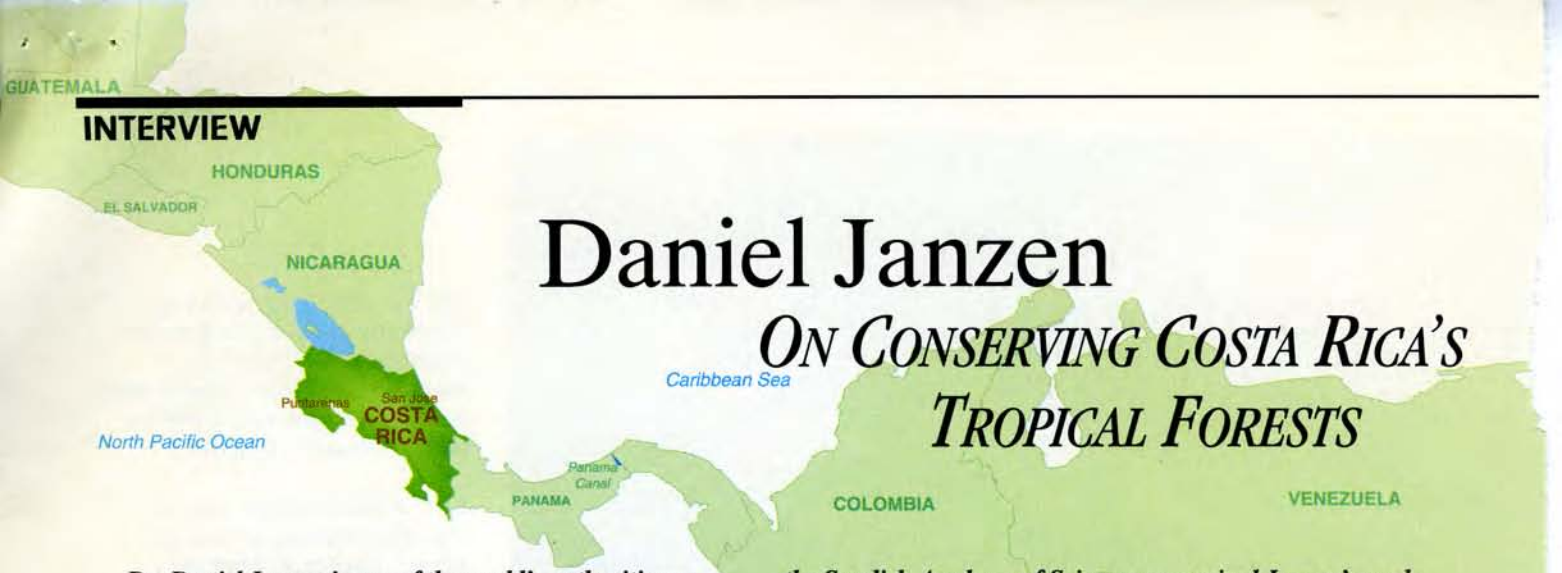

INTERVIEW

Daniel Janzen

On Conserving Costa Rica's Tropical Forests

Dr. Daniel Janzen is one of the world's authorities on tropical forests. A professor of ecology at the University of Pennsylvania, Janzen has spent six months of every year for the past 30 years studying the intricate relationships between animals and plants in Costa Rica's Guanacaste Province. Recently he helped establish Costa Rica's National Institute for Biodiversity (INBio) to inventory and manage that country's wildland biodiversity. In 1984, the Swedish Academy of Sciences recognized Janzen's work by awarding him the $100,000 Crafoord Prize, regarded as the equivalent of the Nobel Prize in the ecological sciences. Author of more than 290 published studies and books, Janzen also received the Distinguished Teaching Award at the University of Pennsylvania in 1985. Editor Mary Batten interviewed Dr. Janzen in his office in Philadelphia.

Six years ago you and Winnie Hallwachs initiated the Guanacaste National Park Project to restore and conserve a large area of Costa Rican dry forest. What has been accomplished to date?

Now it's called the Guanacaste Conservation Area (GCA), and that contains Santa Rosa National Park, Guanacaste National Park, Rincon National Park, the Cuajiniquil Recreation Area, and the Horizontes Forest Experiment Station. That whole package is 110,000 hectares. In contrast, the original Santa Rosa National Park was 10,000 hectares. So it's grown from an isolated small patch to a very large patch.

The Guanacaste Conservation Area is one of eight conservation areas in the country. Together, they contain all the conserved wildland in Costa Rica.

What are some of the techniques that the GCA uses to restore the forest?

There's one basic technique. You stop the fires. Guanacaste is dry six months of the year and wet six months of the year. During the dry season, the vegetation is very inflammable. For centuries, ranchers and farmers have known that an easy way to keep a pasture clean is to burn it. That way you remove the young trees that are invading. So these fires, which are set initially in order to clear this or that pasture, become free-running fires and go across the landscape. If you want the forest to return, you have to block that fire before it gets into the conservation area. By turning off those fires, which are all human-set, you allow the natural forces of animal- and wind-dispersed seeds to put trees back into the pastures. Today in the Guanacaste Conservation Area, there are no more huge open areas of grass. Now they're all covered with little trees, a young forest. Within another 20 to 50 years, depending on where you are, the forest won't be inflammable anymore, so the fire program will basically disappear. Restoring the original forest will take 500 to 1,000 years at least.

What is persuading the ranchers to reforest their land outside the GCA?

Economics. There's been a decline in cattle ranching all over the world, and Costa Rica was always just marginal cattle ranching in the first place. Areas that have been cattle ranching for 200 to 300 years are being turned back into forest by their owners because it's better economics. Trees can be sold in 20, 30, or 40 years. So basically those ranchers plant trees or encourage trees because that raises the value of their land in the form of valuable timber. In time, they'll be able to harvest the wood, and they'll get better income from that than from cattle.

How is the local community involved in the educational program in Guanacaste?

Education for grade-school children is viewed as part of the ongoing management of the park. All fourth, fifth and sixth grade children in what we call the zone of influence, which is an area five to 20 kilometers wide around the conservation area, get an intense course in basic biology from the conservation area. This involves about 13 schools and some 1,300 kids. Each year every child comes to the conservation area eight times, spending a whole day doing various kinds of field biology. They also follow up with projects in school. The field biology is taught by Costa Rican biologists with university degrees who were hired to be part of the Guanacaste Conservation Area staff.

Tropical biologist Dr. Daniel Janzen, visits peccaries at the zoo in San José, Costa Rica. Janzen's three decades of research in Costa Rica have led to innovative reforestation and conservation projects.

How important is it for Costa Rican children to get this basic education in tropical biology, and what future returns do you see?

The fact that the Guanacaste Project spends about 10 percent of its budget on education indicates how important we think it is. It's absolutely critical that the general populace be biologically literate in order for them to understand what the conservation area is, what use they can make of it, what things they can get from it, and why it's important to them. Without this background, there would be a constant battle between the Guanacaste Conservation Area and the surrounding community as these children grow up and take the normal leadership and ownership roles in the community. These are the kids who'll be running the stores and the gas stations and all these kinds of things 10 to 20 years from now. If those people don't have good feelings and ideas about the GCA, then it'll be continually under assault. Education is the major way to have the local community view the GCA as part of the natural world that they live in.

Some people in the temperate zone have difficulty understanding why it's so important to protect tropical biodiversity. What does it mean to a temperate zone person?

It doesn't mean anything until they experience it, and then they suddenly realize there's a lot more to life than oak trees and squirrels.

They get biodiversity vicariously to a certain degree now. They watch it on television and movies, but people who live in the tropics experience it. For them, it's a matter of simply having somebody open their eyes. That's why biological literacy is so important. That forest is full of things that are curiously interesting. Costa Ricans get very attracted to it.

I'm amazed at how many Costa Ricans there are walking around in the forest with their kids, just like people at a museum who don't yet understand very well what they see on the walls. But they recognize that it looks interesting and intriguing and they can read some of the labels, so to speak. And because they can do that, they go back and take their kids. This is the audience that is coming to see biodiversity as the diverse part of its life.

If they had the Philadelphia Art Academy, or the Smithsonian or all these TV programs to watch, their response might be different. Since they don't have those things, they are developing an attachment to the forest. And if we can aid them in developing an attachment, then we will have the supporters.

What is the National Biodiversity Institute?

Think of Costa Rica's conservation areas as eight enormous greenhouses. Now people can go to the greenhouse and walk around and see all the things growing inside. On the other hand, there's a huge world out there that has use for information from those greenhouses which it either doesn't have the time or inclination to go and see for itself. So the National Biodiversity Institute (INBio) effectively serves as the gatekeeper for these greenhouses. The outside world, whether it's the U.N., the Ministry of Education of Costa Rica, a pharmaceutical company, or a research program in basic biology, may need biodiversity information and samples from those greenhouses. It's the job of the National Biodiversity Institute to know what's in the greenhouses, where it is, and how to get samples and information to a potential user. It also makes certain that when this item comes out of the greenhouse, the user pays for it appropriately. The payment might be in votes, or dollars or goodwill. There are different kinds of payments, but the door's not just wide open to the public.

What if a pharmaceutical company wanted to get samples of certain medicinal plants?

That just happened. The Biodiversity Institute recently signed a million-dollar contract with Merck for samples. Merck was very straightforward about it. They had been getting samples from the rainforest for a long time, but it was on a very ad hoc basis—a sack of this and a sack of that. It was very difficult to get it again, and often it went against various politics or legalities of the country to get samples. Merck wanted a commercial partner who could act as a legitimate stamp of approval from the government, an organized greenhouse keeper.

Right now the INBio staff is making an inventory of plants and insects so when the world out there needs those things, they'll know where to find them. In the old days, if you wanted samples, basically you just walked right in the front door of the park without telling anybody and got

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whatever you wanted. Benefits didn't accrue to the conservation area or to the country, and all that information just disappeared. We're trying to regulate all of that.

What is the Parataxonomist Program?

These are ordinary people, nonbiologists, who do the biodiversity inventory in the field. We hire bright, interested adults living in the vicinity of the conservation area, who elect to do this as a full-time vocation. Winnie and I give them a six-month intensive course with all the biology they need to conduct an inventory. Then they graduate and go to work. They also get advanced courses as they go down the road, but it's on-the-job training from then on. Their job is to figure out what's in those parks. They collect insects, lizards, plants, etc. and feed their data to INBio. Through this, Costa Rica gradually accumulates a body of knowledge about what's out there in those conservation areas.

Does this program get support from the government of Costa Rica?

Oh yes. And from the government of the United States as well. The first two courses for parataxonomists were funded with USAID dollars. That's the first time in our experience that this kind of money has been used for this kind of project. Interestingly, AID has classified it as development, like building a road or electricity.

Outside consultants who did studies on the impact of AID money in various regions—Central America specifically—concluded that if they continued funding roads, highways, electricity, and small businesses without also helping the environment, the whole economy could collapse. From a development standpoint, it's better to put part of the budget into taking care of the environment in a broad sense. So suddenly USAID had a policy switch.

Does this mean that during the past decade, more of an ethic for protecting tropical forests has emerged?

The word "protecting" probably isn't a useful word. What we're talking about now is using the forest without damaging it. If you can run a certain number of tourists through there a day, without damaging it, you do it. If you can get genes or samples out of there, you do it. You want the forest to be just like it was when you started. So the art is how to do these things without damaging it. Now any activity is going to alter the forest a little bit, so you have to have a philosophical switch that says, "I accept that. I'll pay five percent of the biodiversity so that 95 percent is still there a thousand years from now." The ivory-tower position, which demands that we must save everything, doesn't leave any room at the bargaining table. It's putting yourself on the all-powerful pedestal, and you either win big or lose big; the problem is, you always lose big. You want other sectors in society to view these conserved wildlands as productive sectors of society, just like you view a rice field.

What are some of the potential economic returns from the forest?

Medicinal plants are obviously one. Wild genes are another. Today most of the gene researchers tend to work with genes from domestic animals and plants, but they're getting their technology to a point where they're going to want to go to a place, like one of these greenhouses, with a wish-list.

Another economic return is what's commonly called "free goods"—things like water. In California, when somebody wants to use river water for irrigation, the state charges for that use. In theory, that fee goes back to maintain the system that produces the water. In Costa Rica, water is a free good; just take it out of the river as you like. In a very short time, water use is going to be paid for; when that happens, people are going to focus on where the water comes from. Well, it all comes from these conservation areas. Every single one of them is a huge water source area. When the government starts charging taxes for these so-called free goods, then that money can begin supporting the maintenance of those areas.

When people have to pay for water, then the areas that generate the water will be viewed as productive sectors because they generate this valuable product.

We're also seeing that ecotourism in a broad sense—national and international—is a very real form of dollar generation. Ecotourism really is just going to a living museum. Instead of going to a traditional museum and paying six dollars to enter, you go to a greenhouse and pay six dollars at the entrance.

Do boycotts of various tropical products such as hardwoods help tropical forests?

There is a major concern today about buying tropical hardwoods unless they come from an area where you're certain no original forest has been cleared. This has been taken seriously by the timber trade, and it's helped a bit in establishing legislation controlling the flow of wood. But my opinion is that boycotts aren't generally the right way to go. Environmentally correct pricing is probably the better way to do it. Also we might have legislation that treats timber as it now treats endangered species; it can only be bought and sold under registration that demonstrates the source. In general, I think forest clearing is slowing down, but usually for economic reasons rather than conservation reasons. Every piece of tropical forest you buy and put under protection of one sort or another, of course, is out of the game. More and more is being bought all the time and set aside. But if it's not bought and set aside, the landowner is going to turn it into some kind of cash. It's not a matter of some undefined, vague "they" that cuts down the rainforest. By and large, it's somebody who owns that piece of land and decides they'd like to have something to help support their family or buy a car or do whatever. If you want to slow down that kind of deforestation, then basically the way that's open to you is to buy those living trees on the market by buying the land.

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