



A TINY COUNTRY DOES THINGS RIGHT

How hard-pressed Costa Rica
managed to build a park system
that's the envy of the world

By Archie Carr and David Carr
Photographs by Tui de Roy Moore

● INT. WILDLIFE
SEPT-OCT 83

● INT. WILDLIFE

CLOUDS tumbled over 8,800-foot-high Poas Volcano. Down on the Costa Rican Meseta Central where we lived, it had seemed a poor day to drive up there, but we had set out anyway, a family of seven in a Dodge station wagon. As we crept along the narrow mountain road through the clouds, we griped about the prospect of not being able to see both the Caribbean Sea and the Pacific Ocean when we got to the top, as you can on clear days. But then the clouds began to thin out, patches of blue sky opened, and suddenly the car screeched to a stop. Quetzals were flying across the road! First a brilliantly plumed, yard-long male, then a brown female, then two more males swooped out of the moss-draped woods to our right and flew off through wisps of white vapor.

The quetzal is a bird of the tropical group known as trogons. The male is one of the most spectacularly beautiful birds in the world, especially if you see him on the wing in a cloud forest as we did on that day in 1959. Quetzals live in mountain forests from Chiapas, Mexico, to northern South America. But in all that territory, there probably was no other place where a casual visitor could have hoped to see quetzals from a car.

During a five-year stay in Honduras,

our family had roamed the countryside looking for quetzals, visiting every cloud-forested peak we could reach on horseback. On many of these mountains the setting was right: air heavy with drifting mist, and the mountain-side dotted with gnarled, moss-draped trees bearing the kinds of small avocadolike fruits that quetzals feed on. We often heard their deep, brooding call off somewhere in the forest, but only twice in five years did we see quetzals. Then we moved to Costa Rica, and on that Sunday afternoon, five of them flew across the road. All of us in the car that day agreed that Poas Volcano ought to become a quetzal preserve.

Back then, Costa Rica had no national parks at all. Instead there was a strong urge to develop the land. Population was increasing at three percent per year—and at that rate would double in 24 years. More than 140,000 acres of forest were being cleared annually for cattle ranches, farms and groves. The Pan American highway was pushing southward through the mountains, and magnificent stands of a unique species of oak were falling along the way. Trucks were hauling the logs down to San José and Cartago where they were shipped to the makers of whiskey barrels. Many Costa Ricans bemoaned such losses, but to some, it seemed undemocratic to try to stop them. As late as 1962, at a Nairobi meeting of the International Union for Conservation of Nature and Natural Resources, we heard a speaker deplore the rate at which the forests of Costa Rica were disappearing; but he tacitly assumed that it was impossible to create inviolate reserves because the squatters had no other places to live.

It turned out that he was wrong. During the late 1960s, concern over deforestation led Costa Rica to pass a forestry law. Helping to draft the law was a consultant from Venezuela, and because the forestry law there provided for a national park service, a similar provision was included in the Costa Rican legislation. Thus, the birth of a national park service in Costa Rica was an obscure, incidental event. But today, this small country, with an area roughly equal to that of West Virginia, has declared 20 national parks and reserves,

representing more than eight percent of the national territory. The system is managed by a staff of more than 350 people, most of them out in the parks, and it operates with a yearly budget of more than \$1 million.

These accomplishments have evoked worldwide admiration—and much puzzlement among visitors, who wonder how this small, economically hard-pressed country was able to put so much of its territory into national parks.

There is no simple answer to that question. One obvious influence was Costa Rica's almost unparalleled ecologic diversity, which made creating nature preserves a tempting prospect. Except for desert and snowcapped mountain peaks, practically every landscape of the American tropics is represented there. The vegetation ranges from lowland rain forest and mangrove swamps to elfin woodland and the heathlike Andean plant community known as *paramo*. Two of the wettest places in the Americas are in Costa Rica—Tortuguero on the Caribbean, and sections of Corcovado National Park on the Pacific coast. The forest and chaparral of Santa Rosa Park look like parts of Mexico. In Costa Rica, there are 205 mammals, 150 amphibians, 210 reptiles and around 700 butterflies. There are also 850 species of birds—more than in all of the United States and Canada.

Incomparable Chirripo Mountain illustrates the diversity. With an elevation of 12,526 feet, it is the highest point in Costa Rica. Chirripo National Park embraces three life zones, some of the most dramatic topography in Central America, and the northernmost examples of *paramo* vegetation. It is an asylum for many vertebrate species that are dwindling elsewhere. All four of Central America's spotted cats—jaguar, ocelot, little spotted cat and margay—inhabit the lower forested slopes. Higher up, mountain lions are numerous. From the lower cloud forests right up to the highest, bleakest *paramos*, the country is crisscrossed with trails made by tapirs.

The tapir is a fantastically adaptable animal—as we discovered on *Cerro de la Muerte*, Costa Rica's "Mountain of



**From cloud-draped mountains to the sea:
a multitude of life zones—and wildlife species**



David G. Allen



Poas Volcano National Park with its active crater (above left) is typical of Costa Rica's mountain regions where rare birds, such as this male quetzal with its yard-long tail plume (above), still live in the misty cloud forests.

Santa Rosa Park drops from dry uplands to Nancite Beach on the Pacific (left), where olive ridley turtles congregate. On the opposite coast at Tortuguero, a green sea turtle heads for open water (below) after laying her eggs in sand.



Rain forests: animals flourish in a hothouse of gnarled roots and trees

ALVARO UGALDE: Still work to be done



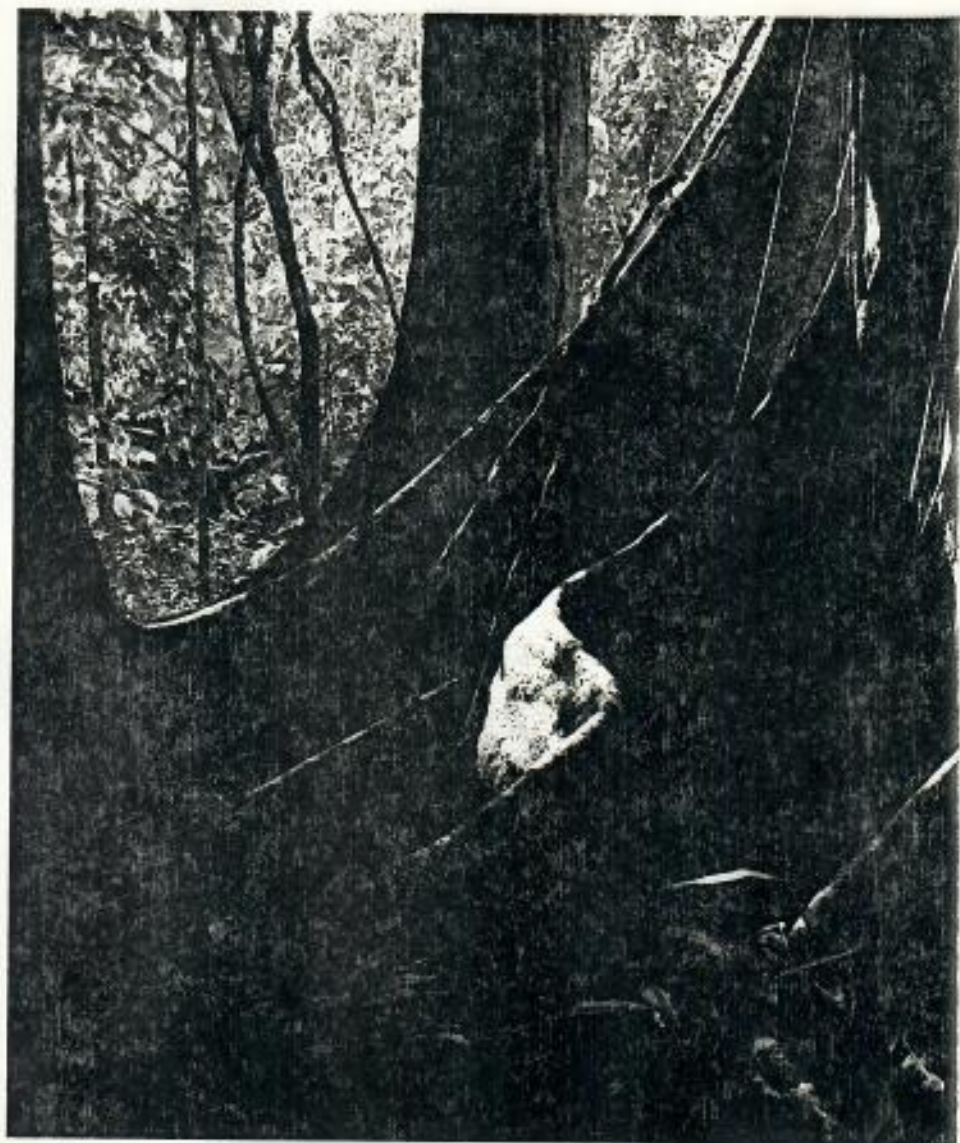
Michael Taylor

ALTHOUGH he is director of Costa Rica's showpiece national parks, Alvaro Ugalde, 37, currently makes his headquarters in Washington, D.C. Reason: money. Ugalde has set out to raise \$5.5 million in park aid. "The whole system is in danger," he explains. "Twenty percent of the land in our parks is still in private ownership. We have to buy it from the farmers and the ranchers because their holdings are scattered throughout the parks."

In the past, Costa Rica's efforts to build its park system have been impressive, but the future is uncertain. A decline in prices for exports coupled with a jump in import prices have led to runaway inflation. In response, Ugalde and his colleague Mario Boza formed a foundation to find private park aid.

Why seek financial help abroad? Ugalde's answer is that conservation in his biologically important country is a worldwide concern. "Costa Rica is the country where you can invest and get lots of return. It has more species per unit of land than almost anywhere."

Throughout the Third World, Costa Rica's parks system is taken as a model to emulate, and Ugalde hopes the current campaign becomes an example, too. For their past efforts, Ugalde and Boza last spring received the World Wildlife Fund's J. Paul Getty Wildlife Conservation Award.



Death," where cold wind has pruned the forest to low stands of dwarfed trees and shrubs. One day when we were looking for salamanders up there, a little man with a gun and two small dogs emerged from the dripping cover. We asked him what he was hunting, and he said *danto*—tapir. Because we seemed incredulous, he beckoned, and we followed him down a tunnelloike path through the tangle to a place where the trail began to branch. He stopped and pointed up and down the tunnels that came together there and said, "Ve, puro *danto*—nothing but tapir." Death Mountain got its name because unlucky travelers who crossed the range used to die from exposure.

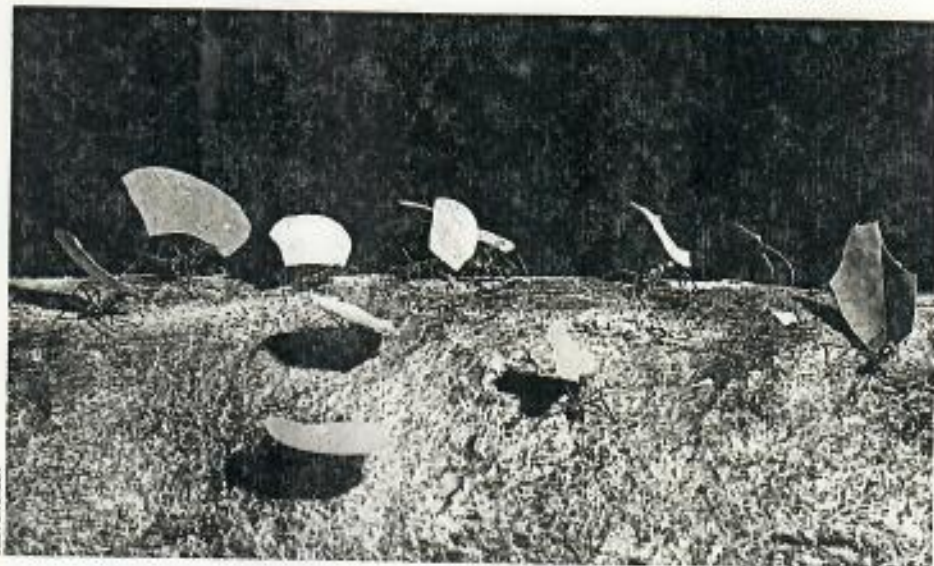
For tapirs to be living up there seemed incomprehensible, a perverse violation of ecological role. But in fact, they have also flourished more than a thousand feet higher still on the cold heaths of Chirripo Mountain.

The first of the Costa Rican parks was Santa Rosa on the Pacific coast, a vast spread of the Guanacaste dry-forest country near the Nicaraguan frontier. A unique asset of Santa Rosa is a mass nesting aggregation—an *arribada*—of the olive ridley sea turtle. On a little cove beach at Naneite, tens of thousands of female turtles come ashore each year and crawl over each other in their drive to lay their eggs on the tiny crescent of sand. This breeding

Corcovado Park, with its big trees (below), is one of the wettest places in the country—home to 285 bird species, 139 mammals, 116 amphibians and reptiles.

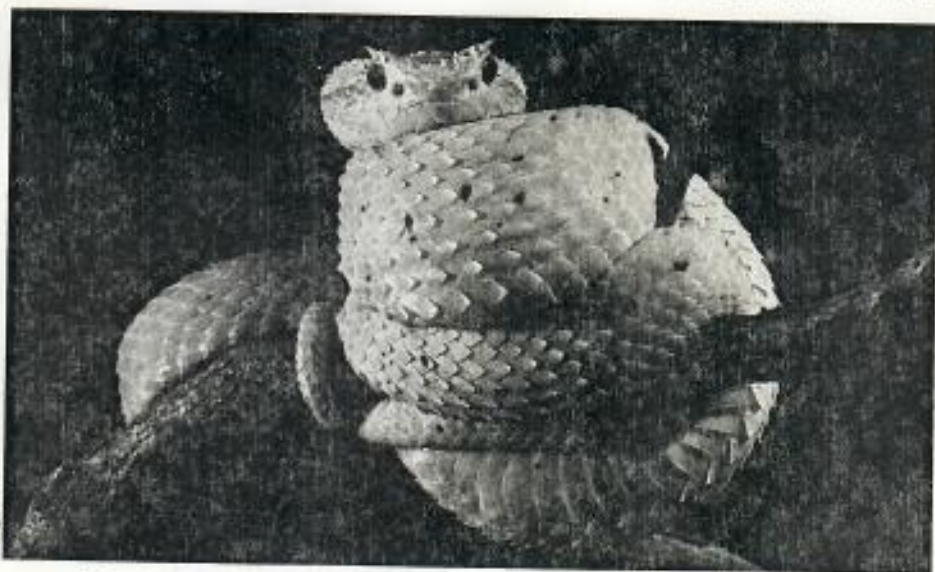


Industrious leaf cutter ants (below) break down jungle vegetation. They are critical to a rain forest's ongoing cycle of growth, decay and rebirth.



Jack Swenson

The eyelash, or Schlegel's, pit viper comes in several color phases, including yellow (bottom). It often perches on branches, which it grabs with its tail.



George Beal

assemblage is one of the wonders of the zoological world.

Over on the Caribbean coast at Tortuguero, green turtles come faithfully to nest every year in numbers greater than anywhere else in the Atlantic system. The presence of the colony was the primary reason the Tortuguero Park was established. But with the protection the park has provided, the manatee population of the lagoon has also found sanctuary, and so have monkeys, white-lipped peccaries, the spotted cats and all the rest of the beleaguered fauna of the Caribbean lowlands.

Scientists and conservationists, both foreign and domestic, helped this new park system to flower. Roughly 40 per-

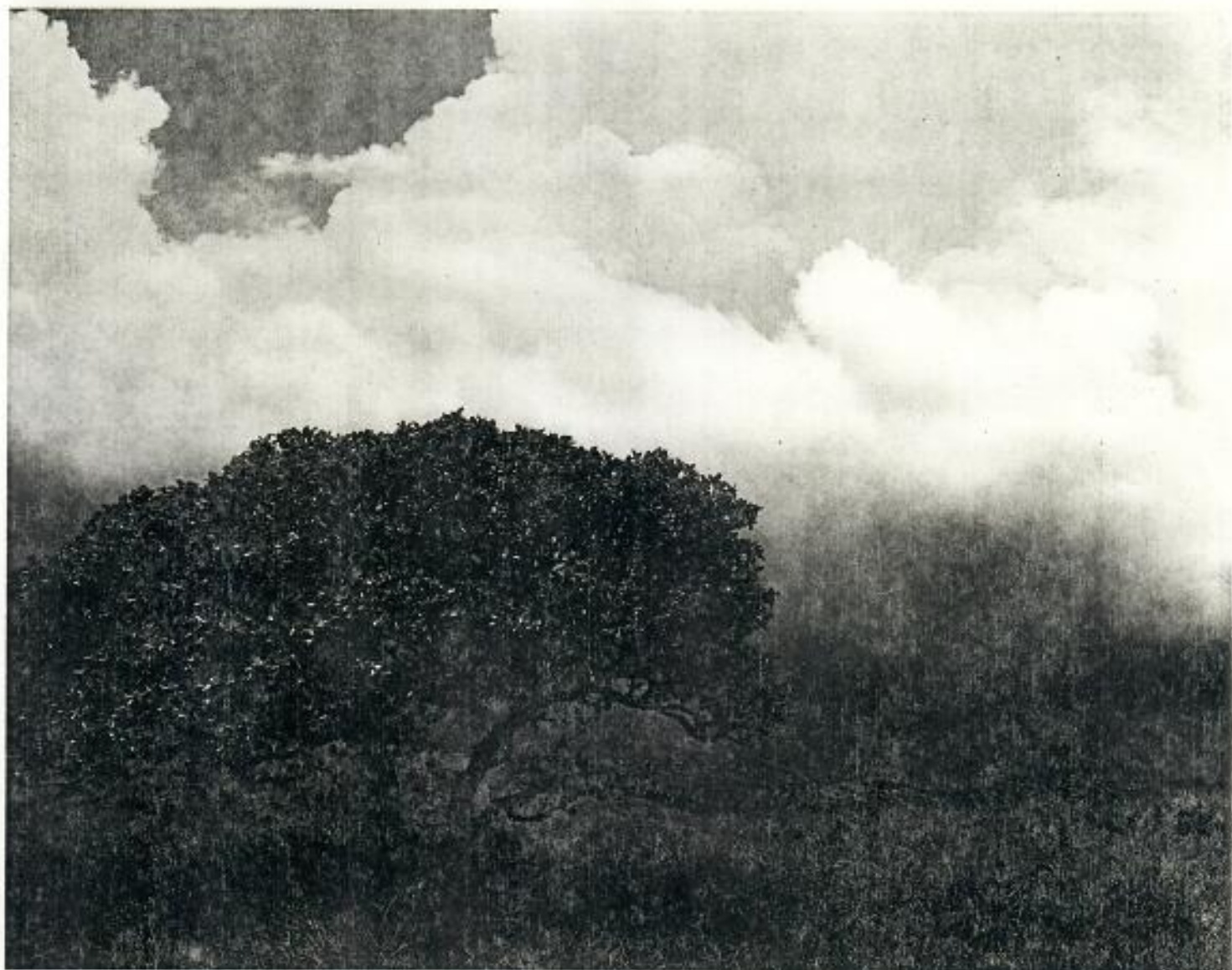
cent of the biological research published in all Central America has come from Costa Rica. The writings of naturalists first attracted international attention to the country as a biological paradise more than 100 years ago. More recently, the testimony of visitors has aided in the wise selection and management of the areas set aside as parks. The contribution of foreign scientists and naturalists is reflected today in the strong orientation of the park system towards botanical and zoological research. In some of the parks, scientists-in-residence often outnumber campers.

Another condition that paved the way for conservation was the original pattern of colonization. The colonists

settled on the pleasant uplands of the Meseta Central, leaving the hot, wet lowlands untouched except by European diseases—and these soon drove the Indians out. Even today, half the population is concentrated in the Meseta Central. This trend has left great expanses in a natural state. Without malaria there would have been little left to preserve in Cahuita Park. Had it not been for yellow fever, Corcovado Park would long ago have been timbered and turned into ranches.

Perhaps the key factor in Costa Rica's accomplishment lies in the character of the Costa Rican people. The original colonists were mainly agrarian—not gold-seeking conquistadores—and to-

Arid lands: grassy asylums for species dwindling elsewhere in the Americas



day Costa Ricans are literate, democratic and extraordinarily proud of their country. From the beginning they have had the character and self-confident grace to accept whatever creative ideas their immigrants have brought in. The national park system is a case in point. Some 16 domestic, foreign, and international organizations have contributed funds, equipment, services, personnel, and moral support to the development of the park system. Volunteers range from the Peace Corps to private citizens who simply donate their services. One benevolent U.S. graduate student spent his spare time while he was based at Tortuguero Park, his study site, organizing a train-

ing program for the park guards.

Finally, there is the work of two dedicated and resourceful Costa Ricans—Mario Boza and Alvaro Ugalde. Boza is the father of the system. As a graduate student, he chose to write a thesis on a plan for developing Poas Volcano National Park. Shortly thereafter, he became the first director of the newly created National Park Service. He recalls that, although his superiors were too busy with other concerns to give the fledgling park service much attention, they didn't interfere with it. In fact, they gave him a surprisingly free hand in running it.

One of Boza's most important early moves was to enlist the aid of another

young man, Alvaro Ugalde (see box, page 22), then completing studies in biology at the University of Costa Rica. At Boza's suggestion, Ugalde enrolled in the international park training program of the United States Park Service. Later he became superintendant of Santa Rosa, then the system's only park. Boza stepped down to organize an environmental education program at the National University, and Ugalde was named his successor in 1974. He led the program skillfully through three years of sweeping expansion. It is no mere coincidence that this period of rapid growth coincided with the administration of President Daniel Oduber, the best governmental friend the

Savannah grass dotted with isolated trees or clumps of woods covers the plains in dry country protected in Santa Rosa Park near Nicaragua (below).

Iguanas called gairobos (below) are among the denizens of the dry country. Wildlife in Santa Rosa includes 22 species of bats and perhaps 250 birds.

Tamanduas, or collared anteaters (bottom), feed on tree termites. The animal's defensive arsenal includes a foul odor which it emits when excited.



Park Service ever had. Many new and important parks were added to the system, including the superb Corcovado Park. The budget and Park Service staff tripled.

Over the last 26 years we have seen the dire need for such work as Boza and Ugalde have done. Every July during that time, one or both of us has taken off at San Jose in a little airplane, flown over the coffee *fincas*, gardens and dairy lands of the Meseta Central, threaded through Paso de la Palma in the towering mountains of the Central Cordillera, and then set out on the 50-mile flight over the coastal plain to the research station of the Caribbean Conservation Corporation at Tortu-

guero. During the early years by that route, we flew over uninterrupted lowland forest for nearly half an hour. Then, in the late 1950s the clearings began pushing seaward, and on our last trip, the flying time over closed-canopy forest was not quite four minutes. Next year it will be still less. Samples of most of the types of coastal wet forest, palm swamp and savannahs are preserved in Tortuguero National Park; Braulio Carrillo Park holds magnificent tracts of the upland forest around La Palma, back on the slopes of the mountains. In between, however, the whole coastal plain seems destined to become banana farms and ranches.

Except in the central mountains, de-

velopment is eroding the magic wilderness throughout Costa Rica. The people of this small, redoubtable country have distinguished themselves by their stewardship of a dwindling world heritage. What is preserved there will be seen as a treasure by our descendants, as well as theirs. To support their work is clearly a world obligation. ■

Archie Carr, an authority on the green sea turtle, is Graduate Research Professor at the University of Florida. His son David is a Ph.D. candidate in environmental policy at Duke University. Photographer Tui Moore lives in the Galapagos Islands, but traveled to Costa Rica to photograph the parks for this magazine.