (CR, Holz et al. 2002); Dota cantón, San Gerardo (Dauphin 2005); Dota cantón, San Gerardo, Holz (Holz 2003); Los Santos Forest Reserve, ~2,900 m (Holz and Gradstein 2005a).

†**PANAMA**. Canal Zone (Schäfer-Verwimp 2014). †**CHIRIQUÍ**: Gualaca distrito, Fortuna Forest Reserve, at mouth of Quebrada Samudio, 1,100–1,280 m (Salazar Allen et al. 2021); Gualaca distrito, Fortuna Forest Reserve, Valle de Hornito, 1,300–1,700 m (Salazar Allen et al. 2021); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°44.3'N, 82°14.7'W, 1,100 m, 30 Mar 2009, Schäfer-Verwimp & Verwimp 34511/A (JE, Schäfer-Verwimp 2014); Gualaca distrito, Reserva Forestal Fortuna along road from Chiriquí to Chiriquí Grande, 8°39'N, 82°12'W, 1,380 m, Schäfer-Verwimp & Verwimp 34363/C (JE, Schäfer-Verwimp 2014). **COCLÉ**: Antón distrito, El Valle de Antón, along road to Mato Ahogado, 8°37.05'N, 82°06.60'W, 670 m, 4 Apr 2009, Schäfer-Verwimp & Verwimp 34765 (JE, Schäfer-Verwimp 2014); Antón distrito, El Valle de Antón, ascent to “India Dormida,” 8°36.8'N, 80°08.8'W, 640–870 m, 24 Mar 2009, Schäfer-Verwimp & Verwimp 34166/A (JE, Schäfer-Verwimp 2014). †**DARIÉN**: S. loc. (Schäfer-Verwimp 2014). †**PANAMA WEST**: La Chorrera distrito, Barro Colorado Island, Camino Wheeler 5–6, Salazar Allen & Chung 4737b (PMA, Stotler et al. 1998). †**VERAGUAS**: Santa Fe distrito, base of Cerro Tute, 8°30'N, 81°06'W, 710–890 m, 26 Mar 2009, Schäfer-Verwimp & Verwimp 34284 (JE, Schäfer-Verwimp 2014); Santa Fe distrito, between the village and Alto de Piedra, 8°31'N, 81°06'W, 635–600 m, 27 Mar 2009, Schäfer-Verwimp & Verwimp 34326 (JE, Schäfer-Verwimp 2014).

†**COCOS I.** S. loc. (Dauphin 1995, 2005); S. loc., 1966, Fosberg & Klawe (Morales 1991).

Also reported from South-Central USA, Southeastern USA, Mexico, the Caribbean, Northern South America, Western South America, Brazil.

Frullania dilatata (L.) Dumort., *Recueil Observ. Jungerm.*: 13, 1835 (Dumortier 1835) subsp. *dilatata*.

≡*Jungermannia dilatata* L., *Sp. Pl.* 1: 1133, 1753 (Linnaeus 1753). Type: Britain.

Note: This is a Eurasian species only mentioned from Central America in a study on *Nipponolejeunea*. The report must be rejected, as has been done for all other reports from America.

†**COSTA RICA**. S. loc., 22–24 Sep 2000, Piippo (H, Ahonen 2006).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa, Macaronesia, Siberia, Russian Far East, Middle Asia, Caucasus, Western Asia, China, Mongolia, Eastern Asia, Indian Subcontinent.

Frullania falciloba Lehm., *Nov. Stirp. Pug.* 8: 20, 1844 (Lehmann 1844). Type: Australia.

Note: This is an Australasian species with no modern reports from the Neotropics.

†**PANAMA**. S. loc. (Schiffner 1898a, with a question mark).

†**PANAMA WEST**: Capira distrito, Cruces (Mitten 1854b).

Also reported from Australia, New Zealand.

Frullania hypoleuca Nees, *Observ. bot.*: 470, 1843 (Gottsche et al. 1843). Type: Hawaii.

Note: This species is widespread in Australasia and the Pacific. These unsupported reports, as well as all others from America, must be erroneous.

†**COSTA RICA**. S. loc. (Miller et al. 1983).

†**COCOS I.** S. loc. (Miller et al. 1983).

Also reported from China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasias, Australia, Southwestern Pacific, Southeastern Pacific(?), Northwestern Pacific, Northeastern Pacific.

Frullania inflata Gottsche, *Syn. Hepat.* 3: 424, 1845 (Gottsche et al. 1845a). Type: USA.

Note: This is a boreal species recorded from North America south to Mexico. This report was based on a misidentification of *Frullania ericoides*.

†**NICARAGUA**. †**CHINANDEGA**: El Viejo municipio, Gulf of Fonseca, east of Volcano Coseguina, 7 Jul 1932, Howell 244 (CAS-692237, Clark 1953a).

Also reported from Russian Far East, China, Eastern Asia, Indian Subcontinent, Western Canada, Eastern Canada(?), Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, South-Central USA, Southeastern USA, Mexico.

Frullania lindenberghii Lehm., *Nov. Stirp. Pug.* 8: 17, 1844 (Lehmann 1844). Type: South Africa.

Note: *Frullania lindenberghii* is an African species, and all American reports were rejected by Schäfer-Verwimp et al. (2012).

†**HONDURAS**. S. loc. (Lemos-Michel 1983).

†COSTA RICA. S. loc. (Lemos-Michel 1983).

†PANAMA. S. loc. (Lemos-Michel 1983).

†COCOS I. S. loc. (Lemos-Michel 1983).

Also reported from West-Central Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Western Indian Ocean, Subantarctic Islands.

***Fuscocephaloziopsis Fulford*, Mem. New York Bot. Gard. 11(3): 353, 1968 (Fulford 1968).**

Fuscocephaloziopsis connivens (Dicks.) Váňa et L.Söderstr., *Phytotaxa* 112(1): 9, 2013 (Váňa et al. 2013b) subsp. *sandwicensis* (Mont.) Váňa et L.Söderstr., *Phytotaxa* 112(1): 9, 2013 (Váňa et al. 2013b).

≡*Jungermannia sandwicensis* Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 19: 249, 1843 (Montagne 1843). Type: Hawaii.

≡*Blepharostoma sandwicense* (Mont.) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 417, 1877 (Trevisan 1877).

Note: This species is known from the Caribbean, and all mentions from “Central America” probably refer to that area.

†CENTRAL AMERICA. S. loc. (Miller et al. 1983; Schuster 2002).

Also reported from Southeastern Pacific, Northeastern Pacific, Mexico, the Caribbean.

***Hymenophyton Dumort.*, Recueil Observ. Jungerm.: 25, 1835 (Dumortier 1835).**

Hymenophyton flabellatum (Labill.) Dumort. ex Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 430, 1877 (Trevisan 1877).

≡*Jungermannia flabellata* Labill., *Nov. Holl. Pl.* 2: 109, 1806 (Labillardière 1806). Type: Australia.

Note: This species was rejected from Costa Rica as *Jensenia erythropus* by Gradstein et al. (1994).

†COSTA RICA. †ALAJUELA: Poás Volcano, Aug 1977, *Griffin et al.* 115 (FLAS-020500, Morales and Griffin 1983; Morales 1991).

Also reported from Southern Africa, Australia, New Zealand, Southwestern Pacific, Western South America, Brazil, Southern South America, Subantarctic Islands(?).

***Isotachis Mitt.*, Bot. Antarct. voy. II (Fl. Nov.-Zel. 2): 148, 1854 (Mitten 1854a).**

Isotachis humectata (Hook.f. et Taylor) Steph., *Sp. Hepat. (Stephani)* 3: 654, 1909 (Stephani 1909b).

≡*Jungermannia humectata* Hook.f. et Taylor, *London J. Bot.* 3: 462, 1844 (Hooker and Taylor 1844c). Type: Falkland Islands.

≡*Jungermannia madida* Hook.f. et Taylor, *London J. Bot.* 3: 465, 1844 (Hooker and Taylor 1844c) nom. illeg. (ICN2018 Art. 53.1; hom. illeg. [non Nees 1833]), syn. fide Engel (1978). Type: Tierra del Fuego.

≡*Isotachis madida* Mitt., *Bot. Antarct. voy. II (Fl. Nov.-Zel. 2):* 149, 1854 (Mitten 1854a).

COSTA RICA. ALAJUELA: Poás Volcano, *Griffin & Araya* 67 (USJ, FLAS, Morales 1991 as *Isotachis madida*); Poás Volcano, 31 Jul 1977, *Griffin & Araya* 69 (USJ, FLAS, Morales and Griffin 1983 as *Isotachis madida*; Morales 1991 as *Isotachis madida*). CARTAGO: Pococí cantón, La Georgina, *Griffin et al.* 483 (FLAS, Morales 1991 as *Isotachis madida*; Kappelle 1996 as *Isotachis madida*).

Also reported from Southern South America, Subantarctic Islands.

***Lejeunea Lib.*, Ann. Gen. Sci. Phys. 6: 373, 1820 (Libert 1820).**

Lejeunea apiculata Sande Lac., *Ned. Kruidk. Arch.* 3: 421, 1854 (Sande Lacoste 1854). Type: Java.

≡*Stenolejeunea apiculata* (Sande Lac.) R.M.Schust., *J. Hattori Bot. Lab.* 89: 159, 2000 (Schuster 2000b).

Note: This is a Paleotropical species that should be rejected from the Neotropics.

†GUATEMALA. S. loc., *Friedrichstahl* (G, Bischler 1966 as *Stenolejeunea apiculata*).

Also reported from China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Australia, New Zealand, Southwestern Pacific, Southeastern Pacific.

***Lepidozia Dumort.*, Recueil Observ. Jungerm.: 19, 1835 (Dumortier 1835).**

Lepidozia trichodes (Reinw., Blume et Nees) Nees, *Syn. Hepat.* 2: 203, 1845 (Gottsche et al. 1845b).

≡*Jungermannia trichodes* Reinw., Blume et Nees, *Nova Acta Phys.-Med. Acad. Caes. Leop.-Carol. Nat. Cur.* 12(1): 199, 1824 (Reinwardt et al. 1824a). Type: Java.

Note: This is an Asiatic species with some old reports from South America and is only referred to “Central America” in a report from the Philippines.

†CENTRAL AMERICA. S. loc. (Merrill 1906, with a question mark).

Also reported from China, Eastern Asia, Indian Subcontinent(?), Indo-China, Papuasias, Southwestern Pacific, Southeastern Pacific.

***Lophozia (Dumort.) Dumort.*, Recueil Observ. Jungerm.: 17, 1835 (Dumortier 1835).**

Lophozia ventricosa var. *longiflora* (Nees) Macoun, *Cat. Canad. Pl., Lich. Hepat.*: 17, 1902 (Macoun 1902).

≡*Jungermannia longiflora* Nees, *Naturgesch. Eur. Leberm.* 2: 95, 1836 (Nees 1836). Type: Poland.

≡*Lophozia longiflora* (Nees) Schiffn., *Sitzungsber. deutsch. naturwiss.-med. Vereins Böhmen “Lotos” Prag* 51(7): 257, 1903 (Schiffner 1903).

Note: For a long time *Lophozia longiflora* was used as the name for what is now *Lophozia guttulata*, and all reports from Central America belong to the latter species.

†GUATEMALA. S. loc. (Gradstein and Váňa 1994 as *Lophozia longiflora*; Paton 1999 as *Lophozia longiflora*; Gradstein et al. 2001b as *Lophozia longiflora*; Schäfer-Verwimp and Pócs 2009 as *Lophozia longiflora*). †HUEHUETENANGO: San Mateo Ixtatán municipio, above San Mateo, 9,700 ft, 3 Jan 1946, Sharp 4949 (TENN, Gradstein and Váňa 1987 as *Lophozia longiflora*). †QUETZALTENANGO: San Carlos Sija municipio, Getenagre near Sija, 9,500 ft (2,896 m), 1 Jan 1945, Sharp 1133 (TENN, Gradstein and Váňa 1987 as *Lophozia longiflora*).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, Siberia, Russian Far East, Middle Asia(?), Caucasus, Western Asia, Eastern Asia(?), Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, Southeastern USA, Mexico.

***Marchantia* L., *Sp. Pl.* 1: 1137, 1753 (Linnaeus 1753).**

Marchantia linearis Lehm. et Lindenb., *Nov. Stirp. Pug.* 4: 8, 1832 (Lehmann 1832). Type: India orientalis.

Note: Reports of this Southeast Asian species from the American continents belong to *Marchantia inflexa* (cf. Bischler 1984).

†GUATEMALA. S. loc., Watson (Underwood 1895).

Also reported from Indian Subcontinent, Indo-China, Malesia.

***Nowellia* Mitt., *Nat. Hist. Azores:*
321, 1870 (Mitten 1870).**

Nowellia dominicensis Steph., *Sp. Hepat. (Stephani)* 6: 443, 1924 (Stephani 1924). Type: Dominica, Guadeloupe.

Note: This species is only mentioned as occurring in “Central America” by Cole, but she probably included the Caribbean in her concept of Central America.

†CENTRAL AMERICA. S. loc. (Cole 1982, 1983).

Also reported from the Caribbean, Northern South America.

Nowellia wrightii (Gottsche ex Spruce) Steph. ex Duss, *Enum. musc. Antilles franç., Hép.*: 21, 1903 (Duss 1903).

≡ *Cephalozia wrightii* Gottsche ex Spruce, *J. Linn. Soc., Bot.* 30(210): 354, 1895 (Gepp 1895). Type: Cuba.

Note: This species is only mentioned as occurring in “Central America” by Cole, but she probably included the Caribbean in her concept of Central America.

†CENTRAL AMERICA. S. loc. (Cole 1982, 1983).

Also reported from the Caribbean.

***Odontoschisma* (Dumort.) Dumort., *Recueil Observ. Jungerm.*: 19, 1835 (Dumortier 1835).**

Odontoschisma brasiliense Steph., *Bull. Herb. Boissier, sér.* 2, 8(8): 585 (= *Spec. Hepat. [Stephani]* 3: 369), 1908 (Stephani 1908b). Type: Brazil.

Note: This is a SE Brazilian species (Gradstein and Ilkiu-Borges 2015).

†GUATEMALA. †BAJA VERAPAZ: Purhulhá municipio, Biotopo Universitario para la Conservación del Quetzal, 15°30'N, 90°13'15"W (Freire et al. 2005 as *Odontoschisma brasiliense*). †QUICHÉ: Uspantán, 15°27'23.7"N, 90°47'58.9"W, 2,365 m, 2007, Pérez et al. 2340 (USCG, Pérez 2009 as *Odontoschisma brasiliense*).

Also reported from Brazil.

***Plagiochila* (Dumort.) Dumort., *Recueil Observ. Jungerm.*: 14, 1835 (Dumortier 1835).**

Plagiochila arbuscula (Brid. ex Lehm. et Lindenb.) Lindenb., *Sp. Hepat. (Lindenberg)* 1: 23, 1839 (Lindenberg 1839).

≡ *Jungermannia arbuscula* Brid. ex Lehm. et Lindenb., *Nov. Stirp. Pug.* 4: 63, 1832 (Lehmann 1832). Type: Java.

Note: This is a Paleotropical species, and the report from Costa Rica must belong to some other species.

†COSTA RICA. †SAN JOSÉ: S. loc. (Markham and Fernández 2021).

Also reported from China, Eastern Asia, Indian Subcontinent, Indo-China, Malesia, Papuasia, Australia, New Zealand, Southwestern Pacific, Southeastern Pacific, Northwestern Pacific.

Plagiochila asplenioides (L.) Dumort., *Recueil Observ. Jungerm.*: 14, 1835 (Dumortier 1835).

≡ *Jungermannia asplenioides* L., *Sp. Pl.* 1: 1131, 1753 (Linnaeus 1753). Type: Great Britain.

Note: Reports of the holarctic *Plagiochila asplenioides* from Central America are erroneous. Stotler et al. (1998) already excluded it from Panama, and a revision of the section *Plagiochila* (type: *P. asplenioides*) in the Neotropics by Müller et al. (1999) did not yield any genuine Neotropical material of *P. asplenioides*.

†COSTA RICA. †SAN JOSÉ: S. loc. (Markham and Fernández 2021).

†PANAMA. †PANAMA WEST: La Chorrera distrito, Barro Colorado Island, Zatek & Shattuck (Haynes 1933).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, Siberia, Caucasus, Western Asia, Eastern Asia(?), Subarctic America, Western Canada, Northwestern USA, Southwestern USA(?), South-Central USA.

Plagiochila heteromalla var. *γ minus-dentata* Hampe et Gottsche, *Linnaea* 25(3): 341, 1852 (Hampe and Gottsche 1852). Type: Puerto Rico.

Note: This species is only erroneously reported from Costa Rica (as type, but the type is from Puerto Rico), and the value of the variety is unknown to us.

†COSTA RICA. S. loc., Schwanecke (Geissler and Bischler 1989).

Also reported from the Caribbean.

Porella L., Sp. Pl. 1: 1106, 1753 (Linnaeus 1753).

Porella mexicana (Hampe ex Gottsche, Lindenb. et Nees) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat.* 4(13): 407, 1877 (Trevisan 1877).

≡ *Madotheca mexicana* Hampe ex Gottsche, Lindenb. et Nees, *Syn. Hepat.* 2: 273, 1845 (Gottsche et al. 1845b): Type: Mexico.

Note: This species is only reported secondary from “Central America” by Cole, but her concept of Central America was probably much wider than used here.

†**COSTA RICA.** S. loc. (Cole 1982, 1983).

Also reported from Mexico.

***Radula* Dumort., Commentat. Bot.
(Dumortier): 112, 1822 (Dumortier 1822).**

Radula boryana (F.Weber) Nees ex Mont., *Ann. Sci. Nat. Bot., sér. 2*, 18: 13, 1842 (Montagne 1842a).

≡ *Jungermannia boryana* F.Weber, *Hist. Musc. Hepat. Prodr.*: 58, 1815 (Weber 1815). Type: Réunion.

Note: *Radula boryana* is an African taxon rejected from America, where it has been reported due to the synonymy with *Radula gottscheana* (first proposed by Castle 1936), but the latter species is accepted in many later publications (but see note under *Radula gottscheana*).

†**GUATEMALA.** S. loc. (Miller et al. 1983 as *Radula boryana*; Fulford and Sharp 1990 as *Radula boryana*). †**ALTA VERAPAZ:** S. loc., 1905, *Maxon & Hay* 3259 (Y, Castle 1936 as *Radula boryana*).

†**COSTA RICA.** S. loc. (Miller et al. 1983 as *Radula boryana*; Fulford and Sharp 1990 as *Radula boryana*). †**CARTAGO:** Jiménez cantón, Río Naranjo, 1893, *Tonduz* (G, Castle 1936 as *Radula boryana*). †**PUNTARENAS:** Cordillera de Talamanca, N of Santa Elena, 1,100 m, *Davidse et al.* 28217 (GOET, MO, Gradstein et al. 2022 as *Radula boryana*). †**SAN JOSÉ:** Buena Vista, 1903, *Cook & Doyle* 118, 129, 146 (Y, Castle 1936 as *Radula boryana*).

†**PANAMA.** †**CHIRIQUÍ:** Gualaca distrito, Cerro Pinola, *Spörle* 1.1 (PMA, Spörle 1990 as *Radula boryana*).

Also reported from West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa, Middle Atlantic Ocean, Western Indian Ocean.

Radula complanata (L.) Dumort., *Syll. Jungerm. Europ.*: 28, 1831 (Dumortier 1831).

≡ *Jungermannia complanata* L., *Sp. Pl.* 1: 1133, 1753 (Linnaeus 1753). Type: Europe.

Note: *Radula complanata* is a boreal and temperate taxon that has been reported several times from tropical and subtropical areas, but these reports are erroneous or highly doubtful.

†**COSTA RICA.** S. loc. (Cole 1982, 1983). †**PUNTARENAS:** Monteverde (Morales 1991, doubting the correctness of the report); Monteverde, 9 Jan 1965, *James, M.* 7 (R, Reed and

Robinson 1971); Monteverde, 10–17 Mar 1965, *James, W. & James, M.* 47 (R, Reed and Robinson 1971); Monteverde, 10–17 Mar 1965, *James, W. & James, M.* 77 (R, MO-6163170, Reed and Robinson 1971); Monteverde, 10–17 Mar 1965, *James, W. & James, M.* 89 (R, Reed and Robinson 1971).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, North Africa, Siberia, Russian Far East, Middle Asia, Caucasus, Western Asia, China, Mongolia, Eastern Asia, Indian Subcontinent, Malesia(?), Northwestern Pacific(?), Northeastern Pacific(?), Subarctic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, South-Central USA, Southeastern USA, Mexico.

Radula sullivantii Austin, *Hepat. bor.-amer.*: 22, 1873 (Austin 1873). Type: USA.

Note: This species is only mentioned from Costa Rica by Stephani (1910a). We reject the report until it can be confirmed.

†**COSTA RICA.** S. loc. (Stephani 1910a).

Also reported from Southeastern USA.

***Riccardia* Gray, Nat. Arr. Brit. Pl. 1: 679,
1821 (Gray 1821).**

Riccardia palmata (Hedw.) Carruth., *J. Bot.* 3: 302, 1865 (Carruthers 1865).

≡ *Jungermannia palmata* Hedw., *Theoria generat.*: 87, 1784 (Hedwig 1784).

Note: This record is given as “Mittelamerika,” which in the concept of Schulz and Dengler (2006) probably also included the Caribbean. However, the occurrence in the Caribbean is also questionable.

†**CENTRAL AMERICA.** S. loc. (Schulz and Dengler 2006).

Also reported from Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, Macaronesia, Siberia, Russian Far East, Middle Asia, Caucasus, Western Asia, China, East Asia, Indian Subcontinent, Southeast Asia, Subarctic North America, Western Canada, Eastern Canada, Northeastern USA, North-Central USA, Northeastern USA, Southwestern USA, Southeastern USA, Mexico, the Caribbean(?).

***Riccia* L., Sp. Pl. 1: 1138, 1753 (Linnaeus 1753).**

Riccia planobiconvexa Steph., *Bih. Kongl. Svenska Vetensk.-Akad. Handl.* 23(III, 2): 29, 1897 (Stephani 1897c). Type: Brazil.

Note: Neither Jovet-Ast (1991) nor Bischler-Causse et al. (2005) reported specimens of *Riccia planobiconvexa* from Costa Rica. Hässel (1962) considered *Riccia weinionis* a synonym of *Riccia planobiconvexa*, which was followed by Jovet-Ast (1981) but refuted by Jovet-Ast (1991) and Bischler-Causse et al. (2005), who cited the Guanacaste specimen below under *Riccia weinionis*. All specimens probably belong to the latter.

†**COSTA RICA.** S. loc. (Gradstein and Weber 1982; Gradstein et al. 2018b; Silva et al. 2018). †**ALAJUELA:** S. loc., 1,000 m,

11 Aug 1979, *Jovet-Ast* (Jovet-Ast 1981); Alajuela cantón, Alajuela city, *Jovet-Ast* (Morales 1991; Dauphin 2005). †CARTAGO: Turrialba cantón, CATIE, 600 m, 13 Aug 1979, *Jovet-Ast* (Jovet-Ast 1981); Turrialba, 13 Aug 1979, *Jovet-Ast* (PC, Morales 1991; Dauphin 2005). †GUANACASTE: Liberia, 21 Aug 1979, *Jovet-Ast* (Jovet-Ast 1981; Morales 1991; Dauphin 2005).

Also reported from Western South America, Brazil, Southern South America.

***Solenostoma* Mitt., J. Proc. Linn. Soc.,
Bot. 8(29): 51, 1865 (Mitten 1865).**

Solenostoma fossombronioides (Austin) R.M.Schust., *Hepat. Anthoc. N. Amer.* 2: 1027, 1969 (Schuster 1969a).

≡*Jungermannia fossombronioides* Austin, *Proc. Acad. Nat. Sci. Philadelphia* 21: 220, 1869 (Austin 1869). Type: USA (New Jersey).

Note: The location was only given as “middle America” in a general note to the distribution, but no record south of Mexico is known.

†CENTRAL AMERICA. Fulford and Sharp (1990 as *Jungermannia foosombronioides*).

Also reported from North-Central USA, Northeastern USA, Southeastern USA, Mexico.

***Symphyogyna* Nees et Mont., Ann. Sci. Nat. Bot.,
sér. 2, 5: 66, 1836 (Nees and Montagne 1836).**

Symphyogyna circinata Nees et Mont., *Ann. Sci. Nat. Bot.*, sér. 2, 5: 69, 1836 (Nees and Montagne 1836). Type: Chile.

Note: This species is from southern South America and Tristan da Cunha. The old record from Panama was reidentified as *Symphyogyna brasiliensis* by Stotler et al. (1998).

†PANAMA. S. loc. (Mitten 1854b).

Also reported from the Caribbean(?), Western South America, Brazil(?), Southern South America, Subantarctic Islands.

***Syzygiella* Spruce, J. Bot. 14: 234, 1876
(Spruce 1876a).**

Syzygiella colorata (Lehm.) K.Feldberg, Váňa, Hentschel et Heinrichs, *Cryptog. Bryol.* 31(2): 144, 2010 (Feldberg et al. 2010a).

≡*Jungermannia colorata* Lehm., *Linnaea* 4(3): 366, 1829 (Lehmann 1829). Type: South Africa.

≡*Jamesoniella colorata* (Lehm.) Spruce ex Schiffn., *Hepat. (Engl.-Prantl)*: 83, 1893 (Schiffner 1893a).

Note: This is a southern temperate to subantarctic species, and all reports from the Neotropics belong to *Syzygiella rubricaulis* (fide Grolle 1971a as *Jamesoniella rubricaulis*).

†COSTA RICA. S. loc. (Stephani 1901d as *Jamesoniella colorata*; Reimers 1926 as *Jamesoniella colorata*; Pagán 1939a as *Jamesoniella colorata*; Arnell 1958a as *Jamesoniella colorata*; Cole 1982, 1983, both as *Jamesoniella colorata*). †ALAJUELA: Poás Volcano, 10 Jun 1968, Morales & Canessa 443 (Morales

and Griffin 1983 as *Jamesoniella colorata*). †HEREDIA: San Isidro cantón, Cerro de Caricias, 2,000–2,400 m, *Standley* 51999, 52259, 52277, etc. (Herzog 1938 as *Jamesoniella colorata*). †SAN JOSÉ: Moravia cantón, Cerro Zurquí, 2,000–2,500 m, *Standley* 48176, 48183, etc. (Herzog 1938 as *Jamesoniella colorata*); *Jamesoniella colorata*; Moravia cantón, La Hondura, 1,200–1,500 m, *Standley* 51816 (Herzog 1938 as *Jamesoniella colorata*); Moravia cantón, La Palma, *Pittier* 6007 (Stephani 1893c as *Jungermannia colorata*); Vásquez de Coronado cantón, Las Nubes, ~1,900 m, *Standley* 38431 (Herzog 1938 as *Jamesoniella colorata*); Vásquez de Coronado cantón, Las Nubes, ~1,900 m, *Standley* 38461 (Herzog 1938 as *Jamesoniella colorata*); Vásquez de Coronado cantón, Las Nubes, ~1,900 m, *Standley* 38836 (Herzog 1938 as *Jamesoniella colorata*).

Also reported from South Tropical Africa, Southern Africa, Western Indian Ocean, Australia, New Zealand, Southern South America, Subantarctic Islands.

Syzygiella manca Steph., *Hedwigia* 31(1): 14, 1892 (Jack and Stephani 1892). Type: Ecuador.

Note: This species occurs from Mexico to northern and western South America and SE Brazil. The single report from Central America was reidentified as *Syzygiella anomala* by Inoue (1966).

†COSTA RICA. S. loc. (Cole 1982, 1983; Rico and Pócs 2004). †SAN JOSÉ: Vásquez de Coronado cantón, Las Nubes, 1,500–1,900 m, *Standley* 38692 (S, B-12165, Carl 1931a; Herzog 1938).

Also reported from Macaronesia, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, Western Indian Ocean, Mexico, Northern South America, Western South America, Brazil.

SYNONYMS

Acrobolbus latifolius (R.M.Schust.) Dimon, Váňa, Schäf.-Verw.,

Heinrichs et M.A.M.Renner nom. inval. = *Acrobolbus laxus*

Acrolejeunea juliformis (Nees) Steph. ex Schiffn. = *Archilejeunea fuscescens*

Adelanthus crossii Spruce = *Pseudomarsupidium decipiens*

Adelanthus decipiens (Hook.) Mitt. ≡ *Pseudomarsupidium decipiens*

Adelanthus parvus Herzog = *Adelanthus lindenbergianus*

Adelanthus unciformis (Hook.f. et Taylor) Spruce = *Adelanthus lindenbergianus*

Amphilejeunea patellifera (Spruce) R.M.Schust. = *Lejeunea catinulifera*

Amphilejeunea reflexistipula (Lehm. et Lindenb.) Gradst. ≡ *Lejeunea reflexistipula*

Anastrophyllum conforme (Lindenb. et Gottsche) Steph. = *Anastrophyllum tubulosum*

Anastrophyllum hellerianum (Nees ex Lindenb.) R.M.Schust. ≡ *Crossocalyx hellerianus*

Anastrophyllum leucostomum (Taylor) Steph. = *Anastrophyllum auritum*
Andrewsianthus jamesonii (Mont.) Váňa ≡ *Lophonardia jamesonii*
Andrewsianthus kilimanjaricus (S.W.Arnell) Grolle et Váňa = *Lophonardia jamesonii*
Aneura andina Spruce = *Riccardia fucoidea*
Aneura cervicornis Spruce = *Riccardia poeppigiana*
Aneura fucoidea (Sw.) Besch. ≡ *Riccardia fucoidea*
Aneura glaziovii Spruce ≡ *Riccardia glaziovii*
Aneura plumiformis Spruce = *Riccardia fucoidea*
Aneura tripinnata Steph. = *Riccardia glaziovii*
Anthoceros cristosporus Steph. = *Nothoceros vincentianus*
Anthoceros donnellii Austin = *Phaeoceros carolinianus*
Anthoceros fimbriatus Gottsche ≡ *Phaeomegaceros fimbriatus*
Anthoceros flexivalvis Gottsche et Nees ≡ *Phaeoceros flexivalvis*
Anthoceros laevis L. ≡ *Phaeoceros laevis*
Anthoceros mandonii Steph. = *Anthoceros caucasicus*
Anthoceros pulcherrimus (Steph.) Haupt = *Phaeomegaceros fimbriatus*
Anthoceros vegetans M.Howe = *Anthoceros tuberculatus*
Aphanolejeunea angustissima Steph. = *Cololejeunea papillosa*
Aphanolejeunea azorica (V.Allorge et Jovet-Ast) Bern.-Lück. et Pócs ≡ *Cololejeunea azorica*
Aphanolejeunea camillii (Lehm.) R.M.Schust. ≡ *Cololejeunea camillii*
Aphanolejeunea cingens Herzog ≡ *Cololejeunea cingens*
Aphanolejeunea clavatopapillata (Steph.) M.E.Reiner = *Cololejeunea jamesii*
Aphanolejeunea costaricensis Bern.-Lück. nom. inval. = *Cololejeunea costaricensis*
Aphanolejeunea costaricensis Bern.-Lück. ≡ *Cololejeunea costaricensis*
Aphanolejeunea crenata A.Evans ≡ *Cololejeunea crenata*
Aphanolejeunea cyathiphylla Herzog = *Cololejeunea papillosa*
Aphanolejeunea diaphana var. *cristulata* (R.M.Schust.) R.M.Schust. = *Cololejeunea diaphana*
Aphanolejeunea ephemeroides R.M.Schust. = *Cololejeunea sintenisii*
Aphanolejeunea exigua A.Evans ≡ *Cololejeunea microscopica* var. *exigua*
Aphanolejeunea gracilis Jovet-Ast ≡ *Cololejeunea gracilis*
Aphanolejeunea heterophylla (K.I.Goebel) R.M.Schust. = *Cololejeunea gracilis* var. *gracilis*
Aphanolejeunea longifolia Jovet-Ast ≡ *Cololejeunea antillana*
Aphanolejeunea microscopica var. *africana* (Pócs) Pócs et A.Lücking ≡ *Cololejeunea microscopica* var. *africana*
Aphanolejeunea microscopica var. *exigua* (A.Evans) Pócs et Bern.-Lück. ≡ *Cololejeunea microscopica* var. *exigua*
Aphanolejeunea minuta R.M.Schust. ≡ *Cololejeunea minuscula*
Aphanolejeunea moralesiae Bern.-Lück. nom. inval. = *Cololejeunea moralesiae*
Aphanolejeunea moralesiae Bern.-Lück. ≡ *Cololejeunea moralesiae*

Aphanolejeunea pocsii Bern.-Lück. nom. inval. = *Cololejeunea berneckerae*
Aphanolejeunea pocsii Bern.-Lück. ≡ *Cololejeunea berneckerae*
Aphanolejeunea pustulosa (Jovet-Ast) Bern.-Lück. et Pócs = *Cololejeunea papilliloba*
Aphanolejeunea sicifolia (Steph.) Steph. ex A.Evans = *Cololejeunea sicifolia*
Aphanolejeunea sintenisii Steph. ≡ *Cololejeunea sintenisii*
Aphanolejeunea subdiaphana var. *cristulata* (R.M.Schust.) Pócs = *Cololejeunea diaphana*
Aphanolejeunea truncatifolia Horik. = *Cololejeunea diaphana*
Aphanolejeunea verrucosa Jovet-Ast = *Cololejeunea microscopica* var. *africana*
Aphanolejeunea winkleri M.I.Morales et A.Lücking ≡ *Cololejeunea winkleri*
Apomarsupella africana (Steph. ex Bonner) R.M.Schust. = *Gymnomitrium africanum*
Arachniopsis diacantha (Mont.) M.Howe ≡ *Telaranea diacantha*
Arachniopsis monodactyla (Spruce) R.M.Schust. ≡ *Monodactylopsis monodactyla*
Archilejeunea auberiana (Mont.) Steph. ≡ *Dibrachiella auberiana*
Archilejeunea florentissima (Spruce) Spruce ex Steph. nom. inval. = *Dibrachiella auberiana*
Archilejeunea juliformis (Nees) Gradst. = *Archilejeunea fuscescens*
Archilejeunea leprieurii (Mont.) Schiffn. = *Dibrachiella parviflora*
Archilejeunea parviflora (Nees) Steph. ≡ *Dibrachiella parviflora*
Archilejeunea parviflora var. *florentissima* (Spruce) Gradst. et Buskes = *Dibrachiella auberiana*
Archilejeunea porelloides (Spruce) Schiffn. ≡ *Archilejeunea ludoviciana* subsp. *porelloides*
Archilejeunea porelloides subsp. *chocoensis* Gradst. nom. inval. = *Archilejeunea ludoviciana* subsp. *ludoviciana*
Archilejeunea rufa (Spruce) Steph. = *Archilejeunea fuscescens*
Archilejeunea tonduziana Steph. ≡ *Cheilolejeunea tonduziana*
Archilejeunea viridissima f. *multiflora* Herzog ex Standl. nom. inval. = *Dibrachiella parviflora*
Archilejeunea xanthocarpa (Lehm. et Lindenb.) Steph. ≡ *Cheilolejeunea xanthocarpa*
Aspiromitus microsporus Steph. ≡ *Phaeoceros microsporus*
Aspiromitus pulcherrimus Steph. = *Phaeomegaceros fimbriatus*
Asterella cubanensis (Lehm. ex Mont.) Underw. = *Asterella elegans*
Aureolejeunea aurifera R.M.Schust. ≡ *Cheilolejeunea aurifera*
Aureolejeunea fulva R.M.Schust. = *Cheilolejeunea tonduziana*
Aureolejeunea quinquecarinata R.M.Schust. ≡ *Cheilolejeunea quinquecarinata*
Aureolejeunea tonduziana (Steph.) Gradst. ≡ *Cheilolejeunea tonduziana*
Aytonia intermedia (Lindenb. et Gottsche) Kuntze ≡ *Plagiochasma intermedium*
Bazzania arcuata (Lindenb. et Gottsche) Trevis. = *Bazzania hookeri* var. *hookeri*

- Bazzania asperistipula* (Steph.) Herzog = *Bazzania hookeri* var. *hookeri*
Bazzania breuteliana (Lindenb. et Gottsche) Trevis. = *Bazzania hookeri* var. *hookeri*
Bazzania chimborazensis f. *cellulis-apicalibus* Herzog nom. inval. = *Bazzania hookeri*
Bazzania chimborazensis Spruce = *Bazzania hookeri* var. *hookeri*
Bazzania conchophylla Herzog = *Bazzania hookeri*
Bazzania cubensis (Gottsche ex Steph.) Pagán = *Bazzania pycnophylla* var. *cubensis*
Bazzania fendleri (Steph.) Fulford = *Bazzania jamaicensis*
Bazzania heteroclada Spruce = *Bazzania hookeri* var. *hookeri*
Bazzania heterostipa (Steph.) Fulford = *Bazzania nitida*
Bazzania jamaicensis var. *chamaecardia* Herzog = *Bazzania jamaicensis*
Bazzania latidens (Gottsche ex Steph.) Fulford = *Bazzania hookeri* var. *hookeri*
Bazzania liebmaniana (Lindenb. et Gottsche) Trevis. = *Bazzania stolonifera*
Bazzania longa (Nees) Trevis. = *Bazzania praerupta*
Bazzania portoricensis (Hampe et Gottsche) Steph. = *Bazzania hookeri*
Bazzania portoricensis var. *pycnodictyon* Herzog = *Bazzania hookeri*
Bazzania quadricrenata (Gottsche ex Steph.) Pagán = *Bazzania aurescens*
Bazzania robusta Spruce = *Bazzania falcata*
Bazzania schlimiana (Gottsche) Fulford = *Bazzania hookeri* var. *hookeri*
Bazzania stolonifera f. *defolians* (Herzog) Fulford nom. inval. = *Bazzania stolonifera*
Bazzania stolonifera f. *minor* (Herzog) Fulford nom. inval. = *Bazzania stolonifera*
Bazzania stolonifera f. *rufescens* (Herzog) Fulford nom. inval. = *Bazzania stolonifera*
Bazzania taleana (Gottsche) Fulford = *Bazzania affinis*
Bazzania teretiuscula (Lindenb. et Gottsche) Trevis. = *Bazzania hookeri* var. *hookeri*
Bazzania vincentiana (Lehm. et Lindenb.) Trevis. = *Bazzania stolonifera*
Bazzania vincentiana f. *defolians* Herzog nom. inval. = *Bazzania stolonifera*
Bazzania vincentiana f. *minor-ramulosa* Herzog nom. inval. = *Bazzania stolonifera*
Bazzania vincentiana f. *rufescens* Herzog nom. inval. = *Bazzania stolonifera*
Blepharostoma sandvicense (Mont.) Trevis. = *Fuscocephalozia connivens* subsp. *sandwicensis*
Bonneria granatensis (Gottsche) Fulford et J. Taylor = *Paracromastigum granatense*
Brachiolejeunea acuta S. Winkl. = *Dicranolejeunea axillaris*
Brachiolejeunea corticalis (Lehm. et Lindenb.) Schiffn. = *Frullanoides corticalis*
Brachiolejeunea densifolia (Raddi) A. Evans = *Frullanoides densifolia*
Brachiolejeunea insularis A. Evans = *Frullanoides chinantlana*
Brachiolejeunea mamillata f. *brevifolia* Herzog nom. inval. = *Frullanoides mexicana*
Brachiolejeunea mamillata f. *obtusifolia* Herzog nom. inval. = *Frullanoides mexicana*
Brachiolejeunea mamillata f. *typica* Herzog nom. inval. = *Frullanoides mexicana*
Brachiolejeunea mamillata Steph. = *Brachiolejeunea leiboldiana*
Brachiolejeunea nitidiuscula (Gottsche) Steph. = *Blepharolejeunea incongrua*
Brachiolejeunea parva Herzog = *Frullanoides chinantlana*
Bryolejeunea diffusa (Sw.) Steph. nom. inval. = *Bryopteris diffusa*
Bryolejeunea flaccida (Lindenb. et Hampe) Steph. nom. inval. = *Bryopteris filicina*
Bryolejeunea fruticulosa (Taylor) Steph. nom. inval. = *Bryopteris filicina*
Bryolejeunea tenuicaulis (Taylor ex Gottsche, Lindenb. et Nees) Steph. nom. inval. = *Bryopteris filicina*
Bryopteris brevis Steph. = *Bryopteris filicina*
Bryopteris filicina var. *fissiflora* Herzog ex Stotler et Crand.-Stotl. nom. inval. = *Bryopteris filicina*
Bryopteris filicina α *hookeriana* Gottsche, Lindenb. et Nees = *Bryopteris filicina*
Bryopteris flaccida Lindenb. et Hampe = *Bryopteris filicina*
Bryopteris fruticulosa f. *propagulifera* Herzog nom. inval. = *Bryopteris filicina*
Bryopteris fruticulosa subsp. *monoica* Stotler = *Bryopteris filicina*
Bryopteris fruticulosa Taylor = *Bryopteris filicina*
Bryopteris liebmaniana Lindenb. et Gottsche = *Bryopteris filicina*
Bryopteris longispica (Spruce) Steph. = *Bryopteris filicina*
Bryopteris tenuicaulis f. *flagellifera* Herzog = *Bryopteris filicina*
Bryopteris tenuicaulis Taylor ex Gottsche, Lindenb. et Nees = *Bryopteris filicina*
Bryopteris tenuicaulis var. *flagellifera* Herzog ex Standl. nom. inval. = *Bryopteris filicina*
Bryopteris trinitensis (Lehm. et Lindenb.) Lehm. et Lindenb. = *Bryopteris filicina*
Calobryum andinum (Spruce) Steph. = *Haplomitrium blumei*
Calypogeia caespitosa (Spruce) Steph. = *Mnioloma caespitosum*
Calypogeia crenulata Bischl. = *Mnioloma cellulosum*
Calypogeia cyclostipa (Spruce) Steph. = *Mnioloma cyclostipum*
Calypogeia elliottii Steph. = *Mnioloma elliottii*
Calypogeia heterophylla (Steph.) Steph. = *Calypogeia peruviana*
Calypogeia heterophylla var. *subrotunda* (Steph.) Bischl. = *Calypogeia peruviana*
Calypogeia rhynchophylla (Herzog) Bischl. = *Mnioloma rhynchophyllum*
Calypogeia subrotunda Steph. = *Calypogeia peruviana*
Calypotrocolea pittieri (Steph.) R. M. Schust. = *Adelanthus pittieri*

- Campanocolea fragmentissima* (R.M.Schust.) R.M.Schust. =
Lophocolea fragmentissima
Candollea simplex (Sw.) Raddi = *Plagiochila simplex*
Cephalozia caribbeana Fulford = *Fuscocephaloziopsis*
crassifolia
Cephalozia catenulata (Huebener) Lindb. = *Fuscocephaloziopsis*
catenulata
Cephalozia crassifolia (Lindenb. et Gottsche) Fulford = *Fusco-*
cephaloziopsis crassifolia
Cephalozia curvifolia (Dicks.) Dumort. = *Nowellia curvifolia*
Cephalozia dussii Fulford = *Cephalozia crossii*
Cephalozia granatensis J.B.Jack ex Steph. = *Cephaloziella*
fragillima
Cephalozia lunulifolia (Dumort.) Dumort. = *Fuscocephaloziop-*
sis lunulifolia
Cephalozia subforficata Herzog = *Fuscocephaloziopsis*
crassifolia
Cephaloziella granatensis (J.B.Jack ex Steph.) Fulford = *Cepha-*
loziella fragillima
Ceratolejeunea brasiliensis (Gottsche) Steph. = *Ceratolejeunea*
fallax
Ceratolejeunea corniculata Spruce ex Steph. = *Ceratolejeunea*
fallax
Ceratolejeunea cubensis (Mont.) Steph. nom. inval. = *Ceratole-*
jeunea cubensis
Ceratolejeunea deficiens Herzog = *Ceratolejeunea laetefusca*
Ceratolejeunea dentatocornuta Steph. = *Otigoniolejeunea*
huctumalcensis
Ceratolejeunea dussiana (Steph.) G.Dauphin = *Otigoniolejeunea*
huctumalcensis
Ceratolejeunea fastigiata (Spruce) Steph. = *Ceratolejeunea filaria*
Ceratolejeunea flagelliformis (Steph.) Fulford = *Ceratolejeunea*
filaria
Ceratolejeunea fusilobula Herzog = *Ceratolejeunea fallax*
Ceratolejeunea guadalupensis Steph. = *Ceratolejeunea cubensis*
Ceratolejeunea integrifolia A.Evans = *Ceratolejeunea laetefusca*
Ceratolejeunea involvens (Nees et Mont.) Steph. = *Ceratolejeu-*
nea cornuta
Ceratolejeunea lobata L.Clark = *Ceratolejeunea cornuta*
Ceratolejeunea longicornis (Gottsche) Steph. = *Ceratolejeunea*
filaria
Ceratolejeunea maritima (Spruce) Steph. = *Ceratolejeunea*
cornuta
Ceratolejeunea megalophysa (Spruce) Steph. = *Ceratolejeunea*
cornuta
Ceratolejeunea multiocellata Herzog = *Ceratolejeunea filaria*
Ceratolejeunea plumula (Spruce) Steph. = *Ceratolejeunea*
coarina
Ceratolejeunea schwaneckei Steph. = *Ceratolejeunea filaria*
Ceratolejeunea spinosa var. *costaricensis* Zwickel = *Ceratole-*
jeunea filaria
Ceratolejeunea spinosa var. *flagelliformis* Steph. = *Ceratole-*
jeunea filaria
Ceratolejeunea spruceana Zwickel = *Ceratolejeunea cornuta*
Ceratolejeunea valida A.Evans = *Ceratolejeunea cornuta*
Ceratolejeunea variabilis (Lindenb.) Pearson = *Ceratolejeunea*
cornuta
Ceratolejeunea variabilis (Lindenb.) Steph. nom. inval. = *Cera-*
tolejeunea cornuta
Cheilolejeunea choachina (Gottsche) Gradst. = *Cheilolejeunea*
acutangula
Cheilolejeunea clausa (Nees et Mont.) R.M.Schust. = *Cheilole-*
jeunea trifaria var. *clausa*
Cheilolejeunea decidua (Spruce) A.Evans = *Cheilolejeunea*
adnata
Cheilolejeunea decurviloba (Steph.) Xiao L.He = *Pycnolejeunea*
decurviloba
Cheilolejeunea fulva (R.M.Schust.) W.Ye et R.L.Zhu ex
M.Wigginton nom. inval. = *Cheilolejeunea tonduzana*
Cheilolejeunea inflata Steph. = *Cheilolejeunea intertexta*
Cheilolejeunea melastomatis (Lindenb. et Gottsche) Steph. nom.
inval. = *Lejeunea flava*
Cheilolejeunea oncophylla (Ångstr.) Grolle et M.E.Reiner =
Cheilolejeunea lobulata
Cheilolejeunea phyllobola (Nees et Mont.) Schiffn. = *Lejeunea*
phyllobola
Cheilolejeunea pililoba (Spruce) A.Evans = *Lejeunea trinitensis*
Cheilolejeunea pililoba f. *varians* Herzog = *Rectolejeunea*
pililoba var. *varians*
Cheilolejeunea polyantha A.Evans = *Cheilolejeunea rigidula*
var. *rigidula*
Chiloscyphus breutelii (Gottsche) J.J.Engel et R.M.Schust. =
Leptoscyphus orbignianus
Chiloscyphus combinatus (Nees) Nees = *Heteroscyphus*
combinatus
Chiloscyphus connatus (Sw.) J.J.Engel et R.M.Schust. =
Cryptolophocolea connata
Chiloscyphus guadalupensis (Steph.) J.J.Engel et R.M.Schust. =
Cryptolophocolea guadalupensis
Chiloscyphus martianus (Nees) J.J.Engel et R.M.Schust. =
Cryptolophocolea martiana
Chiloscyphus muricatus (Lehm.) J.J.Engel et R.M.Schust. =
Lophocolea muricata
Chiloscyphus nigrescens Lindenb. et Hampe = *Clasmatocolea*
vermicularis
Chiloscyphus obliquefolius Herzog ex Fulford nom. inval. =
Cryptolophocolea guadalupensis
Chiloscyphus pittieri Steph. = *Leptoscyphus amphibolius*
Chiloscyphus quadridentatus (Spruce) J.J.Engel et R.M.Schust.
= *Leptoscyphus orbignianus*
Chiloscyphus tricuspidatus (Herzog) J.J.Engel et R.M.Schust. =
Lophocolea tricuspidata
Chiloscyphus vermicularis (Lehm.) Hässel = *Clasmatocolea*
vermicularis
Cladopodiella intertexta (Gottsche) Fulford = *Cephaloziopsis*
intertexta
Cololejeunea aloba Herzog = *Cololejeunea camillii*
Cololejeunea clavatopapillata Steph. = *Cololejeunea jamesii*

- Cololejeunea coseguinana* L.Clark = *Myriocoleopsis minutissima* subsp. *minutissima*
Cololejeunea dauphinii (M.I.Morales et G.Dauphin) R.L.Zhu ≡ *Myriocoleopsis tixieri*
Cololejeunea elliptica (Steph.) S.W.Arnell nom. inval. = *Cololejeunea camillii*
Cololejeunea ensifolia f. *angustifolia* Herzog nom. inval. = *Cololejeunea diaphana*
Cololejeunea ensifolia f. *genuina* Herzog nom. inval. = *Cololejeunea diaphana*
Cololejeunea fefeana (Tixier) Tixier = *Cololejeunea cremersii*
Cololejeunea gradsteinii A.Lücking nom. inval. = *Cololejeunea linopteroides*
Cololejeunea manaosensis (Herzog) Herzog = *Cololejeunea subscariosa*
Cololejeunea minutissima (Sm.) Steph. ≡ *Myriocoleopsis minutissima*
Cololejeunea minutissima subsp. *myriocarpa* (Nees et Mont.) R.M.Schust. ≡ *Myriocoleopsis minutissima* subsp. *myriocarpa*
Cololejeunea papillifera (Herzog) R.M.Schust. nom. illeg. = *Cololejeunea minutilobula*
Cololejeunea planifolia (A.Evans) R.M.Schust. = *Cololejeunea planissima* var. *planissima*
Cololejeunea scabriflora Gottsche ex Steph. = *Cololejeunea obliqua*
Cololejeunea tixieri M.I.Morales et G.Dauphin nom. illeg. = *Myriocoleopsis tixieri*
Cololejeunea tonkinensis Steph. = *Cololejeunea lanciloba*
Cololejeunea verwimpfii Tixier nom. inval. ≡ *Cololejeunea verwimpfii*
Colura ceratophora (Nees) Trevis. = *Colura tenuicornis*
Colura clavigera (Gottsche ex Schiffn.) Jovet-Ast = *Macrocolura sagittistipula*
Colura longicornis (Gottsche) Trevis. = *Ceratolejeunea filaria*
Colura lyrata Steph. = *Macrocolura sagittistipula*
Colura tenuis Steph. = *Colura tenuicornis*
Crossotolejeunea controversa (Gottsche) Steph. ≡ *Lejeunea controversa*
Crossotolejeunea cristatella Gottsche ex Steph. = *Lejeunea acanthogona* var. *acanthogona*
Crossotolejeunea lindeniana Gottsche ex Steph. = *Lejeunea controversa*
Crossotolejeunea lindeniana var. *connivens* Herzog = *Lejeunea controversa*
Crossotolejeunea obtusiuscula Herzog = *Lejeunea controversa*
Crossotolejeunea prionocalyx (Gottsche ex Schiffn.) Steph. = *Lejeunea sporadica*
Crossotolejeunea rotundata S.Winkl. = *Lejeunea intricata*
Cryptochila grandiflora (Lindenb. et Gottsche) Grolle = *Syzygiella sonderi*
Cryptogynolejeunea costaricensis (Steph.) R.M.Schust. ≡ *Lejeunea reflexistipula* var. *costaricensis*
Cryptothallus hirsutus H.A.Crum ≡ *Aneura crumii*
Cyclolejeunea exigua Steph. = *Cyclolejeunea convexistipa*
Cyclolejeunea truncatula (Spruce) Steph. = *Cyclolejeunea convexistipa*
Cyrtolejeunea holostipa (Spruce) A.Evans ≡ *Cheilolejeunea holostipa*
Cyrtolejeunea saccatiloba (Steph.) Gradst. = *Lejeunea herminieri*
Cystolejeunea lineata (Lehm. et Lindenb.) A.Evans ≡ *Cheilolejeunea lineata*
Dendroceros canaliculatus Pagán ≡ *Nothoceros canaliculatus*
Dicranolejeunea longissima Steph. = *Dicranolejeunea axillaris*
Dicranolejeunea phyllorhiza (Nees) Schiffn. ≡ *Brachiolejeunea phyllorhiza*
Dicranolejeunea pulchella Herzog = *Acanthocoleus aberrans* var. *aberrans*
Dicranolejeunea saccata Steph. ≡ *Blepharolejeunea saccata*
Diplasiolejeunea brachyclada A.Evans = *Diplasiolejeunea cavifolia*
Diplasiolejeunea caribea Tixier = *Diplasiolejeunea pellucida*
Diplasiolejeunea costaricensis J.Eggers nom. inval. = *Diplasiolejeunea eggersii*
Diplasiolejeunea galloana Jovet-Ast = *Diplasiolejeunea brunnea*
Diplasiolejeunea inermis Tixier = *Diplasiolejeunea pellucida*
Diplasiolejeunea pellucida f. *malleiformis* (A.Evans) Herzog nom. inval. ≡ *Diplasiolejeunea malleiformis*
Diplasiolejeunea pellucida var. *malleiformis* A.Evans ≡ *Diplasiolejeunea malleiformis*
Diplasiolejeunea robertiana A.Lücking nom. inval. = *Diplasiolejeunea cavifolia*
Diplasiolejeunea rudolphiana Steph. = *Diplasiolejeunea unidentata*
Drepanolejeunea bidens f. *denticulata* Herzog nom. inval. = *Drepanolejeunea infundibulata*
Drepanolejeunea bidens Steph. nom. inval. = *Drepanolejeunea bidens*
Drepanolejeunea bispinulosa A.Evans = *Drepanolejeunea lichenicola*
Drepanolejeunea elegantissima Steph. = *Drepanolejeunea araucariae* var. *araucariae*
Drepanolejeunea fragilis (A.Evans) Bischl. nom. inval. = *Drepanolejeunea fragilis*
Drepanolejeunea subulata Steph. = *Drepanolejeunea anopantha*
Drepanolejeunea tenuis (Nees) J.B.Jack et Steph. = *Drepanolejeunea angustifolia*
Drepanolejeunea tenuis (Nees) Steph. nom. inval. = *Drepanolejeunea angustifolia*
Drepanolejeunea trifida Steph. = *Drepanolejeunea crucianella*
Dumortiera hirsuta var. *glabrocapitata* Steph. nom. inval. = *Dumortiera hirsuta*
Dumortiera nepalensis (Taylor) Nees ≡ *Dumortiera hirsuta* subsp. *nepalensis*
Echinocolea asperima (Spruce) R.M.Schust. ≡ *Lejeunea asperima*

- Echinocolea dilatata* (A.Evans) R.M.Schust. = *Lejeunea subspatulata*
Eucalyx obovata (Nees) Breidl. ≡ *Solenostoma obovatum*
Euosmolejeunea beyrichii (Lindenb.) Steph. ≡ *Cheilolejeunea beyrichii*
Euosmolejeunea clausa (Nees et Mont.) A.Evans ≡ *Cheilolejeunea trifaria* var. *clausa*
Euosmolejeunea condensata (Spruce) Spruce ex Steph. ≡ *Cheilolejeunea condensata*
Euosmolejeunea duriuscula (Nees) Steph. = *Cheilolejeunea rigidula*
Euosmolejeunea opaca (Gottsche) Steph. = *Cheilolejeunea trifaria* var. *clausa*
Euosmolejeunea rigidula (Nees ex Mont.) Steph. ≡ *Cheilolejeunea rigidula*
Euosmolejeunea trifaria (Reinw., Blume et Nees) Steph. ≡ *Cheilolejeunea trifaria*
Fimbraria elegans Spreng. ≡ *Asterella elegans*
Fimbraria stablii Steph. = *Asterella pringlei*
Fossombronia brasiliensis Steph. = *Fossombronia porphyrorhiza*
Frullania allionii Steph. = *Frullania ericoides*
Frullania arecae (Spreng.) Gottsche = *Frullania obscura*
Frullania arecae var. *spiniloba* (Steph.) Yuzawa ≡ *Frullania obscura* var. *spiniloba*
Frullania arietina Taylor ex Gottsche, Lindenb. et Nees = *Frullania rio-janeirensis* var. *rio-janeirensis*
Frullania atrata β *subtilissima* Nees ex Mont. ≡ *Frullania subtilissima*
Frullania atosanguinea Taylor ex Spruce = *Frullania peruviana*
Frullania bicornistipula var. *bradeana* (Steph.) L.Clark et Svihla = *Frullania bicornistipula*
Frullania bradeana Steph. = *Frullania bicornistipula*
Frullania brasiliensis f. *spinuliflora* (Herzog) Herzog ex G.Dauphin nom. inval. = *Frullania brasiliensis*
Frullania bullatiflora Steph. = *Frullania macrocephala*
Frullania closterantha Spruce ≡ *Frullania intumescens* var. *closterantha*
Frullania cocosensis Steph. = *Frullania brasiliensis*
Frullania convoluta f. *intermedia* Herzog nom. inval. = *Frullania convoluta*
Frullania convoluta f. *typica* Herzog nom. inval. = *Frullania convoluta*
Frullania convoluta var. *ampliata* Herzog = *Frullania convoluta*
Frullania costaricensis Steph. = *Frullania macrocephala*
Frullania crinoidea Spruce ex Steph. = *Frullania atrata*
Frullania cucullata Lindenb. et Gottsche = *Frullania intumescens*
Frullania cylindrica Lehm. = *Frullania brasiliensis*
Frullania cylindrica var. *minor* Husn. nom. inval. = *Frullania brasiliensis*
Frullania decipiens (Steph.) Beauverd nom. illeg. = *Frullania kunzei*
Frullania dubia Lindenb. et Hampe = *Frullania intumescens*
Frullania ecuadorensis Steph. = *Frullania kunzei*
Frullania fallax Steph. nom. illeg. = *Frullania intumescens*
Frullania flexicaulis Spruce = *Frullania paradoxa*
Frullania fuscobrunnea (Steph.) Steph. = *Frullania intumescens*
Frullania fusiflora Steph. = *Frullania obscura* var. *obscura*
Frullania galapagona Steph. nom. illeg. = *Frullania kunzei*
Frullania gymnotis Nees et Mont. = *Frullania obcordata*
Frullania haeckeriana Lindenb. = *Frullania peruviana*
Frullania hians (Lehm. et Lindenb.) Lehm. et Lindenb. = *Frullania obscura* var. *obscura*
Frullania hilariana Mont. = *Frullania glomerata*
Frullania hondurae Herzog et L.Clark = *Frullania brasiliensis*
Frullania involuta Hampe ex Steph. = *Frullania uleana*
Frullania lacouturei Steph. = *Frullania brasiliensis*
Frullania longicollis Lindenb. et Gottsche = *Frullania intumescens*
Frullania macrorhyncha Herzog et L.Clark = *Frullania hamiflora*
Frullania megalostipa Spruce ≡ *Frullania rio-janeirensis* var. *megalostipa*
Frullania mucronata (Lehm. et Lindenb.) Lehm. et Lindenb. = *Frullania brasiliensis*
Frullania neesii Lindenb. = *Frullania kunzei*
Frullania nodulosa f. *brachyantha* Herzog nom. inval. = *Frullania nodulosa*
Frullania panamana Steph. = *Frullania brasiliensis*
Frullania parasitica Hampe = *Frullania obcordata*
Frullania patens Lindenb. = *Frullania brasiliensis*
Frullania pendulostyla Steph. = *Frullania mirabilis*
Frullania piliflora f. *subobtusis* Herzog nom. inval. = *Frullania peruviana*
Frullania piliflora Steph. = *Frullania peruviana*
Frullania piliflora var. *appendiculata* Herzog = *Frullania peruviana*
Frullania rabenhorstii Steph. = *Frullania grandifolia*
Frullania replicata (Nees) Mont. = *Frullania nodulosa*
Frullania robusta (Spruce) Spruce = *Frullania brasiliensis*
Frullania robusta f. *latioribus* Herzog nom. inval. = *Frullania brasiliensis*
Frullania robusta f. *spinuliflora* Herzog nom. inval. = *Frullania brasiliensis*
Frullania rufa Steph. = *Frullania brasiliensis*
Frullania sagittistipula Lindenb. et Gottsche = *Frullania breuteliana*
Frullania spiniloba Steph. ≡ *Frullania obscura* var. *spiniloba*
Frullania spruceana Steph. = *Frullania brasiliensis*
Frullania squarrosa (Mont.) Nees = *Frullania ericoides*
Frullania strobilantha Spruce = *Frullania macrocephala*
Frullania thuillieri Nees = *Frullania nodulosa*
Frullania tolimana Steph. = *Frullania gibbosa*
Frullania tuerckheimii Steph. = *Frullania montagnei*
Frullania virillana Steph. = *Frullania montagnei*
Frullanoides tristis (Steph.) van Slageren = *Frullanoides chinantlana*
Gymnomitrium andinum (Herzog) Herzog = *Gymnomitrium bolivianum*

- Gymnomitrium andinum* (Steph.) R.M.Schust. nom. illeg. = *Gymnomitrium bolivianum*
Haplomitrium andinum (Spruce) R.M.Schust. = *Haplomitrium blumei*
Haplozia linguifolia (Gottsche) Herzog = *Solenostoma amplexifolium*
Harpalejeunea aspera Grolle ex Gradst., D.G.Griffin, M.I.Morales et Nadkarni nom. inval. = *Harpalejeunea scabra*
Harpalejeunea heterodonta A.Evans = *Harpalejeunea tridens*
Harpalejeunea punctata (Herzog) S.W.Arnell = *Lepidolejeunea cuspidata*
Harpalejeunea sporadica (Besch. et Spruce) Steph. ≡ *Lejeunea sporadica*
Harpalejeunea subspathulata (Spruce) Steph. ≡ *Lejeunea subspathulata*
Herbertus angustifolius (Steph.) Herzog = *Herbertus pensilis*
Herbertus angustifolius f. *minor* Herzog nom. inval. = *Herbertus pensilis*
Herbertus bivittatus var. *latilobus* Herzog = *Herbertus bivittatus*
Herbertus cancerinus f. *foliis-minus-serratis* Herzog nom. inval. = *Herbertus acanthelii*
Herbertus cancerinus Herzog = *Herbertus acanthelii*
Herbertus costaricensis f. *brevifolius* Herzog nom. inval. = *Herbertus pensilis*
Herbertus costaricensis Steph. = *Herbertus pensilis*
Herbertus divergens (Steph.) Herzog = *Herbertus bivittatus*
Herbertus durandii var. *dissectus* Herzog nom. inval. = *Herbertus sendtneri*
Herbertus grossispinus (Steph.) Fulford = *Herbertus sendtneri*
Herbertus juniperinus (Sw.) Trevis. nom. illeg. = *Herbertus juniperoides*
Herbertus juniperoides subsp. *acanthelii* (Spruce) K.Feldberg et Heinrichs ≡ *Herbertus acanthelii*
Herbertus juniperoides subsp. *bivittatus* (Spruce) K.Feldberg et Heinrichs ≡ *Herbertus bivittatus*
Herbertus juniperoides subsp. *pensilis* (Taylor) K.Feldberg et Heinrichs ≡ *Herbertus pensilis*
Herbertus limbatus (Steph.) Herzog = *Herbertus acanthelii*
Herbertus pectinatus Herzog = *Herbertus acanthelii*
Herbertus penicillatus Herzog = *Herbertus bivittatus*
Herbertus serratus Spruce = *Herbertus acanthelii*
Herbertus stenochizon Herzog = *Herbertus acanthelii*
Herbertus subdentatus (Steph.) Fulford = *Herbertus acanthelii*
Herbertus vulcanicola Herzog = *Herbertus acanthelii*
Heteroscyphus pittieri (Steph.) Schiffn. = *Leptoscyphus amphibolius*
Homalolejeunea robusta (Mitt.) Spruce ex Bonner nom. inval. ≡ *Marchesia brachiata* var. *robusta*
Hygrolejeunea cerina (Lehm. et Lindenb.) Schiffn. ≡ *Lejeunea cerina*
Hygrolejeunea cerina (Lehm. et Lindenb.) Steph. nom. inval. ≡ *Lejeunea cerina*
Hygrolejeunea cordifissa (Taylor) Steph. ≡ *Lepidolejeunea cordifissa*
Hygrolejeunea costaricensis Steph. ≡ *Lejeunea reflexistipula* var. *costaricensis*
Hygrolejeunea elongella (Gottsche) Steph. ≡ *Lejeunea elongella*
Hygrolejeunea matteola (Spruce) Steph. = *Lejeunea anomala*
Hygrolejeunea ocellata Steph. = *Otigoniolejeunea huctumalcensis*
Hygrolejeunea phyllobola (Nees et Mont.) C.Massal. ≡ *Lejeunea phyllobola*
Hygrolejeunea phyllobola (Nees et Mont.) Steph. nom. inval. ≡ *Lejeunea phyllobola*
Hygrolejeunea punctata Herzog = *Lepidolejeunea cuspidata*
Hygrolejeunea rotundifolia (Mitt.) Steph. ≡ *Lejeunea rotundifolia*
Hygrolejeunea similis Steph. = *Lejeunea cerina*
Hygrolejeunea tonduzana Steph. ≡ *Lejeunea tonduzana*
Hygrophila irrigua (Wilson ex Hook.) Taylor = *Dumortiera hirsuta* subsp. *hirsuta*
Hypenatron elegans (Spreng.) Trevis. ≡ *Asterella elegans*
Hypoisoetachis multiceps (Lindenb. et Gottsche) R.M.Schust. ex J.J.Engel et G.L.Merr. ≡ *Isoetachis multiceps*
Isoetachis haematodes (Lindenb. et Gottsche) Gottsche = *Isoetachis serrulata*
Isoetachis lindigiana Gottsche = *Isoetachis serrulata*
Isoetachis madida (Hook. et Taylor) Mitt. = *Isoetachis humectata*
Isoetachis madida auct. = *Isoetachis serrulata*
Isoetachis parva Steph. = *Isoetachis multiceps*
Isoetachis ripensis Spruce = *Triandrophyllum subtrifidum* var. *subtrifidum*
Isoetachis ripensis var. *armata* Herzog = *Triandrophyllum subtrifidum* var. *trifidum*
Iwatsukia bifida (Fulford) R.M.Schust. ≡ *Odontoschisma bifidum*
Iwatsukia jishibae (Steph.) N.Kitag. ≡ *Odontoschisma jishibae*
Jamesoniella autumnalis (DC.) Steph. ≡ *Syzygiella autumnalis*
Jamesoniella colorata (Lehm.) Spruce ex Schiffn. ≡ *Syzygiella colorata*
Jamesoniella rubricaulis (Nees) Grolle ≡ *Syzygiella rubricaulis*
Jensenia erythropus (Gottsche) Grolle = *Jensenia spinosa*
Jubula bogotensis Steph. ≡ *Jubula hutchinsiae* subsp. *bogotensis*
Jubula costaricensis (Herzog) Herzog nom. inval. = *Jubula hutchinsiae* subsp. *bogotensis*
Jubula hutchinsiae var. *costaricensis* Herzog nom. inval. = *Jubula hutchinsiae* subsp. *bogotensis*
Jubula pennsylvanica subsp. *bogotensis* (Steph.) W.R.Guerke ≡ *Jubula hutchinsiae* subsp. *bogotensis*
Jungermannia amoena Lindenb. et Gottsche ≡ *Solenostoma amoenum*
Jungermannia amplexifolia (Hampe) Grolle ≡ *Solenostoma amplexifolium*
Jungermannia callithrix Lindenb. et Gottsche ≡ *Solenostoma callithrix*
Jungermannia colorata Lehm. ≡ *Syzygiella colorata*
Jungermannia elliptica var. *β laxa* Lehm. et Lindenb. = *Leptolejeunea elliptica*
Jungermannia erythrorhiza Lehm. et Lindenb. ≡ *Isoetachis erythrorhiza*

Jungermannia fossombronioides Austin ≡ *Solenostoma fossombronioides*
Jungermannia gracillima Sm. ≡ *Solenostoma gracillimum*
Jungermannia linguifolia Gottsche = *Solenostoma amplexifolium*
Jungermannia rubra Gottsche ex Underw. ≡ *Solenostoma rubrum*
Jungermannia sphaerocarpa Hook. ≡ *Solenostoma sphaerocarpum*
Kurzia verrucosa (Steph.) Grolle ≡ *Kurzia capillaris* subsp. *capillaris* var. *verrucosa*
Leiocolea turbinata (Raddi) H.Buch ≡ *Mesoptychia turbinata*
Leioscyphus nigrescens (Lindenb. et Hampe) Steph. = *Clasmatocolea vermicularis*
Lejeunea acutifolia (Steph.) A.Lücking nom. inval. ≡ *Microlejeunea acutifolia*
Lejeunea acutifolia (Steph.) R.M.Schust. nom. inval. ≡ *Microlejeunea acutifolia*
Lejeunea autoica R.M.Schust. = *Lejeunea aphanes*
Lejeunea bicolor (Nees) Mont. = *Frullanoides densifolia* subsp. *densifolia*
Lejeunea bullata Taylor ≡ *Microlejeunea bullata*
Lejeunea caespitosa Lindenb. = *Lejeunea capensis*
Lejeunea caulicalyx (Steph.) M.E.Reiner et Goda = *Lejeunea glaucescens*
Lejeunea cephalandra Spruce = *Lejeunea phyllobola*
Lejeunea cordifissa Taylor ≡ *Lepidolejeunea cordifissa*
Lejeunea cristatella (Gottsche ex Steph.) Bern.-Lück. nom. inval. = *Lejeunea acanthogona* var. *acanthogona*
Lejeunea cristatella Gottsche ex Steph. = *Lejeunea intricata*
Lejeunea cristulata (Steph.) M.E.Reiner et Goda ≡ *Lejeunea acanthogona* var. *cristulata*
Lejeunea cristuliflora (Steph.) M.E.Reiner et Goda = *Lejeunea acanthogona* var. *cristulata*
Lejeunea drymophila Spruce = *Lejeunea adpressa*
Lejeunea elliottii Spruce = *Lejeunea sporadica*
Lejeunea elliptica (Lehm. et Lindenb.) Mont. ≡ *Leptolejeunea elliptica*
Lejeunea elliptica β *laxa* (Lehm. et Lindenb.) Gottsche = *Leptolejeunea elliptica*
Lejeunea epiphylla (Bischn.) Bern.-Lück. nom. inval. ≡ *Microlejeunea epiphylla*
Lejeunea erostrata (Steph.) M.E.Reiner et Goda = *Lejeunea acanthogona* var. *diversicuspis*
Lejeunea filipes Spruce = *Lejeunea aphanes*
Lejeunea halei H.Rob. = *Lejeunea capensis*
Lejeunea holostipa Spruce ≡ *Cheilolejeunea holostipa*
Lejeunea huctumalcensis Lindenb. et Gottsche ≡ *Otigoniolejeunea huctumalcensis*
Lejeunea lancifolia (Steph.) G.Dauphin nom. inval. = *Lejeunea osculatiana*
Lejeunea lepida Lindenb. et Gottsche = *Lejeunea laetevirens*
Lejeunea lusoria (Lindenb. et Gottsche) Prantl = *Lejeunea flaccida*

Lejeunea magnoliae Lindenb. et Gottsche = *Lejeunea adpressa*
Lejeunea maxonii (A.Evans) Xiao L.He = *Lejeunea deplanata* var. *deplanata*
Lejeunea obtusangula Spruce = *Lejeunea flaccida*
Lejeunea opaca Gottsche = *Cheilolejeunea trifaria* var. *clausa*
Lejeunea peruviana (Lehm. et Lindenb.) Gottsche, Lindenb. et Nees ≡ *Cyclolejeunea peruviana*
Lejeunea piriflora Gottsche ex Pol. nom. inval. ≡ *Cheilolejeunea piriflora*
Lejeunea saccatiloba (Steph.) R.L.Zhu et W.Ye nom. illeg. = *Lejeunea herminieri*
Lejeunea tapajosensis Spruce = *Lejeunea parviloba*
Lejeunea tocoriensis (Steph.) Duss = *Odontolejeunea decemdentata*
Lejeunea ulicina (Taylor) Gottsche, Lindenb. et Nees ≡ *Microlejeunea ulicina*
Lejeunea ulicina subsp. *bullata* (Taylor) R.M.Schust. ≡ *Microlejeunea bullata*
Lejeunea venezuelana (R.M.Schust.) R.L.Zhu, W.Ye et Y.M.Wei nom. inval. ≡ *Lejeunea venezuelana*
Lejeunea versicolor (Lehm. et Lindenb.) Mitt. nom. inval. = *Thysananthus auriculatus*
Lepicolea pruinosa f. *laxior-complanata* Herzog nom. inval. = *Lepicolea pruinosa*
Lepicolea pruinosa f. *longissime-lacinulata* Herzog nom. inval. = *Lepicolea pruinosa*
Lepicolea pruinosa f. *spinuloso-lacinulata* Herzog nom. inval. = *Lepicolea pruinosa*
Lepidolejeunea ornata (H.Rob.) R.M.Schust. = *Lepidolejeunea cordifissa*
Lepidolejeunea punctata (Herzog) R.M.Schust. = *Lepidolejeunea cuspidata*
Lepidolejeunea spongia (Spruce) B.M.Thiers = *Lepidolejeunea sullivantii*
Lepidozia armata f. *cavifolia* Herzog nom. inval. = *Lepidozia armata*
Lepidozia caespitosa Spruce = *Lepidozia cupressina*
Lepidozia commutata Steph. = *Lepidozia patens*
Lepidozia costaricensis Steph. = *Lepidozia squarrosa*
Lepidozia durandii Steph. = *Lepidozia squarrosa*
Lepidozia granatensis f. *elatior* Steph. nom. inval. = *Paracromastigum granatense*
Lepidozia granatensis Gottsche ≡ *Paracromastigum granatense*
Lepidozia karstenii f. *angustisecta* Herzog nom. inval. = *Lepidozia armata*
Lepidozia karstenii f. *brevifissa* Herzog nom. inval. = *Lepidozia armata*
Lepidozia karstenii var. *standleyi* Herzog = *Lepidozia armata*
Lepidozia macropatens Herzog = *Lepidozia reptans*
Lepidozia moritziana Steph. = *Lepidozia brasiliensis*
Lepidozia muenchiana Steph. = *Lepidozia cupressina* subsp. *cupressina*
Lepidozia peruviana Steph. = *Lepidozia dendritica*
Lepidozia wallisiana Steph. = *Lepidozia cupressina* subsp. *cupressina*

- Leptocolea cardiocarpa* (Mont.) A.Evans ≡ *Cololejeunea cardiocarpa*
Leptocolea planifolia A.Evans = *Cololejeunea planissima* var. *planissima*
Leptocolea scabriflora (Gottsche ex Steph.) A.Evans = *Cololejeunea obliqua*
Leptocolea standleyi Herzog ex Standl. nom. inval. = *Cololejeunea standleyi*
Leptolejeunea chrysophthalma Herzog = *Leptolejeunea moniliata*
Leptolejeunea foraminulosa Steph. = *Leptolejeunea epiphylla*
Leptolejeunea mexicana Bischl. = *Leptolejeunea convexistipa*
Leptolejeunea obovata Bischl. = *Leptolejeunea radicata*
Leptolejeunea stenophylla (Lindenb. et Gottsche) Schiffn. = *Drepanolejeunea orthophylla* subsp. *orthophylla*
Leptolejeunea stenophylla (Lindenb. et Gottsche) Steph. nom. inval. = *Drepanolejeunea orthophylla* subsp. *orthophylla*
Leptolejeunea stenophylla f. *latifolia* Herzog nom. inval. = *Drepanolejeunea mosenii*
Leptoscyphus liebmanianus (Lindenb. et Gottsche) Mitt. = *Leptoscyphus porphyrius*
Leptoscyphus quadridentatus (Spruce) Grolle nom. inval. = *Leptoscyphus orbignianus*
Leptoscyphus trapezoides (Mont.) L.Söderstr. = *Leptoscyphus orbignianus*
Leucolejeunea nana S.Winkl. = *Cheilolejeunea conchifolia*
Leucolejeunea unciloba (Lindenb.) A.Evans ≡ *Cheilolejeunea unciloba*
Leucolejeunea xanthocarpa (Lehm. et Lindenb.) A.Evans ≡ *Cheilolejeunea xanthocarpa*
Leucosarmentum portoricense Fulford = *Paracromastigum pachyrhizum*
Lindigina liebmaniana (Lindenb. et Gottsche) Gottsche ≡ *Gongylanthus liebmanianus*
Lophocolea aberrans var. *costaricensis* Herzog = *Leptoscyphus amphibolius*
Lophocolea breutelii Gottsche = *Leptoscyphus orbignianus*
Lophocolea breutelii var. *robusta* Herzog ex Fulford nom. inval. = *Leptoscyphus orbignianus*
Lophocolea columbica Gottsche = *Leptoscyphus orbignianus*
Lophocolea connata (Sw.) Nees ex Mont. ≡ *Cryptolophocolea connata*
Lophocolea effusidens Steph. = *Leptoscyphus orbignianus*
Lophocolea epiphylla (Herzog) Herzog nom. inval. = *Cryptolophocolea martiana*
Lophocolea erosa Gradst. nom. inval. = *Lophocolea tenerrima*
Lophocolea granatensis Gottsche = *Cryptolophocolea connata*
Lophocolea guadalupensis Steph. ≡ *Cryptolophocolea guadalupensis*
Lophocolea liebmanniana var. *bisbifida* Herzog ex Standl. nom. inval. = *Lophocolea liebmanniana*
Lophocolea liebmanniana var. *martiana* (Nees) Herzog ex Standl. ≡ *Cryptolophocolea martiana*
Lophocolea martiana Nees ≡ *Cryptolophocolea martiana*
Lophocolea perissodonta (Spruce) Steph. ≡ *Cryptolophocolea martiana* var. *perissodonta*
Lophocolea perissodonta Spruce nom. inval. = *Cryptolophocolea martiana* var. *perissodonta*
Lophocolea quadridentata Spruce = *Leptoscyphus orbignianus*
Lophocolea trapezoides Mont. = *Leptoscyphus orbignianus*
Lopholejeunea cocosensis L.Clark = *Lopholejeunea eulopha*
Lopholejeunea muelleriana (Gottsche) Schiffn. = *Lopholejeunea nigricans*
Lopholejeunea sagraana (Mont.) Schiffn. nom. inval. = *Lopholejeunea subfusca*
Lopholejeunea sagraana (Mont.) Steph. = *Lopholejeunea subfusca*
Lophozia incisa (Schrad.) Dumort. ≡ *Schistochilopsis incisa*
Lophozia jamesonii (Mont.) R.M.Schust. ≡ *Lophonardia jamesonii*
Lophozia laxifolia (Mont.) Grolle ≡ *Lophonardia laxifolia*
Lophozia longiflora (Nees) Schiffn. ≡ *Lophozia ventricosa* var. *longiflora*
Lophozia turbinata (Raddi) Steph. ≡ *Mesoptychia turbinata*
Macrocolura lyrata (Steph.) R.M.Schust. = *Macrocolura sagittistipula*
Macrolejeunea cerina (Lehm. et Lindenb.) Gradst. ≡ *Lejeunea cerina*
Macrolejeunea lancifolia (Steph.) Herzog = *Lejeunea osculatiana*
Macrolejeunea pallescens (Mitt.) Schiffn. ≡ *Lejeunea pallescens*
Macrolejeunea subsimplex (Mont. et Nees) Schiffn. = *Lejeunea cerina*
Macrolejeunea subsimplex f. *minor* Herzog nom. inval. = *Lejeunea cerina*
Macrolejeunea subsimplex f. *parvistipula* Herzog nom. inval. = *Lejeunea cerina*
Madotheca maxonii Herzog = *Porella leiboldii*
Madotheca muenchiana Steph. = *Porella leiboldii*
Madotheca subciliata Lehm. et Lindenb. = *Porella crispata*
Madotheca subciliata var. *endiviifolia* Herzog = *Porella crispata*
Madotheca swartziana (F.Weber) Lehm. ≡ *Porella swartziana*
Madotheca swartziana var. *decurrenti-spinulosa* Herzog = *Porella leiboldii*
Madotheca swartziana var. *guatemalensis* Herzog = *Porella swartziana*
Marchantia domingensis Lehm. et Lindenb. = *Marchantia paleacea* subsp. *paleacea*
Marchantia latifolia Gray = *Marchantia polymorpha* subsp. *ruderalis*
Marchantia papillata subsp. *inflexa* (Nees et Mont.) R.M.Schust. ≡ *Marchantia inflexa*
Marchantia pittieri Steph. ex Bonner = *Marchantia chenopoda*
Marchesinia brachiata f. *dentata* Herzog nom. inval. = *Marchesinia brachiata*
Marchesinia brachiata f. *intermedia* Herzog nom. inval. = *Marchesinia brachiata*
Marchesinia brachiata var. *saccata* (Steph.) Herzog = *Marchesinia brachiata*

Marchesinia coniloba Steph. = *Frullanoides densifolia* subsp. *densifolia*
Marchesinia denticulata Steph. = *Marchesinia brachiata*
Marchesinia longirostris Herzog = *Marchesinia brachiata*
Marchesinia longirostris var. *rivularis* Herzog = *Marchesinia brachiata*
Marchesinia minor Herzog = *Marchesinia brachiata*
Marchesinia quadridens Steph. nom. illeg. = *Marchesinia brachiata* var. *robusta*
Marchesinia robusta (Mitt.) Schiffn. = *Marchesinia brachiata* var. *robusta*
Marchesinia saccata Steph. = *Marchesinia brachiata*
Marchesinia trollii Herzog = *Marchesinia brachiata*
Marsupella lacerata (Steph.) Váša = *Gymnomitrion bolivianum*
Marsupella miniata (Lindenb. et Gottsche) Grolle = *Gymnomitrion minutum*
Marsupella moralesae (Váša) Váša = *Gymnomitrion moralesae*
Marsupella trollii Herzog = *Gymnomitrion bolivianum*
Marsupella truncatoapiculata (Herzog) Váša = *Gymnomitrion truncatoapiculatum*
Marsupidium latifolium R.M.Schust. = *Acrobolbus laxis*
Mastigobryum arcuatum Lindenb. et Gottsche = *Bazzania hookeri* var. *hookeri*
Mastigobryum asperistipulum Steph. = *Bazzania hookeri* var. *hookeri*
Mastigobryum brasiliense Gottsche et Lindenb. = *Bazzania brasiliensis*
Mastigobryum jamaicense (Lehm. et Lindenb.) Gottsche, Lindenb. et Nees = *Bazzania jamaicensis*
Mastigobryum portoricense Hampe et Gottsche = *Bazzania hookeri*
Mastigobryum stoloniferum (Sw.) Lindenb. et Gottsche = *Bazzania stolonifera*
Mastigobryum sylvaticum Steph. nom. inval. = *Bazzania stolonifera*
Mastigobryum turkheimii Beauverd = *Bazzania stolonifera*
Mastigolejeunea auriculata (Wilson et Hook.) Steph. = *Thysananthus auriculatus*
Mastigolejeunea crispula (Steph.) Steph. = *Thysananthus auriculatus* var. *auriculatus*
Mastigolejeunea dentilobula Herzog = *Caudalejeunea lehmanniana*
Mastigolejeunea innovans var. *parciflora* Herzog = *Thysananthus auriculatus*
Mastigolejeunea pittieri Steph. = *Thysananthus auriculatus*
Megaceros canaliculatus (Pagán) A.J.Shaw et Renzaglia ex J.C.Villarreal et N.Salazar = *Nothoceros canaliculatus*
Megaceros cristosporus (Steph.) Steph. = *Nothoceros vincentianus*
Megaceros guatemalensis Steph. = *Nothoceros vincentianus*
Megaceros vincentianus (Lehm. et Lindenb.) Campb. = *Nothoceros vincentianus*
Metzgeria angusta Steph. = *Metzgeria albinea* var. *angusta*
Metzgeria australis Steph. = *Metzgeria leptoneura*
Metzgeria decipiens (C.Massal.) Schiffn. = *Metzgeria ciliata*

Metzgeria gigantea Steph. = *Metzgeria claviflora*
Metzgeria hamata Lindb. nom. illeg. = *Metzgeria procera*
Metzgeria innovans Steph. = *Metzgeria furcata*
Metzgeria papulosa Steph. = *Metzgeria leptoneura*
Metzgeria sandei Schiffn. = *Metzgeria leptoneura*
Metzgeria thomeensis Steph. = *Metzgeria leptoneura*
Metzgeria tuerckheimii Steph. = *Metzgeria leptoneura*
Microlejeunea colombiana Bischl. = *Microlejeunea capillaris*
Microlejeunea laetevirens (Nees et Mont.) A.Evans = *Lejeunea laetevirens*
Microlejeunea monoica Bischl. = *Metalejeunea cucullata*
Microlejeunea perigonalis (Gottsche) Steph. = *Lejeunea perigonalis*
Microlejeunea stricta (Gottsche, Lindenb. et Nees) Steph. = *Microlejeunea diversiloba*
Microlejeunea ulicina subsp. *bullata* (Taylor) R.M.Schust. ex Breil nom. inval. = *Microlejeunea bullata*
Microlepidozia capillaris (Sw.) Fulford = *Kurzia capillaris*
Microlepidozia flagellifera (Steph.) Fulford = *Kurzia flagellifera*
Microlepidozia verrucosa (Steph.) Fulford = *Kurzia capillaris* subsp. *capillaris* var. *verrucosa*
Mnioloma cyclostipa (Spruce) R.M.Schust. nom. illeg. = *Mnioloma cyclostipum*
Monoclea gottschei subsp. *elongata* Gradst. et Mues = *Monoclea gottschei* subsp. *gottschei*
Monoclea gottschei subsp. *neotropica* Spörle, H.Becker, N.Salazar et M.P.Gupta nom. inval. = *Monoclea gottschei* subsp. *gottschei*
Neopotamolejeunea tenera (Sw.) M.E.Reiner = *Lejeunea tenera*
Notoscyphus paramicola Herzog = *Syzygiella autumnalis*
Nowellia caribbeana Fulford = *Nowellia evansii*
Odontolejeunea calcarata (Mont.) Steph. = *Odontolejeunea lunulata*
Odontolejeunea decemdentata var. *tocoriensis* (Steph.) Herzog = *Odontolejeunea decemdentata*
Odontolejeunea longispica A.Evans = *Odontolejeunea decemdentata*
Odontolejeunea ovalis (Lindenb. et Gottsche) Gradst. nom. inval. = *Cheilolejeunea ovalis*
Odontolejeunea sieberiana (Gottsche) Schiffn. = *Odontolejeunea lunulata*
Odontolejeunea tocoriensis Steph. = *Odontolejeunea decemdentata*
Odontoschisma brasiliense auct. non typus = *Odontoschisma variabile*
Odontoschisma cordifolium Steph. = *Odontoschisma denudatum* subsp. *denudatum*
Odontoschisma prostratum (Sw.) Trevis. = *Odontoschisma sphagni*
Odontoschisma stoloniferum (Lindenb. et Gottsche) Trevis. = *Odontoschisma sphagni*
Omphalanthus filiformis (Sw.) Nees = *Cheilolejeunea filiformis*
Omphalanthus filiformis f. *ramis-veneris-elongatis* Herzog nom. inval. = *Cheilolejeunea filiformis*

- Omphalanthus filiformis* var. *platycoleus* (Herzog) Gradst. = *Cheilolejeunea filiformis* var. *platycoleus*
Omphalanthus grandistipulus Steph. = *Cheilolejeunea filiformis*
Omphalanthus ovalis (Lindenb. et Gottsche) Gradst. = *Cheilolejeunea ovalis*
Omphalanthus platycoleus Herzog = *Cheilolejeunea filiformis* var. *platycoleus*
Omphalolejeunea filiformis (Sw.) Lacout. = *Cheilolejeunea filiformis*
Oryzolejeunea antillana (R.M.Schust.) R.M.Schust. = *Lejeunea herminieri*
Oryzolejeunea grolleana Bernecker = *Lejeunea grolleana*
Oryzolejeunea saccatiloba (Steph.) Gradst. = *Lejeunea herminieri*
Otigoniolejeunea quinqueumbonata var. *rotundata* Herzog = *Lejeunea quinqueumbonata* var. *rotundata*
Pallavicinia wallisii J.B.Jack et Steph. = *Jensenia wallisii*
Paracromastigum bifidum (Steph.) R.M.Schust. = *Paracromastigum pachyrrhizum*
Paracromastigum portoricense (Fulford) A.V.Freire nom. inval. = *Paracromastigum pachyrrhizum*
Peltolejeunea jackii (Prantl) Schiffn. = *Cheilolejeunea jackii*
Peltolejeunea ovalis (Lindenb. et Gottsche) Schiffn. = *Cheilolejeunea ovalis*
Phaeoceros fimbriatus (Gottsche) Gradst. = *Phaeomegaceros fimbriatus*
Phaeoceros laevis var. *carolinianus* (Michx.) Augier nom. inval. = *Phaeoceros carolinianus*
Phaeomegaceros fimbriatus (Gottsche) J.C.Villarreal et Renzaglia nom. inval. = *Phaeomegaceros fimbriatus*
Phragmicoma guilleminiana Nees et Mont. ex Mont. = *Marchesia brachiata* var. *brachiata*
Phragmicoma salvadorica Ångstr. = *Thysananthus auriculatus* var. *auriculatus*
Physantholejeunea portoricensis (Hampe et Gottsche) R.M.Schust. = *Otigoniolejeunea portoricensis*
Physocolea elliptica Steph. = *Cololejeunea camillii*
Physocolea microloba Herzog ex Standl. nom. inval. = *Cololejeunea minutilobula*
Physocolea semidentata Steph. = *Cololejeunea obliqua*
Physocolea subscariosa (Spruce) Steph. = *Cololejeunea subscariosa*
Plagiochila acanthoda Lindenb. et Gottsche = *Plagiochila stricta*
Plagiochila aliena f. *brevifolia* Herzog nom. inval. = *Plagiochila raddiana*
Plagiochila aliena f. *rupicola* Herzog ex Standl. nom. inval. = *Plagiochila raddiana*
Plagiochila aliena Gottsche = *Plagiochila raddiana*
Plagiochila alpina Gottsche = *Plagiochila aerea*
Plagiochila anderssonii Ångstr. = *Plagiochila raddiana*
Plagiochila angulifolia Steph. = *Plagiochila adianthoides*
Plagiochila arnelliana Steph. = *Plagiochila bifaria*
Plagiochila beauverdii Steph. = *Plagiochila macra*
Plagiochila bidens Gottsche = *Plagiochila tenuis*
Plagiochila bonplandii Gottsche = *Plagiochila laetevirens*
Plagiochila bradeana Steph. = *Plagiochila superba* var. *superba*
Plagiochila breuteliana var. γ *novo-granatensis* Gottsche = *Plagiochila breuteliana*
Plagiochila bryhnii var. *ecuadoriensis* Herzog ex Bonner nom. inval. = *Plagiochila deflexirama*
Plagiochila bryopteroides Spruce = *Plagiochila deflexirama*
Plagiochila bryopteroides var. *ecuadoriensis* Herzog nom. inval. = *Plagiochila deflexirama*
Plagiochila bursata (Lam.) Lindenb. nom. illeg. = *Plagiochila aerea*
Plagiochila bursata f. *amphigastriis-minimis-digitatis* Herzog nom. inval. = *Plagiochila aerea*
Plagiochila bursata f. *depauperata* Herzog ex Carl nom. inval. = *Plagiochila aerea*
Plagiochila bursata f. *intermedia* Herzog nom. inval. = *Plagiochila aerea*
Plagiochila bursata f. *pilistipula* Herzog nom. inval. = *Plagiochila aerea*
Plagiochila bursata f. *tenera* Herzog nom. inval. = *Plagiochila aerea*
Plagiochila bursata var. *fissistipula* Herzog nom. inval. = *Plagiochila aerea*
Plagiochila bursata var. *fissistipula* Herzog ex Carl nom. inval. = *Plagiochila aerea*
Plagiochila bursata var. *pilistipula* Herzog ex Carl nom. inval. = *Plagiochila aerea*
Plagiochila bursata var. β *minor* Lindenb. = *Plagiochila aerea*
Plagiochila bursata β *minor* Lindenb. = *Plagiochila aerea*
Plagiochila caudata Steph. = *Plagiochila laetevirens*
Plagiochila caudatodecurrens Herzog ex Carl nom. inval. = *Plagiochila raddiana*
Plagiochila chinantlana Gottsche = *Plagiochila punctata* var. *punctata*
Plagiochila choachina Gottsche = *Plagiochila punctata* var. *punctata*
Plagiochila choachina var. *plurispina* Herzog = *Plagiochila punctata* var. *punctata*
Plagiochila choachina var. *plurispina* Herzog ex Carl nom. inval. = *Plagiochila punctata* var. *punctata*
Plagiochila cobana Steph. = *Plagiochila rutilans*
Plagiochila columbica Gottsche = *Plagiochila alternans*
Plagiochila compressula (Nees) Lindenb. = *Plagiochila bifaria*
Plagiochila confundens f. *bipinnata* Herzog nom. inval. = *Plagiochila simplex*
Plagiochila confundens f. *densifolia* Herzog nom. inval. = *Plagiochila simplex*
Plagiochila confundens f. *densifolia* Herzog ex Carl nom. inval. = *Plagiochila simplex*
Plagiochila confundens Lindenb. ex Hampe et Gottsche = *Plagiochila simplex*
Plagiochila confundens var. *alpinoides* Herzog = *Plagiochila simplex*
Plagiochila confusa Steph. = *Plagiochila raddiana*

Plagiochila contingens f. *longifolia* Herzog nom. inval. = *Plagiochila superba* var. *superba*
Plagiochila contingens f. *minor* Herzog nom. inval. = *Plagiochila turgida*
Plagiochila contingens Gottsche = *Plagiochila macrostachya*
Plagiochila contorta Lindenb. et Hampe = *Plagiochila gymnocalycina*
Plagiochila crassiretis Herzog ex Carl nom. inval. = *Plagiochila macra*
Plagiochila crispatodecurrens Herzog = *Plagiochila raddiana*
Plagiochila crispula Nees = *Plagiochila corrugata*
Plagiochila cristata var. *integricrista* Herzog nom. inval. = *Plagiochila grandicrista*
Plagiochila cuneata var. *bicuspidata* (Gottsche) Herzog = *Plagiochila bicuspidata*
Plagiochila cuneata var. *loriloba* (Herzog ex Carl) Herzog = *Plagiochila loriloba*
Plagiochila densiflora Herzog ex Carl nom. inval. = *Plagiochila densiflora*
Plagiochila dilatata Steph. = *Plagiochila diversifolia*
Plagiochila dimorpha var. *ecuadorica* (Inoue) Heinrichs = *Plagiochila ecuadorica*
Plagiochila distinctifolia f. *crassiretis* Herzog ex Carl nom. inval. = *Plagiochila distinctifolia*
Plagiochila distinctifolia f. *linearifolia* Herzog nom. inval. = *Plagiochila rutilans* var. *rutilans*
Plagiochila divaricata Lindenb. = *Plagiochila rutilans*
Plagiochila diversispina Steph. = *Plagiochila vincentina*
Plagiochila dotensis Herzog = *Plagiochila diversifolia*
Plagiochila dubia Lindenb. et Gottsche = *Plagiochila patula*
Plagiochila esmeraldana Steph. = *Plagiochila adianthoides*
Plagiochila exalata f. *brevifolia* Herzog = *Plagiochila breuteliana*
Plagiochila exalata Herzog = *Plagiochila breuteliana*
Plagiochila exalata Herzog ex Carl nom. inval. = *Plagiochila breuteliana*
Plagiochila exesa Lindenb. et Gottsche = *Plagiochila bifaria*
Plagiochila fallax Lindenb. et Hampe = *Plagiochila patula*
Plagiochila flaccida Lindenb. = *Plagiochila macrostachya*
Plagiochila florida Spruce = *Plagiochila montagnei*
Plagiochila funkiana Steph. = *Plagiochila raddiana*
Plagiochila funkiana var. *trilaciniata* Herzog = *Plagiochila macra*
Plagiochila geniculata Lindenb. = *Plagiochila bifaria*
Plagiochila gibbosa f. *cellulis-magis-incrass* Herzog ex Carl nom. inval. = *Plagiochila adianthoides*
Plagiochila gibbosa Lindenb. et Gottsche = *Plagiochila adianthoides*
Plagiochila granatensis Gottsche = *Plagiochila trichostoma*
Plagiochila grandifolia Steph. = *Plagiochila alternans*
Plagiochila guilleminiana Mont. ex Lindenb. = *Plagiochila raddiana*
Plagiochila heterophylla Lindenb. = *Plagiochila macra*
Plagiochila heterophylla Müll. Berol. nom. inval. = *Plagiochila macra*

Plagiochila heterophylla var. *beauverdii* (Steph.) Heinrichs = *Plagiochila macra*
Plagiochila hondurensis (Herzog ex Carl) Herzog nom. inval. = *Plagiochila subplana*
Plagiochila hondurensis Herzog ex Carl = *Plagiochila subplana*
Plagiochila hondurensis Herzog ex Standl. nom. inval. = *Plagiochila subplana*
Plagiochila hypnoides f. *minor* Herzog ex Carl nom. inval. = *Plagiochila montagnei*
Plagiochila hypnoides f. *propagulifera* Herzog nom. inval. = *Plagiochila montagnei*
Plagiochila hypnoides var. *brevifolia* Herzog = *Plagiochila montagnei*
Plagiochila hypnoides var. *brevifolia* Herzog ex Carl nom. inval. = *Plagiochila montagnei*
Plagiochila hypnoides Willd. ex Lindenb. = *Plagiochila montagnei*
Plagiochila implexa f. *minor* Herzog nom. inval. = *Plagiochila bifaria*
Plagiochila implexa f. *minor* Herzog ex Carl nom. inval. = *Plagiochila bifaria*
Plagiochila implexa Lindenb. et Gottsche = *Plagiochila bifaria*
Plagiochila insularis Steph. nom. inval. = *Plagiochila raddiana*
Plagiochila integricrista Herzog = *Plagiochila grandicrista*
Plagiochila interjecta Gottsche = *Plagiochila patula*
Plagiochila jaramilloi H. Rob. = *Plagiochila bifaria*
Plagiochila jelskii Loitl. = *Plagiochila fuscolutea*
Plagiochila jovoënsis Steph. = *Plagiochila crispabilis*
Plagiochila kegeliana Steph. = *Plagiochila subplana*
Plagiochila kroneana Steph. = *Plagiochila laetevirens*
Plagiochila laxa Lehm. et Lindenb. = *Acrobolbus laxus*
Plagiochila leptodictyon (Herzog ex Carl) Herzog nom. inval. = *Plagiochila subplana*
Plagiochila leptodictyon Herzog ex Carl = *Plagiochila subplana*
Plagiochila longaeva Herzog = *Plagiochila turgida*
Plagiochila longaeva Herzog ex Carl nom. inval. = *Plagiochila turgida*
Plagiochila ludoviciana Sull. = *Plagiochila raddiana*
Plagiochila martiana (Nees) Lindenb. = *Plagiochila patula*
Plagiochila micropteryx Gottsche = *Plagiochila laetevirens*
Plagiochila miqueliana Lehm. et Lindenb. = *Plagiochila distinctifolia*
Plagiochila moritziana Lindenb. et Gottsche = *Plagiochila rutilans* var. *moritziana*
Plagiochila oresitrophia f. *minor* Herzog ex Carl nom. inval. = *Plagiochila heteromalla*
Plagiochila oresitrophia Spruce = *Plagiochila heteromalla*
Plagiochila panamensis Inoue = *Plagiochila bifaria*
Plagiochila parispina Herzog = *Plagiochila superba* var. *superba*
Plagiochila parvistipula Lindenb. = *Plagiochila bunburii*
Plagiochila patentissima Lindenb. = *Plagiochila crispabilis*
Plagiochila patzschkei Steph. = *Plagiochila punctata* var. *punctata*
Plagiochila permista Spruce = *Plagiochila trichostoma*
Plagiochila permista var. *subintegerrima* Herzog = *Plagiochila retrorsa*

- Plagiochila pichinchensis* Taylor = *Plagiochila superba* var. *superba*
Plagiochila pinnata Spruce = *Plagiochila bifaria*
Plagiochila pinnata Steph. nom. illeg. = *Plagiochila costariensis*
Plagiochila platyphylla Herzog ex Carl nom. inval. = *Plagiochila platyphylla*
Plagiochila procera Lindenb. = *Plagiochila adianthoides*
Plagiochila prostrata Steph. = *Plagiochila pittieri*
Plagiochila quelchii Steph. = *Plagiochila superba* var. *superba*
Plagiochila rhombifolia Steph. = *Plagiochila diversifolia*
Plagiochila rigidula Lindenb. et Gottsche = *Plagiochila patula*
Plagiochila ruficaulis Steph. = *Plagiochila breuteliana*
Plagiochila schlimiana Gottsche = *Plagiochila raddiana*
Plagiochila secundidens Steph. ex Dugas = *Plagiochila adianthoides*
Plagiochila secundifolia Lindenb. et Hampe = *Plagiochila cristata*
Plagiochila silvatica Gottsche = *Plagiochila raddiana*
Plagiochila sinuata Gottsche = *Plagiochila disticha*
Plagiochila solox Steph. = *Plagiochila laetevirens*
Plagiochila speciosa Lindenb. et Gottsche = *Plagiochila raddiana*
Plagiochila spinifera Ångstr. = *Plagiochila bifaria*
Plagiochila standleyi Herzog ex Carl = *Plagiochila rutilans* var. *standleyi*
Plagiochila stolonifera Lindenb. et Gottsche = *Plagiochila punctata* var. *punctata*
Plagiochila subatra Steph. = *Plagiochila raddiana*
Plagiochila subatra var. *longidecurrens* Herzog = *Plagiochila raddiana*
Plagiochila subbiloba Herzog = *Plagiochila amicta*
Plagiochila subcristata Gottsche = *Plagiochila raddiana*
Plagiochila subglauescens Herzog = *Plagiochila diversifolia*
Plagiochila subglauescens Herzog ex Carl nom. inval. = *Plagiochila diversifolia*
Plagiochila subtrinitensis Herzog = *Plagiochila deflexa*
Plagiochila subturgida Herzog ex Carl nom. inval. = *Plagiochila canelensis*
Plagiochila subviminea f. *paramicola* Herzog = *Adelanthus lindenbergianus*
Plagiochila subviminea Steph. = *Adelanthus lindenbergianus*
Plagiochila subviminea var. *paramicola* Herzog ex Carl nom. inval. = *Adelanthus lindenbergianus*
Plagiochila sylvicultrix Spruce = *Plagiochila heteromalla*
Plagiochila tocarema Gottsche = *Plagiochila laetevirens*
Plagiochila tricarinata Carl = *Plagiochila retrorsa*
Plagiochila trilaciniata Herzog ex Carl = *Plagiochila macra*
Plagiochila tuerckheimii Steph. = *Plagiochila subplana*
Plagiochila umbrosa Steph. nom. illeg. = *Plagiochila simplex*
Plagiochila verapazana Steph. = *Plagiochila superba* var. *superba*
Plagiochila verruculosa R.M.Schust. = *Plagiochila papillifolia*
Plagiochila vincentina f. *minor* Herzog nom. inval. = *Plagiochila vincentina*
Plagiochila vincentina f. *minor* Herzog ex Carl nom. inval. = *Plagiochila vincentina*
Plagiochila virens Spruce = *Plagiochila dominicensis*
Plagiochila viridis Steph. = *Plagiochila deflexirama*
Platylejeunea pogonoptera (Spruce) A.Evans = *Symbiezidium barbiflorum*
Porella alpina (Lindenb. et Gottsche) Trevis. = *Porella leiboldii*
Porella arborea (Taylor) Trevis. = *Porella crispata*
Porella complanata (Steph.) Swails = *Porella swartziana*
Porella liebmaniana (Lindenb. et Gottsche) Trevis. = *Porella leiboldii*
Porella maxonii (Herzog) Swails = *Porella leiboldii*
Porella sharpii Swails = *Porella swartziana*
Preissia quadrata (Scop.) Nees = *Marchantia quadrata*
Prionolejeunea aequitexta A.Evans = *Prionolejeunea denticulata*
Prionolejeunea crenulata Steph. = *Cyclolejeunea luteola*
Prionolejeunea fabroniifolia (Spruce) Schiffn. nom. inval. = *Prionolejeunea schlimiana*
Prionolejeunea innovata A.Evans = *Prionolejeunea denticulata*
Prionolejeunea macrocardia (Spruce) Steph. = *Prionolejeunea denticulata*
Prionolejeunea mucronata f. *minutissima* Herzog = *Prionolejeunea muricatoserrulata*
Ptychocoleus heterophyllus A.Evans = *Acrolejeunea heterophylla*
Ptychocoleus juliformis (Nees) Trevis. = *Archilejeunea fuscescens*
Ptychocoleus polycarpus (Nees) Trevis. = *Schiffneriolejeunea polycarpa*
Ptychocoleus reflexus S.Winkl. = *Brachiolejeunea laxifolia*
Ptychocoleus torulosus (Lehm. et Lindenb.) Trevis. = *Acrolejeunea torulosa*
Ptychocoleus torulosus f. *parvistipulus* Herzog = *Frullanoides corticalis*
Pycnolejeunea adnata (Kunze ex Lehm.) Steph. = *Cheilolejeunea adnata*
Pycnolejeunea cocosana (Steph.) Mizut. = *Otigoniolejeunea huctumalcensis*
Pycnolejeunea densistipula var. *dubia* Herzog = *Pycnolejeunea densistipula*
Pycnolejeunea parvilobula Herzog ex Zwickel = *Pycnolejeunea densistipula*
Radula affinis Lindenb. et Gottsche = *Radula quadrata*
Radula amazonica Spruce = *Radula javanica*
Radula andicola Steph. = *Radula quadrata*
Radula boryana (F.Weber) Nees ex Mont. = *Cladoradula boryana*
Radula boryana auct. amer. = *Radula gottscheana*
Radula cornucopiae Spruce = *Radula episcia*
Radula elegans Steph. = *Radula javanica*
Radula falcifolia Steph. = *Radula javanica*
Radula frondescens Steph. = *Radula xalapensis*
Radula guatemalensis Steph. = *Radula portoricensis*
Radula kegelii Gottsche ex Steph. = *Radula pallens*
Radula lindigii Castle = *Radula mammosa*
Radula macrostachya Lindenb. et Gottsche = *Radula javanica*
Radula mollis Lindenb. et Gottsche = *Radula quadrata*
Radula montana Steph. = *Radula sinuata*
Radula pallens var. *flaccida* Steph. ex Castle nom. inval. = *Radula subinflata*
Radula ramulina Taylor = *Radula voluta*

Radula subsimplex Steph. = *Radula pallens*
Radula surinamensis Steph. = *Radula javanica*
Rectolejeunea berteriana (Gottsche ex Steph.) A.Evans =
Rectolejeunea versifolia
Rectolejeunea brittoniae A.Evans = *Lejeunea phyllobola*
Rectolejeunea concava (Lindenb. et Gottsche) Steph. = *Lejeunea*
concava
Rectolejeunea defolians Herzog = *Lejeunea parviloba*
Rectolejeunea maxonii A.Evans = *Lejeunea deplanata* var.
deplanata
Rectolejeunea melastomatis (Lindenb. et Gottsche) Steph. =
Lejeunea flava
Rectolejeunea phyllobola (Nees et Mont.) A.Evans = *Lejeunea*
phyllobola
Rectolejeunea pililoba (Spruce) R.M.Schust. = *Lejeunea*
trinitensis
Riccardia amazonica (Spruce) Schiffn. ex Gradst. et Hekking =
Riccardia regnellii
Riccardia andina (Spruce) Herzog = *Riccardia fucoidea*
Riccardia cervicornis (Spruce) Herzog nom. inval. = *Riccardia*
poepigiana
Riccardia cervicornis (Spruce) Herzog ex Gradst. et Hekking =
Riccardia poepigiana
Riccardia metzgeriiformis (Steph.) R.M.Schust. = *Riccardia*
digitiloba
Riccardia pinguis (L.) Gray = *Aneura pinguis*
Riccardia plumiformis (Spruce) Hässel ex Meenks = *Riccardia*
fucoidea
Riccardia sprucei (Steph.) Meenks et C.De Jong = *Riccardia*
hymenophytoidea
Riccia stenophylla Spruce = *Riccia oerstediana*
Ricciella oerstediana (Lindenb. et Hampe) Müll.Hal. = *Riccia*
oerstediana
Ruizanthus lopezii R.M.Schust. = *Isotachis lopezii*
Scapania portoricensis f. *gemmaipara* Herzog nom. inval. =
Scapania portoricensis
Scapania portoricensis f. *grossealata* Herzog = *Scapania portori-*
censis var. *portoricensis*
Scapania portoricensis var. *typica* Herzog nom. inval. =
Scapania portoricensis var. *portoricensis*
Schisma costaricensis (Steph.) Steph. = *Herbertus pensilis*
Schisma divergens Steph. = *Herbertus bivittatus*
Schisma durandii Steph. = *Herbertus durandii*
Schisma vulcanicum Warnst. = *Herbertus acanthelium*
Schusteria tonduziana (Steph.) Kachroo = *Lejeunea tonduziana*
Solenostoma costaricanum Bakalin = *Solenostoma amoenum*
Solenostoma linguifolium (Gottsche) R.M.Schust. = *Solenos-*
toma amplexifolium
Stereochila ecuadorica Inoue = *Plagiochila ecuadorica*
Stenolejeunea apiculata (Sande Lac.) R.M.Schust. = *Lejeunea*
apiculata
Stictolejeunea herzogii Buchloh = *Luteolejeunea herzogii*
Stictolejeunea kunzeana (Gottsche, Lindenb. et Nees) Schiffn. =
Stictolejeunea squamata

Stictolejeunea kunzeana (Gottsche, Lindenb. et Nees) Steph.
nom. inval. = *Stictolejeunea squamata*
Stictolejeunea squamata var. *macrior* (Spruce) Herzog =
Stictolejeunea squamata
Stylolejeunea trinitensis (Lindenb.) Fulford = *Lejeunea*
trinitensis
Symbiezidium cordistipulum Steph. = *Symbiezidium transver-*
sale var. *transversale*
Symbiezidium grandifolium Steph. = *Symbiezidium transversale*
var. *transversale*
Symbiezidium laceratum A.Evans = *Symbiezidium transversale*
var. *hookerianum*
Symbiezidium pogonopterum (Spruce) Steph. = *Symbiezidium*
barbiflorum
Symbiezidium setosum (Steph.) Steph. = *Symbiezidium*
barbiflorum
Symbiezidium subrotundum (Hook.) Trevis. = *Symbiezidium*
transversale
Symbiezidium taeniopsis (Spruce) Fulford = *Symbiezidium*
transversale var. *hookerianum*
Symbiezidium vinctinum (Gottsche) Trevis. = *Symbiezidium*
transversale var. *hookerianum*
Syzygiella apiculata Herzog = *Syzygiella macrocalyx*
Syzygiella appendiculata Herzog = *Syzygiella concreta*
Syzygiella gracillima Herzog = *Syzygiella perfoliata*
Syzygiella liberata Inoue = *Syzygiella trigonifolia*
Syzygiella longifolia Steph. = *Syzygiella concreta*
Syzygiella pectiniformis Spruce nom. inval. = *Syzygiella*
pectiniformis
Syzygiella tonduziana f. *depauperata* Herzog nom. inval. =
Syzygiella tonduziana
Syzygiella tonduziana f. *setulosa* Herzog ex Carl = *Syzygiella*
tonduziana
Syzygiella tonduziana var. *setulosa* (Herzog ex Carl) Herzog =
Syzygiella tonduziana
Szweykowskia cucullifolia (J.B.Jack et Steph.) Gradst. et
M.E.Reiner = *Plagiochila cucullifolia*
Taxilejeunea asthenica (Spruce) Steph. = *Lejeunea asthenica*
Taxilejeunea auriculata Steph. = *Lejeunea rotundifolia*
Taxilejeunea bidentula Herzog nom. inval. = *Lejeunea debilis*
Taxilejeunea caracensis (Lindenb.) Schiffn. = *Lejeunea caracensis*
Taxilejeunea carinata Herzog = *Lejeunea anomala*
Taxilejeunea debilis (Lehm. et Lindenb.) Steph. = *Lejeunea debilis*
Taxilejeunea isocalycina (Nees) Steph. = *Lejeunea serpillifolioides*
Taxilejeunea laevicalyx (Gottsche) Steph. = *Lejeunea laevicalyx*
Taxilejeunea lancifolia Steph. = *Lejeunea osculatiana*
Taxilejeunea lusoria (Lindenb. et Gottsche) Steph. = *Lejeunea*
flaccida
Taxilejeunea obtusangula (Spruce) A.Evans = *Lejeunea flaccida*
Taxilejeunea peruviana Steph. = *Lejeunea pallescens*
Taxilejeunea pterigonia (Lehm. et Lindenb.) Steph. = *Lejeunea*
pterigonia
Taxilejeunea pterigonia f. *perianthio-minus-ornato* Herzog
nom. inval. = *Lejeunea pterigonia*

Taxilejeunea serpillifolioides (Raddi) D.P.Costa $\equiv$ *Lejeunea serpillifolioides*

Taxilejeunea standleyi Herzog = *Lejeunea flaccida*

Taxilejeunea sulphurea (Lehm. et Lindenb.) Steph. $\equiv$ *Lejeunea sulphurea*

Taxilejeunea tonduziana Steph. = *Lejeunea tonduziana*

Thysananthus evansii Fulford $\equiv$ *Fulfordianthus evansii*

Thysananthus pterobryoides (Spruce) Schiffn. $\equiv$ *Fulfordianthus pterobryoides*

Thysanolejeunea pterobryoides (Spruce) Steph. $\equiv$ *Fulfordianthus pterobryoides*

Trachylejeunea aquarius (Spruce) A.Evans $\equiv$ *Xylolejeunea aquarius*

Trachylejeunea inflexa (Hampe) Steph. $\equiv$ *Cheilolejeunea inflexa*

Triandrophylloides trifidum (Gottsche) Fulford et Hatcher $\equiv$

Triandrophylloides subtrifidum var. *trifidum*

Trichocolea argentea Herzog $\equiv$ *Leiomitra argentea*

Trichocolea brevifissa Steph. $\equiv$ *Leiomitra brevifissa*

Trichocolea cristacastrensis Spruce ex Steph. = *Leiomitra tomentosa*

Trichocolea elliottii Steph. $\equiv$ *Leiomitra elliottii*

Trichocolea flaccida (Spruce) Spruce $\equiv$ *Leiomitra flaccida*

Trichocolea floccosa Herzog et Hatcher = *Leiomitra sprucei*

Trichocolea inaequalis Steph. = *Leiomitra flaccida*

Trichocolea paraphyllina (Spruce) Steph. $\equiv$ *Leiomitra paraphyllina*

Trichocolea patula Steph. = *Leiomitra flaccida*

Trichocolea sprucei (Spruce) Steph. = *Leiomitra sprucei*

Trichocolea tomentosa (Sw.) Gottsche $\equiv$ *Leiomitra tomentosa*

Tylimanthus approximatus (Lindenb.) Besch. = *Acrobolbus laxus*

Tylimanthus jamaicensis Steph. = *Acrobolbus laxus*

Tylimanthus laxus (Lehm. et Lindenb.) Spruce $\equiv$ *Acrobolbus laxus*

Tylimanthus pittieri Steph. $\equiv$ *Adelanthus pittieri*

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