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Protecting Biological Diversity in Costa Rica

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Summary

The Central American nation of Costa Rica stands out among developing countries for its innovative efforts at protecting primary tropical forests and preserving their rich reservoir of biological resources. The nation's impressive biodiversity conservation assets a cadre of natural resource managers, high environmental awareness among the public and decision makers, and technical and financial support from the international community have fostered development of a national wildlife and habitat conservation system that includes more than 75 parks and protected areas and covers 1 in every 10 hectares of national land area.

These conservation efforts come none too soon. Costa Rica has yet to halt ongoing destruction of the country's forested wildlife habitats. Today many of Costa Rica's protected areas resemble isolated habitat "islands" within a sea of croplands and livestock pastures. Continued conversion of forests to agricultural uses threatens not only the country's remaining biological resources but also, through the loss of forests as watersheds for power, irrigation, and potable water, the sustainability of the country's economic development.

In a novel approach to improving the effectiveness of its conservation efforts, the Costa Rican Government in 1989 consolidated protected areas and the lands around them into seven large conservation areas, each with its own management structure. In addition, each area is to be managed in a fashion that meets the needs of local communities and of other national and international interests and enlists nongovernmental organizations (NGOs) to share many conservation responsibilities.

USAID has supported Costa Rica's efforts at conserving biological diversity through several project grants. The most ambitious recent USAID effort and the focus of this evaluation is the Agency's $7.5 million Forest Resources for a Stable Environment (FORESTA) project (1990-1996). It supports ecologically sound, long-term economic development of protected areas and their buffer zones in the Central Volcanic Cordillera Conservation Area (ACCVC) of the country.

At the core of the FORESTA project is a newly created NGO, the Foundation for the Development of the Central Volcanic Cordillera (FUNDECOR). With FORESTA funds, FUNDECOR is helping managers plan

the sustainable operation of the ACCVC's protected areas, set up systems to inventory and monitor land use and biological resources within the protected areas, enhance efficiency of park protection efforts, introduce opportunities to engage local communities in park concessions, and mobilize resources for park operations. USAID and the Costa Rican Government also agreed to set up an endowment that would fund FUNDECOR operations after FORESTA project support ended.

Other important USAID initiatives in biodiversity conservation in Costa Rica include grant assistance for the development of an entirely private forest reserve, Monteverde, run by a Costa Rican NGO, an integrated conservation and development program around a national park area on the Osa Peninsula, and a series of small grants to groups working at saving endangered species such as sea turtles at Tortuguero and at habitat regeneration in Guanacaste. Through its private sector office, USAID has also provided loan and grant funding to promote nature tourism and investment.

As part of a global assessment of USAID-supported biological diversity protection programs, the Center for Development Information and Evaluation (CDIE) in May 1994 conducted an evaluation of FORESTA and selected other USAID-supported initiatives to assess Agency strategies to mitigate the degradation of natural forest habitats in Costa Rica. The evaluation especially noted how USAID is helping the Costa Rican Government redefine the role of NGOs in these efforts. Major project accomplishments include:

A flexible, long-term, park-planning process

Geographic and mapping tools to improve management and protection of biological resources

A system for directing revenues from park entrance fees and concession contracts to park operations and maintenance

Job opportunities within the parks for local communities

Background

Costa Rica is home to 7 percent of the world's biological resources and, with 19 different life zones, is one of the most ecologically diverse countries in the world. Much of this biodiversity is found within the 10 percent of the nation's land area comprising national parks, biological reserves, wildlife refuges and other protected areas, which provide varying degrees of protection and regulated use. These protected areas safeguard many of Costa Rica's diverse species of mammals, birds, amphibians, reptiles, and freshwater fish as well as 4 percent of the world's plant species. Many of these species are endemic to Costa Rica; most are in danger of extinction.

In addition to safeguarding biological resources of national and international significance, Costa Rica's national wild lands system has the potential to provide other benefits. Tourism has become an

important economic base and will soon surpass agricultural exports as the leading source of foreign exchange. Many of Costa Rica's foreign visitors come because of its natural attractions. The nation's protected areas also host many researchers and conservationists, who contribute to Costa Rica's economic development as well as to the understanding and conservation of its natural resources.

Environmental degradation, largely the result of rapid deforestation, is upsetting that balance. From 1970 to 1989, Costa Rica's forested areas were reduced by more than half; net forest loss continues today. The principal cause is the demand for timber and agricultural land, a scarce commodity in a country marked by steep slopes, poor soils, and heavy rainfall. Trends in land use from 1970 through 1990 (see figure) reveal the steady loss of more than 1.5 million hectares of forest land and an almost equal expansion of pasture area. During this period, Costa Rica's ambitious export-led development strategy promoted beef production for sale in international markets.

Efforts to halt the rapid deterioration of the country's forests and wildlife habitats have been inadequate. The National Park Service and General Directorate of Forests, responsible for the protection and management of designated wild lands, has not had the resources to perform their jobs. Economic incentives have promoted land clearing for farming over sustainable forest use.

The Costa Rican Government recognizes that it must do better to meet threats to survival of its biological resources. In 1989 it embarked on an innovative restructuring of the nation's protected areas. The aim was to maintain natural ecosystems, preserve genetic diversity, and permit sustainable use of biological resources. Proposed legislation grouped most of the nation's 75 forested wildlife habitats into seven large conservation areas. They are to be managed by independent administrative bodies, with scope for NGOs (including local community groups and entrepreneurs) to play important conservation and development roles.

Each conservation area has unique characteristics. All, however, consist of groups of contiguous or clustered lands including one or more core protected areas and their surrounding buffer zones set aside and managed for conservation of their biological resources and for sustainable development activities. The new system also provides for participation by adjacent communities in natural resource stewardship for park upkeep, concession operation, and guide services.

The lengthy and costly process of acquiring lands within the core protected areas has slowed implementation and generated some friction between public and private interests. Moreover, the legal base formalizing the organizational, administrative, and financial policy is still pending review and approval by the national legislative assembly. However, the Ministry of Natural Resources, Energy, and Mines has begun implementing many aspects of the proposed national conservation areas system by decentralizing the operations, management, and budgeting of its National Park Service.

Also, to help fund basic conservation area development and operating costs, the Costa Rican Government has invited international donors to channel their aid into endowments to support conservation area operations.

USAID's Assistance Approach

Support for export-led growth was the focus of USAID's development strategy in Costa Rica through most of the 1970s and 1980s. In 1979 USAID added the sustainable management of Costa Rica's natural resource base, particularly of its forests, to its development program. The Agency recognized that runaway deforestation threatened the nation's water supply, hydroelectric power, and biodiversity and was moving Costa Rica toward being a net wood importer. USAID targeted improved management of national parks and contiguous commercial forests to achieve a win win scenario between economic development and biodiversity conservation.

The most ambitious initiative in USAID's revised development assistance strategy for Costa Rica is the $7.5 million FORESTA project. USAID and Costa Rica designed FORESTA to support ecologically sound, long-term economic development of the parks and buffer zone areas in the ACCVC region. Located within a day's drive of all the country's major population centers, the ACCVC contains some of the largest blocks of primary forest remaining in Costa Rica. It also holds two of the nation's top tourist attractions, the Poas and the Iraz£ Volcanoes National Parks. Some of the ACCVC's recently created protected areas still contain farms and cattle ranches not yet purchased by the government. Although the government has banned hunting and logging within official park boundaries, these activities sporadically continue where newly demarcated park lands have yet to be paid for by the government, where titling is disputed, or where enforcement is inadequate. FORESTA supports conservation of Costa Rica's biological diversity through a newly created NGO, FUNDECOR, which provides technical assistance and funding for (1) managing the area's national parks system, (2) promoting sustainable production and use of surrounding buffer zone forests and farm lands, and (3) engaging nearby communities in the operation of park concessions and in park maintenance. In addition to providing initial financing, USAID is arranging with the Costa Rican Government to set up an endowment to fund core FUNDECOR activities after project termination.

Support to FUNDECOR and the ACCVC is the most recent in a series of USAID initiatives at fostering biodiversity conservation in Costa Rica. USAID grants to U.S. and Costa Rican NGOs are also supporting the restoration and conservation of habitats and wildlife reserves for nature tourism and research in other ecosystems. Monteverde, where USAID provided grants for park infrastructure development and loan funding from its private enterprise office for lodging facilities, is operated today largely from entrance fees and concessions. A USAID grant to a U.S. based NGO working on Costa Rica's Caribbean coast is helping support an integrated conservation and development program at Tortuguero aimed at saving sea turtles from extinction.

By fostering the creation of FUNDECOR and by supporting operations of privately managed reserves like Monteverde and Tortuguero, USAID is helping the Government of Costa Rica define the role for NGOs in managing the country's forest and biological resources. In all these cases, NGOs share responsibility for carrying out traditional public sector tasks in monitoring protected-area resources and planning park services, developing staff training programs, and arranging contracts with residents of local communities to operate concessions and maintain park facilities.

Where NGOs have special capabilities, USAID has sought to engage them in a way that complements and supports FORESTA efforts. For example, since the Costa Rican scientific community and its U.S. and foreign affiliates already have ample research capacity, FORESTA does not include conservation research as a FUNDECOR or ACCVC activity. FUNDECOR and the ACCVC, on the other hand, can use the electronic mapping and imaging tools to supplement this research capacity in monitoring changes in habitat.

FUNDECOR and the ACCVC are introducing mapping and other geographic information system (GIS) tools to help park managers identify broad critical areas within the ACCVC where the threat of park encroachment is greatest. A data base and maps of critical areas, produced using GIS for ACCVC planning purposes, show where changes in land use are most likely to occur and where the natural resource base for biological diversity may deteriorate. Airplane overflights have allowed park guards to identify illegal tree harvesting within the national parks. FUNDECOR is also testing the use of global positioning technology the use of satellite-generated mapping information to identify park boundaries in greatest need of demarcation.

Findings

Impact

Forest regeneration and replanting in and around ACCVC parks and protected areas is proceeding but not yet at a rate to reverse net habitat loss in the region. FUNDECOR has brought more than 9,000 hectares of natural forests under sustainable management and established about 1,000 hectares of native tree species plantations in buffer zones around the ACCVC protected areas. While this has not been enough to reverse net deforestation in the ACCVC, it is contributing toward eventually achieving a balance between the rate of trees harvested and the rate of forests established. The outcome of this balance will be stable habitat conditions for wildlife within the ACCVC.

Improved park facilities are creating new opportunities for local communities and for the tourism sector to generate employment and income by bringing more tourists to these locations. Equipped visitor centers, nature interpretation trails, and handicapped access have all enhanced user-friendliness in those parks where such facilities were provided. These park system investments have also encouraged more private nature tourism operations providing guide, food, and lodging services. ACCVC park visitation was up 20

percent in the first half of 1994, compared with the same period from the previous year.

Monteverde is a good example of a privately operated reserve where investment in visitor services and facilities is producing significant returns in the form of added visitor entrance fees and concession revenues to cover operating costs. At Monteverde visitation rates have climbed by about 20 percent annually since 1990. How much of this activity has resulted in new jobs in tour operations, resorts, restaurants, and craft shops near the parks depends on the share of tourist expenditures on local food, crafts, and services that reaches local communities. Some studies suggest this share is small, ranging between 10 and 20 cents out of an average tourist dollar (see Box 1). FUNDECOR's arrangements for local contracting of concessionaire contracts promise to increase this share as well as the stake of local communities in sustainable park operation.

Program Effectiveness

Data on changes in rates of protected area encroachment are inconclusive. The evaluation was unable to determine whether increases in the number of citations filed for illegal activities are leading to reductions in illegal natural resource use by local people. The area patrolled has increased because park area has expanded, but the number of ranger staff has remained the same. The number of citations issued has increased, but no conclusion can be made as to whether that has led to fewer encroachments. The process of filing claims against poachers and illegal loggers reduces the time available to park guards for patrol and apprehension of other violators and few of the violators are punished.

The benefits of park use are limited by logistics constraints and by shortages of qualified National Park Service staff to provide for visitor education and safety. FORESTA has financed the purchase of communications base stations at seven operational centers within the ACCVC and numerous mobile units. But the project has access to only four vehicles, reducing the total area park guards can patrol. In addition, USAID's "buy American" requirements have increased money spent on vehicle maintenance and time spent patrolling, since American trucks and four-wheel-drive recreational vehicles are not well suited to the mountainous, off-road environment of the parks. Security of tourists is a major concern of ACCVC managers. Park guards try to prevent visitors from getting lost or being bitten by snakes or attacked by thieves, all of which can happen in and around the parks. A shortage of personnel, however, has resulted in missed opportunities for environmental education and visitor satisfaction. For example, park guards have closed many of the trails at one ACCVC park because of lack of staff to oversee them.

The shortage of park rangers and their limited access to training in foreign language and communications skills has discouraged the ACCVC from launching environmental education activities that could lead to better visitor attendance, behavior, and safety. The ACCVC has considered the introduction of programs to train local residents as naturalist guides to fill this need while providing

local economic benefits (see Box 2). Proposed contracts with local residents for the operation of concessions and the maintenance of facilities are also aimed at reducing demands placed on park rangers for park operations. That will free them to be more responsive to visitor's needs.

Program Sustainability and Replicability

FORESTA has enhanced but not yet ensured the economic viability of the ACCVC park system. USAID has moved the ACCVC closer to self-financing by obtaining government approval for return to the park of 75 percent of the revenues from entrance fees. This new revenue management system, based on Costa Rica's as yet unapproved Conservation Areas Law, enables the system's parks to use these funds for protection and management activities. As an additional source of revenue for the park system, the Costa Rican Government has granted FUNDECOR the authority to solicit bids from concessionaires to operate food and craft sales and guide services. This measure will also help support growing numbers of park visitors.

One issue that has slowed the process is how to ensure that small local entrepreneurs would not be pushed aside by larger capital-city enterprises in bidding for the concession contracts. Park managers also wish to avoid having park concessionaires take away business from communities whose residents already provide meal and lodging services in facilities located immediately adjacent to the parks. At Monteverde this concern has been addressed by the formation of local cooperatives.

The national park system has been able to reduce ACCVC's dependency on donors for its overall budget from 60.8 percent in 1992 to 52.3 percent in 1994. Current regulations and operating procedures limit ACCVC system capacity to capture additional economic benefits from tourism. The Costa Rican Government has given administrative approval for setting higher fees for foreign visitors to enable the park service to tap more tourism revenue for park maintenance and operation.

Although efforts are under way to consolidate the ACCVC protected-area system through land acquisition and provision of biological corridors, fragmentation of habitats within the system still poses a threat to sustaining some plant and animal species. The ACCVC parks and reserves are essentially forest habitat "islands" surrounded by agricultural land. Existing ACCVC mapping data have identified areas where forest habitat has become so fragmented and reduced in size that the survival of increasingly isolated plant and animal populations is at risk. Although some species may thrive in secondary forest and disturbed areas, in general small patches containing small populations of species are prone to local extinction from random fluctuations in population size and from outside influences, such as hunting.

Both FUNDECOR and the ACCVC still face an uncertain future. The distribution of roles and responsibilities between FUNDECOR and the ACCVC in the planning and implementation process of FORESTA is not

clear. Although FUNDECOR was established through legitimate channels, it does not have a clear mandate from the interested public and private sectors in the ACCVC to solve complex land-use problems in the area. In its 3 years of operation under FORESTA, FUNDECOR has made its presence felt in only selected areas of the ACCVC. Some of the affected public are not confident that FUNDECOR alone can solve protected-area and natural resource management problems in the area. In addition, the ACCVC and for that matter Costa Rica's entire conservation area system continues to operate without a legal mandate. That reinforces the difficulties of coordinating different public agencies operating within the conservation area.

Costa Rica's conservation areas management approach appears to have a number of prerequisites to its spread to other areas. In Costa Rica, the government and NGO partnership in protected-area management has emerged from an enlightened political system that has found ways to foster cooperation instead of confrontation between public agencies and private enterprises. Moreover, Costa Rica's private sector offers a relative abundance of business and technical skills needed in creating and operating NGOs, with both conservation and development mandates. Settled land tenure systems, somewhat lacking and a problem in the ACCVC, are critical to fostering responsible land use inside and outside protected areas and reducing the demands for vigilance by park guards. Finally, to the extent that conservation depends on sources of revenue from park visitors, there must be in place a tourism industry infrastructure for handling foreign and domestic visitors.

Lessons Learned

Land tenure policy must be clear and unambiguous if it is not to obstruct progress in protected-area land consolidation. In creating Costa Rica's impressive protected-area system, the government has included land within newly declared park boundaries with little or no or very delayed compensation. Poorly conducted surveys of park boundaries have led to disputes over the location of properties within parks. The resulting atmosphere of distrust and confusion among land owners has in some cases fostered logging and farming in efforts to get everything possible out of the land before title is transferred or to make remaining areas less attractive for further park expansion. A more responsible and responsive park land acquisition program with local community participation could avert unnecessary destruction of habitats in park and buffer zone areas. Without direction and support, local community participation in economic benefits of tourism activities around parks and protected areas is likely to be limited. The FORESTA experience demonstrates that special measures must be taken to engage local communities in operating park-visitor food and crafts concessions and providing tour guide services. Contracting must be carried out so as not to bias selection toward big city hotel and food chains and travel companies. Training in languages, communications, nature lore, and business skills are needed if rural residents of local communities are to know how to provide the quality of services expected by nature tourists, especially those from other countries.

Park managers must monitor and regulate concession operators to ensure that their facilities do not degrade the environment with trash and other waste. The central government and local cash-strapped municipalities should not relax environmental regulations to attract more tourist business investments. Training and awareness programs for tourism authorities and local government officials might be a first step in bringing tourism more into harmony with conservation.

Parks can generate an important share of their own operating revenues. Costa Rica demonstrates that under the right conditions wildlife habitats can be institutionalized as parks that both conserve their biological wealth and generate incomes to cover at least part of their operating expenses. The necessary conditions include an active and growing national recreational tourism industry, relative access to population centers, trained staff and qualified managers, and public sector officials willing to consider new approaches.

This Evaluation Highlights was prepared by Phillip Church of the Center for Development Information and Evaluation. It summarizes the findings from the USAID Working Paper No. 190, "Protecting Biological Diversity: Costa Rica Case Study," by Phillip Church, Nora Berwick, Roberto Martin, and Robert Mowbray. The study is part of a six-country assessment, directed by Phillip Church, of USAID's biological diversity protection programs. Readers can order copies of CDIE reports from the DISC, 1500 Wilson Blvd., Suite 1010, Arlington, VA 22209-2404, telephone (703) 351-4006; fax (703) 351-4039. Editorial and production services provided by Conwal Inc.