

HOW TO SAVE THE EARTH

The wild weather is a sign of things to come. But fresh ideas and new technology can help us make this a **GREEN CENTURY**

profit margins on felled timber in remote areas can be low, which means there are few potential buyers. The Nature Conservancy bought the rights to 650,000 hectares adjoining Bolivia's Noel Kempff Mercado National Park in 1998 for 40¢ a hectare—doubling the park's size. In 2000 Conservation International leased 81,000 hectares of forest in southeastern Guyana for a \$20,000 up-front fee and annual payments of 6¢ a hectare. Even where loggers cannot be bought out, the damage they do can be reduced. In the Congo the Wildlife Conservation Society has persuaded the German firm CIB to feed its workers beef and chicken instead of wild bush meat from its logging concessions next to Nouable-Ndoki National Park.

ECOTOURISM For environmentalists, ecotourism is a double-edged sword. It can educate people about the need for wilderness, but it can also introduce humans into remote, fragile ecosystems where they would not otherwise go. Some of the better-run ecotourist ventures have mastered low-impact tours, using income from the visitors to keep

certain areas pristine. Programme for Belize, a nonprofit group, has bought 105,000 hectares of forest in northwestern Belize—about 4% of the country's total land area—that had been destined for logging. Half of the area is now a reserve, surrounded by a buffer zone in which forestry and tourism are permitted.

▲ WATCH YOUR STEP
In this Myanmar park, Rabinowitz gave people salt to keep them from killing red pandas and leaf deer

Ecotourism covers some 60% of the reserve's management costs. Saba Marine Park in the Netherlands Antilles and Nepal's Chitwan National Park have similar programs.

MARINE RESERVES Wilderness areas in the oceans are a relatively new concept. One of its pioneers is Bill Ballantine, a marine biologist in New Zealand with the University of Auckland who in 1965 raised the idea of "no take" reserves, which prohibit all fishing. New Zealand now has 16 marine reserves; others have been established in Australia, Belize, the Galápagos Islands and the Caribbean. In 2000 the Nature Conservancy purchased the atoll of Palmyra, 1,600 km south of Hawaii, to preserve its 6,000 hectares of pristine coral reefs.

WILDLIFE CORRIDORS Some large animals need big areas to live and mate in. Male Siberian tigers, for example, have home ranges extending up to 1,000 sq km. In many cases there are no longer large enough blocks of wilderness left for such species to maintain a viable breeding population. So scientists are looking for ways to establish corridors linking contiguous reserves or



HEROES Suzana and Claudio Padua The Magic of Trees

Standing in the red earth courtyard of a simple Brazilian homestead, Suzana Padua looks with pleasure at the grove of trees that Valdomiro ("Miro") de Castro and his wife Ireni have planted near their farmhouse and, in the distance, the chartreuse fringe of saplings growing alongside the Morro do Diabo State Park. "Look around you!" she exclaims. "The Pontal is greening."

That's a remarkable statement, since the Pontal, a once heavily forested area in the far west of São Paulo State, has long been devastated by logging and ranching. But nature is making a comeback in this impoverished region, thanks largely to the Instituto de Pesquisas Ecológicas (Institute for Ecological Research), an organization co-founded in 1992 by Padua and her husband Claudio, a primatologist at the University of Brasília. IPÊ's mission is as simple as it is ambitious: to protect—and insofar as possible—reconnect the last precious remnants of the Mata Atlântica, the great forest that once covered virtually the whole of eastern Brazil.

Initially, IPÊ was an extension of Claudio's work with black lion tamarins, a gravely endangered species of New World monkey found only in the Pontal and its vicinity. Soon, however, the couple realized that to save the tamarins, they would have to save the forest that sheltered them—and that turned into a huge challenge. In 1995, Brazil's Landless Movement decided to resettle thousands of

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parks. One proposal would link Canada's Yukon to Yellowstone National Park in Wyoming to allow grizzlies to roam a larger area. A WWF plan calls for developing the Terai Arc across northern India and Nepal. The arc would link 11 national parks and reserves into a total area of 70,000 sq km, benefiting tigers and other large animals.

► **NO ROOM TO ROAM** The survival of these tigers could depend on the formation of the Terai Arc through India and Nepal

The planet's species are vanishing at a rate not seen since the demise of the dinosaurs

PHILANTHROPY Private purchases of wilderness areas received at least a temporary boost with the surging stock markets of the 1990s and the billionaires they created. One of the most spectacular deals was the 300,000-hectare acquisition of temperate rain forest in southern Chile by Doug Tompkins, who has headed the North Face and Esprit clothing companies. Tompkins spent some \$15 million to acquire Pumalin Park, which stretches from the Chilean coast to Argentina. He is now buying land on the coast of Patagonia in southern Argentina to establish a reserve there. Other big private purchasers include Alan Weeden of New York City's Weeden Foundation, who has bought some 81,000 hectares in South America and Africa, and Peter Buckley, a

former San Francisco lawyer and head of Esprit-Europe, who has bought rain forest in Latin American nations.

INDIGENOUS CONTROL The trend of recognizing indigenous peoples' claims to ancestral land sometimes can help preserve wilderness. In the republic of Yakutia in Russian Siberia, some 700,000 sq km of arctic tundra are now off limits to all extractive industries except for the traditional hunting and fishing done by the Yakut people. In Ecuador the Awá people, after winning recognition as a communal federation, were given legal title in 1985 to almost 120,000 hectares

of Choco forest. Ten years later, despite pressure from logging companies, the Awá signed an agreement with the WWF designating 17,000 hectares as a "life reserve" that will be kept uninhabited.

A survey by Conservation International found 37 wilderness areas left that have at least 70% of their original vegetation intact, are at least 10,000 sq km in size and have a human population of no more than 5 people per sq km. These "last wild places," as the group calls them, cover 46% of the land surface of the planet. With all the resources and strategies at our disposal, much of this precious territory can still be saved.

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poor people on land bordering the Morro do Diabo park and smaller patches of forest nearby.

The Pontal had already been so rapaciously deforested that less than 2% of its native tree cover remained. So when the landless settled next to the remnants of forest, Claudio feared they would chop down the trees for fuel and lumber and destroy animal populations through hunting. Instead, when he and Suzana began to talk with local leaders, they found allies rather than enemies. The landless, they found, were in desperate need of almost everything, including wood. Yet they were willing to try to fill that need in ways that were not environmentally ruinous.

What evolved was a collaboration that benefited not only settlers but the forest and animals that lived there as well. "Whenever we came up with ideas, people were willing to try them," says Suzana. One IPÊ plan called for planting trees around forested tracts, creating an *abraço ao verde* (literally, green hug) to ward off assaults by cattle, fires and windstorms. Another envisioned linking forest fragments with broad corridors of trees, along which jaguars, tapir and tamarins could travel.

To implement these ideas, IPÊ, with the cooperation of the São Paulo Forestry Institute, established a tree nursery in the Morro do Diabo park and started distributing free seedlings. It also began sponsoring courses in agroforestry. Miro de Castro is a graduate of



LUIS CLAUDIO MARIGO

SAVED FOR NOW To protect the black lion tamarin, Claudio first needed to help farmers preserve the rare monkey's forest home

the first of these courses, and to date he has planted 6,700 trees, from fast-growing cultivars (eucalyptus, acacia) that are useful for lumber and fuel to native forest trees that produce fruit and nuts.

For the Paduas, working with farmers like Miro validates the career switch Claudio made 24 years ago, shortly after turning 30. At the time he was the financial director of a pharmaceutical firm in Rio de Janeiro, and Suzana, then 27, was working as a designer and interior decorator. One day Claudio arrived home and announced that he wanted to work with nature. "Would you prefer a husband who's rich and miserable," he asked Suzana, "or one who's poor but happy?"

"I thought he was crazy," Suzana admits, when Claudio suddenly went back to school to study biology. She and their three children later followed him to the University of Florida in Gainesville, where he got his doctorate, and to Morro do Diabo, where they lived for 3½ years. It was there, walking along forest trails bathed in emerald light, that Suzana underwent her own metamorphosis, from urban sophisticate to

champion of environmental education.

The effort to save the Pontal's forest is still evolving, and much work remains. But thanks to the Paduas, the future of both people and wild animals in this ecologically fragile region is looking more hopeful than hopeless.

—By J. Madeleine Nash/Morro do Diabo

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