

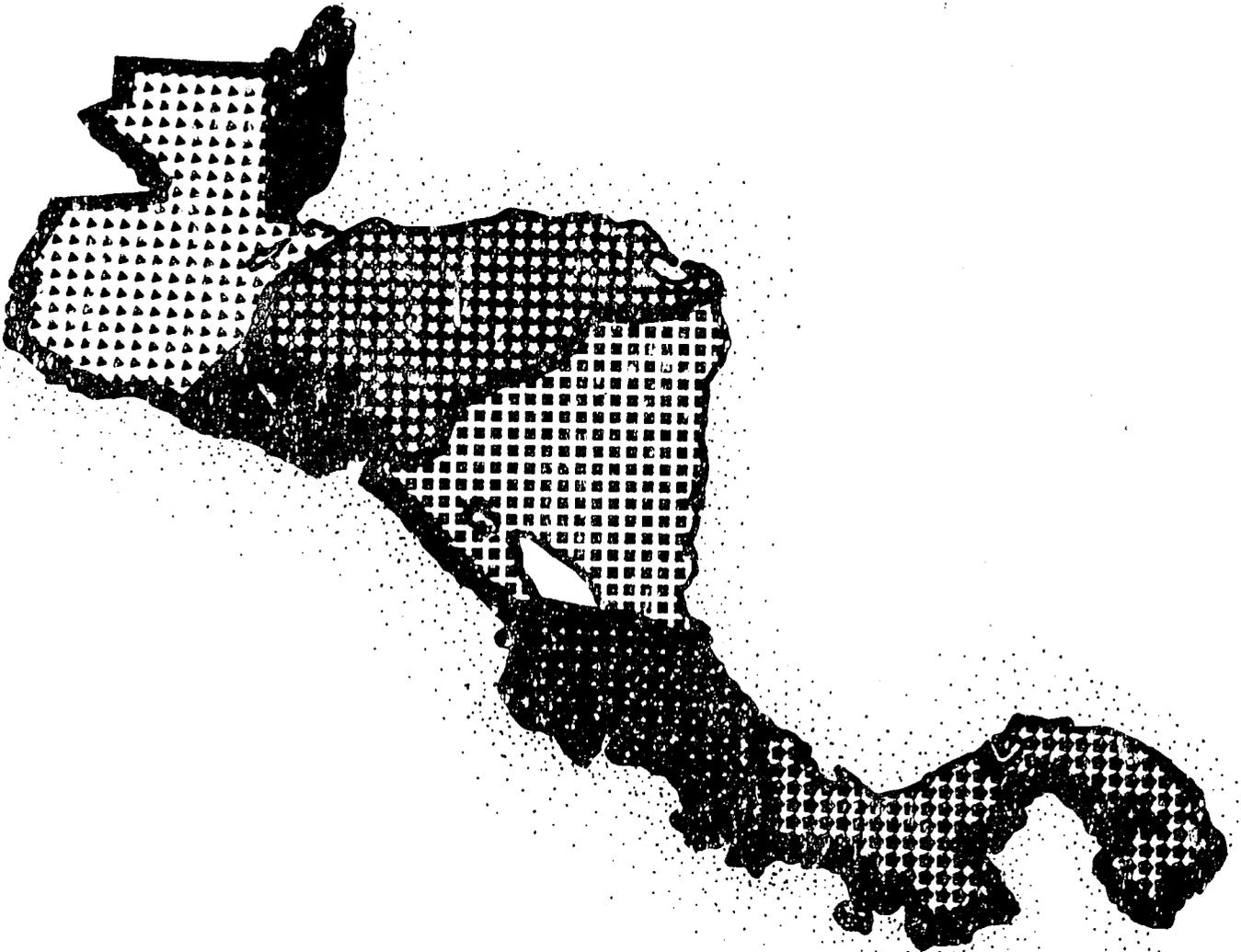


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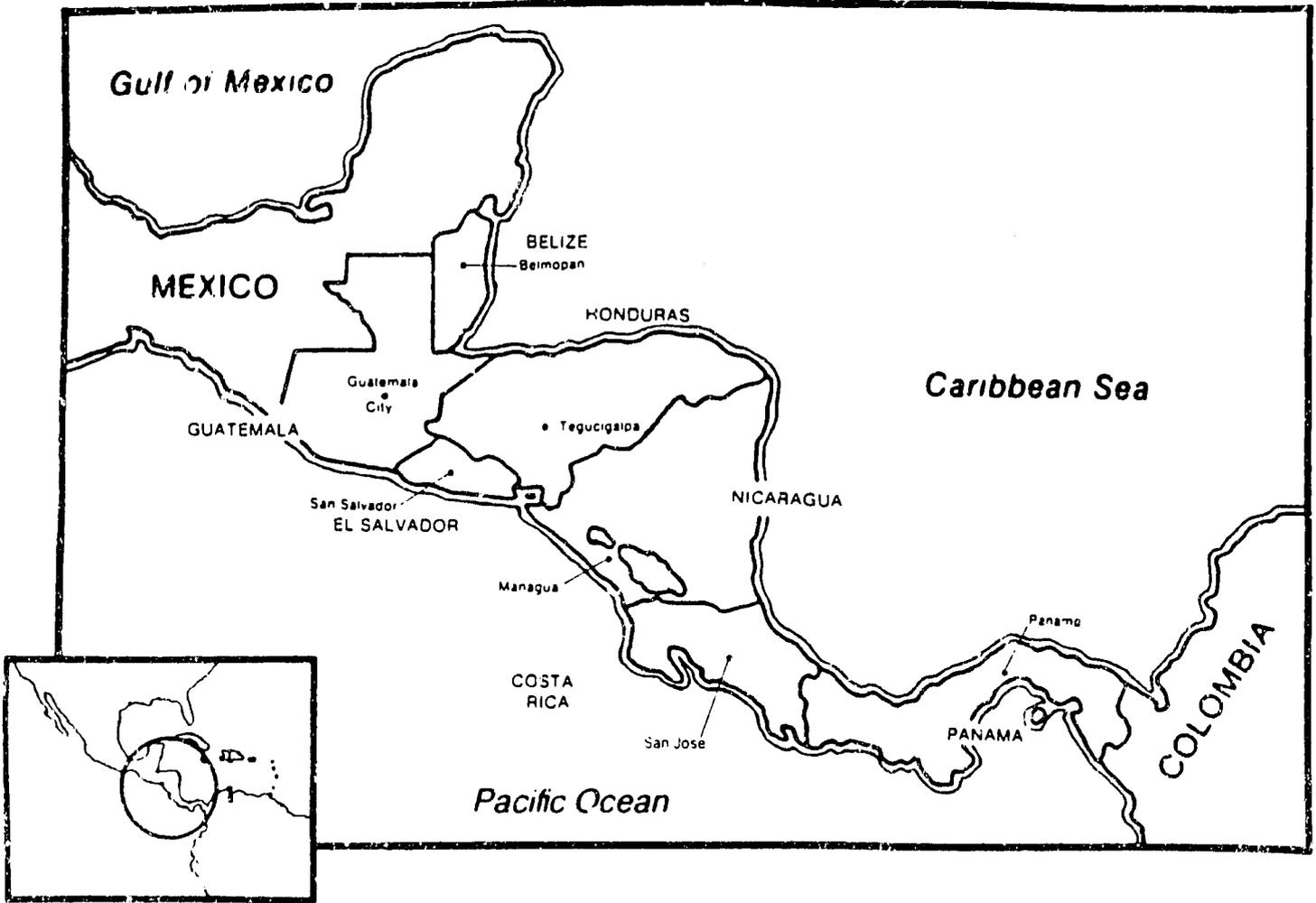
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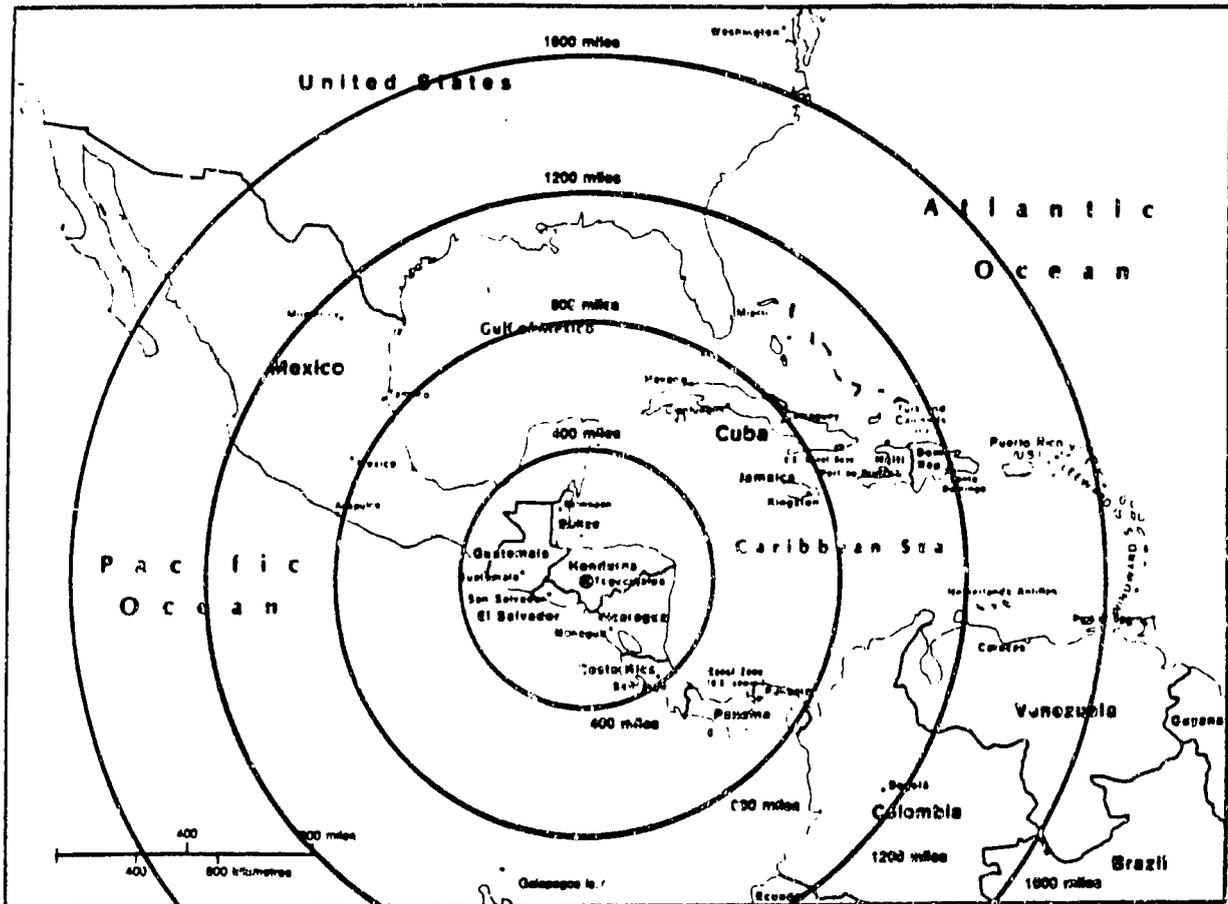
**WWF COUNTRY CONSERVATION  
PROFILES**

**CENTRAL AMERICA**

World Wildlife Fund  
Hispanic Latin America and Caribbean Program



**MIDDLE AMERICA**



January, 1988

### Preface

This document contains the country plans for World Wildlife Fund (WWF-US) in Hispanic Latin America and the Caribbean. The plans were drafted in early 1987 as part of the organization's long range planning and budgeting process. The plans focus primarily on priorities for action and grants in fiscal year 1988 (July 1, 1987 - June 30, 1988), but also establish general programmatic directions for FY89 and FY90.

Project descriptions for WWF-International are included in this document. The consolidation of Latin American projects from WWF-US and WWF-International began this year, and our budgets are still separate. In future years we expect the plans and the projects to be fully integrated.

The central function of the plans, as we have conceived them, is to promote carefully considered, well-directed WWF action within each country -- to figure out what needs to be done and then shape our program to make the best use of our limited staff and grant funds. The plans will also give us targets as a basis for evaluating our progress after one to three years. Each plan seeks to assist Latin American institutions in achieving six objectives: 1) institutional self-sufficiency 2) a cadre of local conservationists 3) a conservation ethic 4) an ecological information base 5) a system of parks and protected areas 6) a development program linking economic progress with conservation.

The conservation movement in Latin America is extremely dynamic with new information and opportunities arising every week. WWF is widely recognized and respected for its support to emergency needs and unanticipated requests. Therefore, these plans are for planning purposes only; they are flexible and they do not represent funding commitments.

The priorities established by these plans are intended to reflect what we can best do in cooperation with conservation forces in the countries involved, based on consultations with in-country experts and WWF staff. We envision these plans as starting points for discussion of how WWF can best respond to conservation needs in particular countries, rather than a final statement of our intentions. We hope it will encourage open exchange with our colleagues, both in non-governmental and governmental positions, and we invite comments from all interested readers. Comments may be directed to Curtis Freese, Vice President for Hispanic Latin American and Caribbean Program, World Wildlife Fund.

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TABLE OF CONTENTS

COUNTRY CONSERVATION PROFILES FOR CENTRAL AMERICA

	Page
Belize.....	1
Country Map.....	3
Biological Significance.....	5
Conservation Threats.....	6
Conservation Profile.....	6
International Involvement.....	7
WWF Belizean Conservation Strategy.....	8
Priority Projects.....	10
WWF Targets for Belizean Strategy.....	15
WWF-International Projects.....	16
Costa Rica.....	19
Country Map.....	21
Biological Significance.....	23
Conservation Threats.....	24
Conservation Profile.....	25
International Involvement.....	26
WWF Costa Rican Conservation Strategy.....	27
Analysis of Program.....	28
Priority Projects.....	31
WWF Targets for the Costa Rican Strategy.....	44
WWF-International Projects.....	46
Honduras.....	51
Country Map.....	53
Biological Significance.....	55
Conservation Threats.....	55
Conservation Profile.....	56
WWF Honduran Conservation Strategy.....	56
Priority Projects.....	59
WWF-International Projects.....	63
Nicaragua.....	65
Country Map.....	67
Biological Significance.....	69
Conservation Threats.....	70
Conservation Profile.....	70
WWF Nicaraguan Conservation Strategy.....	71
Priority Projects.....	73

2

Panama.....77  
Country Map.....79  
Biological Significance.....81  
Conservation Threats.....81  
Conservation Profile.....82  
International Involvement.....82  
WWF Panamanian Conservation Strategy.....83  
Priority Projects.....87

Guatemala.....93  
Country Map.....95  
Biological Significance.....97  
Conservation Threats.....97  
Conservation Profile.....98  
WWF Guatemalan Conservation Strategy.....100  
Priority Projects.....102  
WWF International Projects.....107

El Salvador.....109  
Country Map.....111  
Biological Significance.....113  
Conservation Threats.....113  
Conservation Profile.....114  
WWF Salvadoran Conservation Strategy.....115  
Priority Projects.....116

Appendix A: Funding Toward WWF Objectives.....118

Appendix B: WWF-US Project Budgets.....120

Appendix C: WWF-International Project Budgets  
for Central America.....124

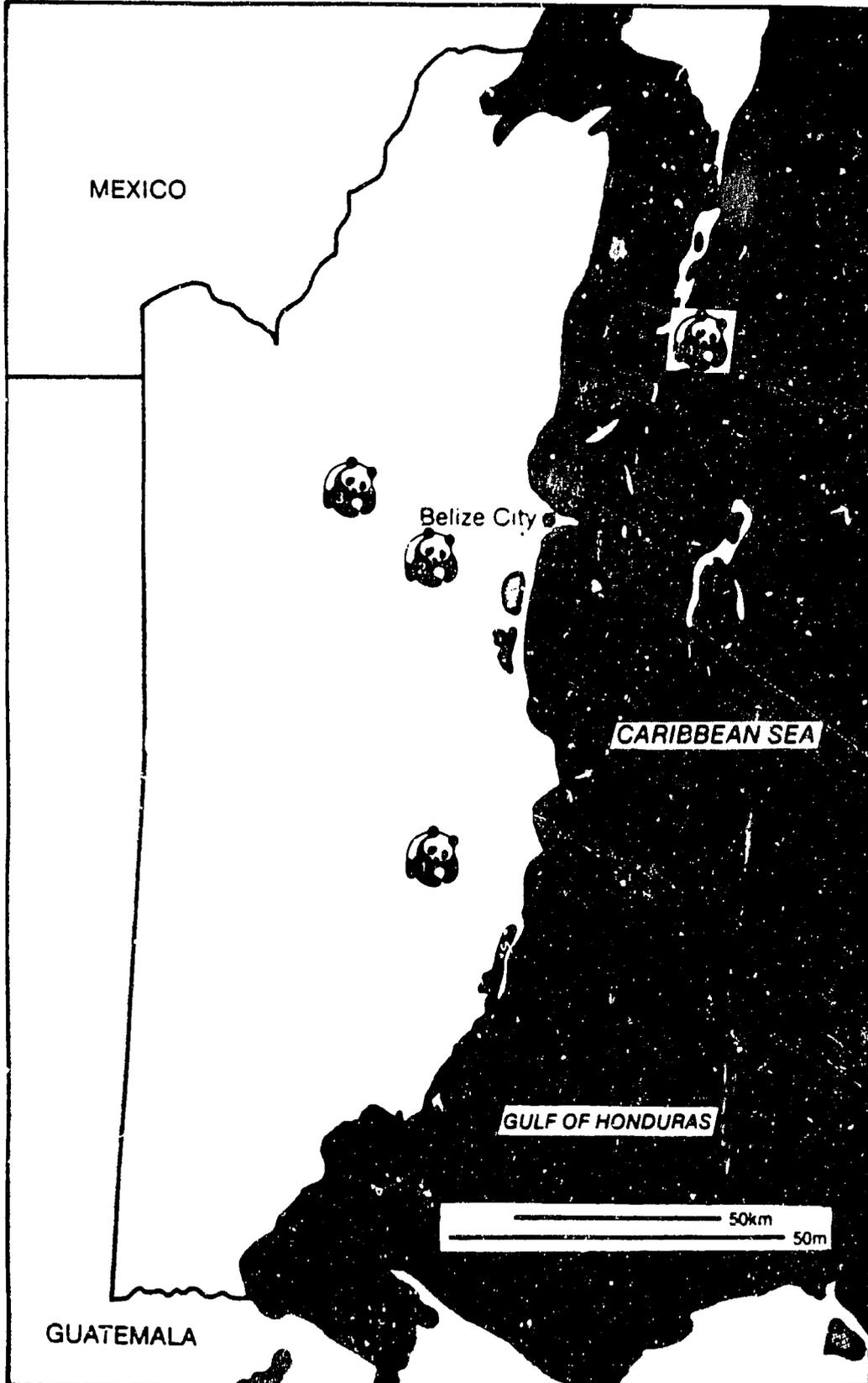
Acknowledgements.....125

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**BELIZE**

- #1) COCKSCOMB JAGUAR PRESERVE DEVELOPMENT
  - #2) BELIZE ZOO/NATIONAL ENVIRONMENTAL EDUCATION PROGRAM
  - #3) BERMUDIAN LANDING HOWLER MONKEY RESERVE
  - #4) HOL CHAN MARINE RESERVE
- SEE TEXT FOR ADDITIONAL PROJECTS

**BELIZE**



## BELIZE

### Introduction

Belize, with most of its natural heritage still intact, represents the best opportunity for establishing an ideal wildlands and wildlife conservation program in Mesoamerica. And yet, of all Central American nations, Belize is the least prepared to take advantage of this situation. Resolving this dilemma will be a major focus of future WWF efforts in the country.

While the rate of deforestation in Belize is currently the lowest in the region, development pressures are rapidly changing the face of this diverse country. Fortunately, an emerging conservation movement is providing a base upon which to launch a comprehensive environmental protection effort.

The following plan briefly reviews the status of natural resource conservation in Belize and outlines an integrated set of proposed WWF-supported activities that address these issues.

### Biological Significance

Belize lies in what is known in zoogeography as nuclear Central America, the northern portion of the Central American land bridge. The country's physiographic features are not as diverse as those in other Central America nations, but there is significant biodiversity in the six life zones that make up the country's ecological profile. Perhaps the most salient feature of Belize's natural heritage is the generally good condition of its many important wildlands and wildlife species.

While Belize has the second lowest number of vertebrates of the Central American countries, most of its vertebrate populations are in much better condition than those found elsewhere in the region. For example, of 22 species of animals listed as rare or endangered by CITES, all but four are still common in Belize. The country harbors 533 bird species, an impressive number for such a small country. (Belize, for instance, is less than half as large as Costa Rica.) Many of these species are migrants from North America.

Belize is estimated to have approximately 4,000 species of flowering plants, including 200 species of orchids and roughly 700 species of native trees. Forests cover approximately 10,120 square kilometers, which is low in comparison to most Central American countries but represents the highest percentage of forest in relation to overall national territory in the entire region.

Worthy of special note is Belize's barrier reef, the second most extensive in the world and the longest in the Western Hemisphere. Its coral reefs are considered some of the most pristine in the world and are under consideration by UNESCO for

World Heritage classification. In addition, mangrove swamps and wetlands are widespread and species found in these habitats, such as the manatee, are generally abundant.

### Conservation Threats

Deforestation rates in Belize are the lowest in Central America, at 32 km<sup>2</sup>/year (as compared to approximately 1000km<sup>2</sup>/year in Nicaragua). However, this rate is increasing rapidly, partially due to the annual influx of refugees from other Central American countries (estimates vary widely, but the number of immigrants is probably between 5,000 and 15,000 per year), many of whom practice slash and burn agriculture. Deforestation may become even more severe due to the recent frenzy of foreign investment in resource utilization activities. For example, Coca-Cola Foods Inc. and two associates recently purchased 250,000 hectares, much of it forested, in northwest Belize. This area will be developed for a variety of activities including citrus, cattle and forest industries. If not managed appropriately, this project could have tremendous ecological impacts.

Most native Belizeans (except for the Mayan Indians) are not hunters, but hunting is increasingly common among newly arrived refugees. Sport hunters from the United States and other countries also come to Belize for the opportunity to shoot rare species such as jaguar and puma. Wildlife trade is fairly well controlled, but illegal export of some species does occur.

Overfishing has severely impacted reef populations of fish and crustaceans. Divers and cruise ships have caused some damage to coral reefs, although professional divers increasingly police the diving community.

### Conservation Profile

The conservation movement in Belize is somewhat unique in the region for its nongovernmental orientation. In fact, the Department of Forestry, the government agency charged with park management, has officially delegated this task to the Belize Audubon Society for a trial period of five years. Within the Department of Forestry there is little activity in wildland management, although there is apparent interest in managing the country's 15 unit (6,300 km<sup>2</sup>) forest reserve system. The fisheries, tourism, and archeology departments have expressed their willingness to protect important natural and cultural sites, but they lack the resources necessary to undertake significant management activities.

Nongovernmental organizations, primarily the Belize Audubon Society (BAS), have initiated most conservation action in the country. BAS currently manages six wildland sites, ranging in size from just a few acres to over 3,000 hectares and encompassing coral reefs, cays, mangrove, marshlands, fresh water lagoons, pine and broadleaved forests. Most of these sites receive basic protection and management which is minimal at best, and several are threatened by development pressures and/or the

illegal harvest of resources. BAS efforts are hampered by a shortage of human and financial resources. US Peace Corps volunteers are involved in three areas.

Only a handful of Belizeans have received even minimal conservation training. The Belize Zoo, the BAS and the Departments of Fisheries and Education have all initiated environmental education activities, but these are aimed primarily at school children or the general public.

#### International Involvement

WWF first supported Belizean conservation efforts in 1984, with grants to primate and river turtle conservation projects. Since then, WWF has provided nearly \$250,000 in grant support, primarily to protect the country's wildlands and wildlife and to develop a national environmental education program. WWF support was instrumental in the creation of the country's first national reserve, the Cockscomb Jaguar Preserve, a 3,500 acre site which encompasses prime jaguar habitat and significant populations of ocelot, margay and other mammals. WWF also sponsored and helped organize Belize's first national conference on conservation and development, held in 1986. In FY87, WWF grants to Belize totalled \$174,923. Most of these funds supported wildland protection activities, including management of the Cockscomb Jaguar Preserve; management of the Bermudian Landing Howler Monkey Reserve, one of the region's only community-operated wildlife refuges; and creation of the Hol Chan Marine Reserve to protect mangrove, reef and deep water habitat. WWF grants also supported the creation and dissemination of a national environmental education program. WWF has worked closely with BAS, the Belize Zoo, and the departments of fisheries and education.

The Massachusetts Audubon Society provides financial assistance to BAS. The New York Zoological Society manages a MacArthur grant for BAS and has carried out several wildlife projects which involved the establishment of protected reserves, including the Cockscomb Jaguar Preserve. There is some interest on the part of IUCN in developing a national conservation strategy for Belize. This project is in the preliminary planning stages and may or may not be carried out in the next three years. If developed, it could affect WWF's long range conservation plan.

Of potential importance to conservation are the many "nature tourism" groups operating in the country, which play a significant role in making tourism the country's second largest income generator.

International development agencies, such as AID and Canadian International Development Agency (CIDA), have thus far had little involvement with Belizean conservation efforts. AID sponsored the compilation of an "environmental profile" but has done little to follow up on recommendations made in that report. However, both CIDA and AID are considering support for the Department of Forestry. In addition, some AID Biodiversity Program funds may

also go toward Belizean wildland projects, such as the Hol Chan Marine Reserve.

### WWF Belize Conservation Strategy

The Belize country strategy is based upon the following critical factors which have been identified in previous sections of this document:

- Although biodiversity in Belize is not as high as in some other Central American countries, it is significant, especially in light of the country's small size.
- Belizean wildland and wildlife features are in better ecological condition than those found elsewhere in the region and deforestation rates are the lowest in Central America. Many species that are rare or endangered in the rest of the isthmus are common in Belize.
- The current influx of refugees and foreign investors could rapidly change the country's relatively pristine environment, and resource degradation is already accelerating.
- While there is growing interest in environmental protection within the government and the private sector, there are very few trained conservationists, and conservation action to date has not been extremely effective.
- Numerous international conservation groups have expressed interest in increasing their involvement in Belize.
- Nature tourism is one of the country's major sources of income.
- Belize represents the last opportunity in Mesoamerica to establish an "ideal" protected wildlands system.

Based on those factors, and taking into consideration WWF's program objectives (institutional self-sufficiency, development of conservation skills, creation of a conservation ethic, building an ecological information base, systematic conservation of important biological resources, and integrating development and conservation), the following strategy is proposed:

The WWF Belize program will focus on consolidating management of existing nature reserves and, if funds are available, developing a detailed plan for a comprehensive wildland system and a wildland management agency. The program will continue to support the establishment of a national conservation education program. Over the long term, WWF will provide technical assistance and support training exercises aimed at target groups, including government decision-makers, nongovernmental organizations, and the business community.

The impact of this strategy will be a better managed existing system of parks and reserves and blueprints for the creation of a truly comprehensive wildland system and a wildland management agency. The strategy will also foster greater support

for conservation in the public and private sectors, and a growing cadre of skilled Belizian conservation professionals.

The systematic conservation of important biological resources will be pursued through continued support for management of the Cockscomb Jaguar Preserve, the community-run Bermudian Landing Howler Monkey Reserve, and the proposed Hol Chan Marine Reserve. These projects will also help strengthen the government and private organizations managing the units, particularly the Department of Fisheries and BAS. Wildland units will be planned and managed with a strong nature tourism orientation in order to promote the integration of conservation and development. If funds are available, WWF will launch a major initiative to develop and implement a national wildlands system plan. This project would also contribute to the ecological information base by inventorying potential sites for new wildlands units.

The creation of a conservation ethic will be addressed through support for the expansion of the Belize Zoo's environmental education project into a national environmental education program. To promote governmental awareness of the benefits of wildland designation, WWF will help send five key Belizean policymakers to tour the Costa Rican national park system, if funds are available. In addition, WWF will continue to build education and interpretation components into all wildland projects.

If funds are available, WWF will initiate an institution-building workshop for Belizian conservationists in the coming year, in cooperation with successful national and international NGOs based in Belize.

**Priority Projects**

Cockscomb Jaguar Preserve Development (Existing project)

The Cockscomb Jaguar Preserve is a 3,500 acre site protecting prime jaguar habitat and significant populations of other wildlife species such as felids (ocelot, margay), peccary and deer. However, the site may be of greater importance for its strategic role in rallying public and governmental support for the idea of establishing parks and reserves. The site has already been used for wildland planning and conservation workshops, and will continue to serve this purpose in the future.

FY88 funds will continue support for the development of this BAS-managed reserve, which will have a strong nature tourism orientation. The site will become a prototype for the development of other reserves and a training site for reserve managers from other wildland units. Funds will be provided for the development of infrastructure and management programs. Technical assistance will be provided periodically, with assistance from the US Peace Corps.

**Expenditures For Fiscal Year 1988:**

Projected level \$ 45,000

**WWF Program Objectives:**

- \_\_\_\_\_ Institutional self-sufficiency.
- 25% \_\_\_\_\_ A cadre of local conservationists.
- \_\_\_\_\_ A conservation ethic.
- \_\_\_\_\_ An ecological information base.
- 50% \_\_\_\_\_ A system of parks and protected areas.
- 25% \_\_\_\_\_ Linkage of development with conservation.

Bermudian Landing Howler Monkey Reserve (Existing project)

The Bermudian Landing Howler Monkey Reserve project promotes the creation of a community-operated wildlife refuge which is primarily on private land. A twenty-five kilometer stretch of riparian habitat near Belize City was found to contain an extremely high population of howler monkeys (at least 800). Because most of this land is privately owned and some of it actually lies within a rural community, a mechanism was established whereby landowners voluntarily complied with a management plan drawn up by a biologist studying the monkeys. This same individual is helping the community establish a modest visitor center and promote the reserve for tourism. The goal of

Howler Monkey continued

the project is to preserve the howlers and utilize their presence to generate income for the community. It is an unusual approach which could lead to the establishment of other community- and privately-managed reserves.

Continued funding will pay for management activities, development of the reserve infrastructure, and education programs.

**Expenditures For Fiscal Year 1988:**

Projected level	\$ <u>5,000</u>
Ideal level if funds can be obtained	\$ <u>10,000</u>

**WWF Program Objectives:**

- \_\_\_\_\_ Institutional self-sufficiency.
  - \_\_\_\_\_ A cadre of local conservationists.
  - 25% A conservation ethic.
  - \_\_\_\_\_ An ecological information base.
  - 25% A system of parks and protected areas.
  - 50% Linkage of development with conservation.
- 

Hol Chan Marine Reserve (Existing project)

The proposed Hol Chan Marine Reserve, a five square kilometer transect which will protect mangrove, reef and deep water habitats, could serve as a catalyst for better management of the entire barrier reef. The project will be managed by the Department of Fisheries. Funds provided by WWF will pay for salaries, training, equipment, management activities, and education and extension programs. This project will also provide a good training ground for Fisheries staff. Ample technical assistance will be facilitated under this program grant.

**Expenditures For Fiscal Year 1988:**

Projected level	\$ <u>72,000</u>
Ideal level if funds can be obtained	\$ <u>80,000</u>

Hol Chan continued

**WWF Program Objectives:**

- \_\_\_\_\_ Institutional self-sufficiency.
- 25% A cadre of local conservationists.
- \_\_\_\_\_ A conservation ethic.
- \_\_\_\_\_ An ecological information base.
- 50% A system of parks and protected areas.
- 25% Linkage of development with conservation.

-----

Development of a National Environmental Education Program  
 (Existing and new effort combined)

With WWF support, the Belize Zoo has designed and initiated an environmental education program which it has taken to classrooms around the country. In addition, the Ministry of Education, the BAS, and several other agencies have initiated environmental education programs with limited success. This project seeks to utilize the Belize Zoo project as a vehicle for initiating a diverse, yet well coordinated, national environmental education campaign aimed at several different target groups. The project will include workshops, technical assistance, planning seminars, and funding to support different aspects of the program.

**Expenditures For Fiscal Year 1988:**

Projected level	<u>\$ 15,000</u>
Ideal level if funds can be obtained	<u>\$ 25,000</u>

**WWF Program Objectives:**

- \_\_\_\_\_ Institutional self-sufficiency.
- \_\_\_\_\_ A cadre of local conservationists.
- 100% A conservation ethic.
- \_\_\_\_\_ An ecological information base.
- \_\_\_\_\_ A system of parks and protected areas.
- \_\_\_\_\_ Linkage of development with conservation.

Trip for Belize Decision Makers to the National Parks of Costa Rica (New initiative)

This project will provide the financial and technical support needed to organize and carry out a one-week tour of the parks of Costa Rica for five high-level Belizean policymakers. This trip will introduce these individuals to several Costa Rican national parks as well as key Costa Rican conservationists, including ministers and possibly the president of Costa Rica. CATIE will assist in organizing the tour. This activity should be instrumental in building political support for the creation of parks and reserves in Belize.

**Expenditures For Fiscal Year 1988:**

Projected level	\$	<u>5,000</u>
Ideal level if funds can be obtained	\$	<u>7,000</u>

**WWF Program Objectives:**

- Institutional self-sufficiency.
  - A cadre of local conservationists.
  - 50%           A conservation ethic.
  - An ecological information base.
  - 25%           A system of parks and protected areas.
  - 25%           Linkage of development with conservation.
- 

Institution-Building Workshop for Belizean Conservationists (New initiative)

This project will organize and carry out a workshop for conservationists which focuses on several key components of institution-building, such as fundraising, proposal writing, project planning, execution, and evaluation, identification of goals and objectives, public relations, and interagency cooperation. The week-long event will be open to all interested individuals and will be carried out with assistance from local agencies, including the Red Cross, PADF, and other successful nongovernmental organizations active in Belize.

**Expenditures For Fiscal Year 1988:**

Projected level	\$	<u>10,000</u>
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Workshop continued

**WWF Program Objectives:**

- 50% Institutional self-sufficiency.
- 25% A cadre of local conservationists.
- 25% A conservation ethic.
- \_\_\_\_\_ An ecological information base.
- \_\_\_\_\_ A system of parks and protected areas.
- \_\_\_\_\_ Linkage of development with conservation.

-----  
Development of a Wildlands Systems Plan and Technical Backstopping for Existing Wildland Units (New initiative)

A WWF-supported consultant and two Belizean counterparts will establish a Belizean wildland planning unit which will, in two years, carry out the following activities:

- Provide technical assistance to the BAS and the Belize government related to the management of the existing wildlands system.
- Identify and inventory potential sites for a national wildlands system.
- Draw up plans for the system which identify wildland priorities and appropriate management categories for each area, institution-building and training needed to manage this system, costs, and potential funding sources (including proposals to these sources).

A national tourism plan is now being developed which is going to be oriented around the natural and cultural features of the country. Thus there is the opportunity to develop the wildland system plan in close conjunction with the tourism plan. (Office space has been offered to the proposed wildland planning team in the same building that the tourism team uses).

**Expenditures For Fiscal Year 1988:**

Projected level	\$	<u>0</u>
Ideal level if funds are available	\$	<u>100,000</u>

## WWF Targets for Belize Strategy

### Conservation of Biological Resources

- By 1990: Development of the infrastructure at Cockscomb Jaguar Preserve, according to the operational plan, will be completed. The preserve will be fully staffed and all personnel will have some degree of training.
- By 1990: The visitor center at Bermudian Landing will be operational. Tourism activities generated by the project should provide residents of the village of Bermudian Landing with significant opportunities to increase their income.
- By 1990: The majority of infrastructure and staffing for the Hol Chan Marine Reserve will be in place. Tourism to the town of San Pedro and the reserve will rise twofold. Tourist dollars will improve the town's economy and generate at least 25% of funds needed to operate the reserve.
- By 1990: A plan for the establishment of a national wildlands system will be completed and initial steps to implement the plan will be underway. These steps include: establishment of a governmental wildlands management agency, training of at least 10 wildland management professionals, and creation and management of three new protected wildland units.

### Creation of a Conservation Ethic

- By 1990: The Belize Zoo, Belize Audubon Society and the government of Belize will have initiated complementary national environmental education programs. At least 10 professionals will be working full-time on environmental education activities.

### Institutional Self-Sufficiency

- By 1990: The Belize Audubon Society will double its membership and number of paid staff. The Society will also increase the effectiveness of their conservation and environmental education activities.

## WWF-International Priority Projects

### Environmental Education Programme

#### Background

Belize is a small (22,000 sq. km), newly independent Central American nation. Due to the country's low population density, natural resource degradation was not a major problem until recently. However, population growth in rural areas, especially due to an influx of refugees from nearby countries, has increased the misuse and destruction of the country's natural resources. Deforestation, overhunting, overutilization of fisheries in Belize's Barrier Reef have now become difficult situations to deal with. A major reason for these problems is the lack of awareness and understanding on the part of Belizeans, especially in rural areas, of the impact of their actions on their environment and on their country's future. To increase their environmental consciousness, funds are sought to expand the existing environmental education programme of the Belize Audubon Society (BAS), the country's major conservation NGO, to reach the country's rural population and particularly schools. Specifically, funds are needed for the preparation and wide distribution of slide shows, posters, the BAS monthly bulletin, and children's books on conservation themes by BAS volunteers and collaborating Peace Corps Volunteers and school teachers.

#### Objectives

1. To expand the Belize Audubon Society's environmental education programme to rural areas and ensure that all school children and rural Belizeans are reached through this programme.
2. To prepare and distribute educational and informative material including slide shows, posters, the BAS bulletin, and the children's books.
3. To acquire and utilize equipment needed to expand the EE programme of BAS.
4. To promote the goals of the World Conservation Strategy in Belize through a major increase in environmental awareness among the general population and decision-makers.
5. To impart gradually in the rural population of Belize an awareness and understanding of the impact their actions cause on natural resources on which their standard of living depends.

#### Activities

1. To produce and distribute 5,000 copies of six low-cost posters on conservation themes (one set to every Belizean grade school child).
2. To produce/purchase and distribute eight slide/tape programmes on conservation and present them to at least 50% of the country's population.
3. To produce a book on the conservation of Belizean reptiles and a conservation primer for 1-2 grades for distribution to all schools and libraries.
4. To produce 12 monthly issues of the BAS bulletin, dealing with major conservation projects and problems in Belize, for wide distribution to schools, community groups, government and private sector leaders, as well as the general public.

## WWF-International Priority Projects

### Progress to date

The audio-visual equipment is in use, slide programmes have been duplicated, and one programme on reefs started in January 1985. The BAS bulletin was increased to 300 copies and its distribution expanded. Funds for provision of education material for six posters on major conservation themes (30,000 posters); eight slide shows, and an illustrated book on wildlife conservation for 5th and 6th grades have been sent to Belize. An extension will be considered during 1987.

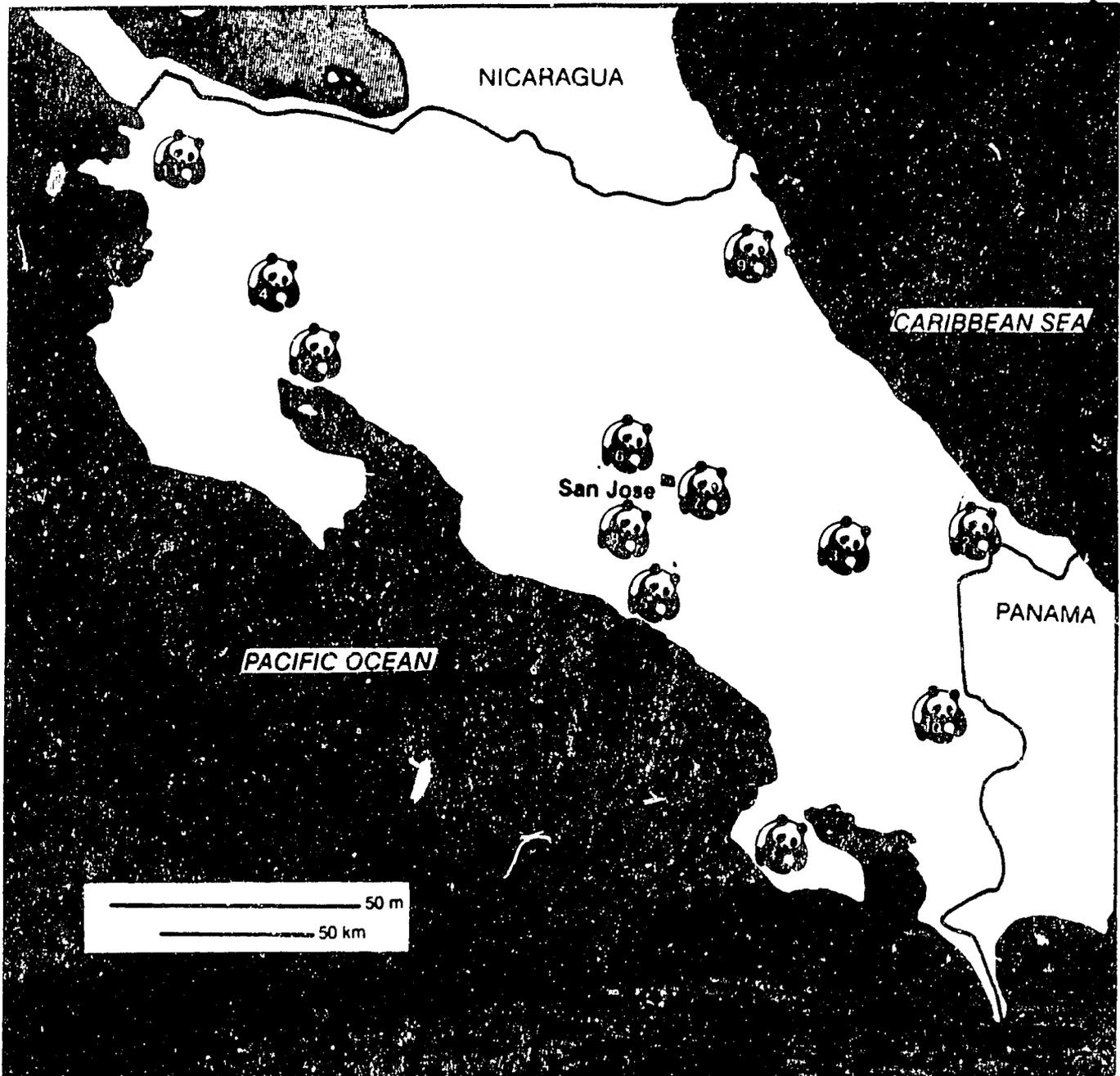
### Conservation methods

100% Education

**COSTA RICA**

- #1) CORCOVADO NATIONAL PARK
  - #2) GANDOCA INTEGRATED LAND MANAGEMENT
  - #3) CATIE WILDLANDS UNIT
  - #4) REINTRODUCTION OF WHITE-TAILED DEER
  - #5) MANUEL ANTONIO SQUIRREL MONKEYS
  - #6) COSTA RICAN CONSERVATION STRATEGY
  - #7) PREPARATION OF THE STATE OF THE PARKS REPORT
  - #8) INSTITUTION BUILDING ASSISTANCE FOR COSTA RICAN NGO CONSERVATION GROUPS
  - #9) TORTUGUERO NATIONAL PARK
  - #10) LA AMISTAD NATIONAL PARK
  - #11) GUANACASTE NATIONAL PARK
  - #12) LOMAS BARBUDAL BIOLOGICAL RESERVE
- SEE TEXT FOR ADDITIONAL PROJECTS

**COSTA RICA**



## COSTA RICA

### Introduction

Although Costa Rica is rightly acknowledged as one of the world's leaders in creating parks and reserves, something important is missing in Costa Rican conservation. Despite a cadre of natural resource managers in both the public and private sectors, an extensive wildland system encompassing an extraordinary array of ecosystems, a high degree of environmental awareness among decisionmakers and the public, and substantial financial and technical support from the international community, environmental degradation is a growing threat to the country's ecological resources.

New directions are needed to address Costa Rica's increasingly complex but less "sexy" ecological problems: park acquisition has been tremendously successful and few, if any, additional parks need to be created, but those in existence are experiencing growing development pressures; degraded lands need to be recuperated, and land use policies must be modified to better integrate conservation and development needs. However, with the exception of a few bold efforts, conservationists have not yet changed their traditional focus. Unfortunately, the forces that are degrading Costa Rican ecosystems continue to maintain their vigor.

The following plan reviews natural resource conservation problems in Costa Rica and proposes a WWF strategy to address these issues.

### Biological Significance

Costa Rica has a spectacular variety of plant and animal species due to the country's unique geographic location -- in the center of the land bridge between the North and South American continents -- and its myriad of microclimates, caused by diverse physiographic features such as mountains, volcanoes and two oceans. With nineteen different life zones, Costa Rica is one of the most ecologically diverse countries of its size in the world.

Within Central America, Costa Rica's diversity of terrestrial vertebrate fauna and wealth of endemic species are exceeded only by those found in Mexico and Panama. Although the country's total forest cover (16,000 km<sup>2</sup>) is lower than that found in most other Central American nations, its forests are nevertheless of international ecological significance. For example, Costa Rica has over 30,000 hectares of tropical dry forest --an extremely endangered forest type all but extirpated along much of the Pacific coastal plain of the isthmus. Unbroken forests of Costa Rica's Zona Protectora and La Amistad National Park harbor more plant species than are found at similar

altitudes anywhere in the region. Costa Rica's rich ecological diversity and endemism place the country high on World Wildlife Fund's list of biological priorities in Latin America.

### Conservation Threats

A history of rapid and continued deforestation bodes ill for the future of the nation's impressive natural heritage. When the Spaniards arrived in Costa Rica over three hundred years ago, an estimated 98 percent of the country was covered in forest; today, only 30 percent of this forestland remains. The rest has been cleared for pastureland, agricultural plots, and human settlement, as well as extraction of forest products. More than half of this deforestation has occurred since 1950. An estimated 50,000 to 60,000 hectares of forestland are cleared annually. If this rate continues, forests outside of protected parks and reserves will virtually disappear by 1990.

If forest management does not improve over the next decade, woodlands under federal protection will be severely threatened and the country will no longer be able to rely upon its native timber supply to meet growing local demand. It is projected that Costa Rica will be forced to import wood by the year 1995, at a total cost even greater than the nation's debilitating current annual expenditure for imported oil.

Deforestation and other forms of habitat degradation have had a significant impact on the nation's biological resources, and will increasingly do so if destructive environmental trends are not reversed or slowed. Approximately 10 percent of the country's terrestrial vertebrate species are considered endangered, primarily by habitat loss, and some, such as the harpy eagle, may be locally extinct. Biologically rich aquatic ecosystems, such as the coral reefs off Costa Rica's southeast coast, are being choked by sedimentation due to erosion, a common problem in a country where over 17 percent of all lands are considered seriously eroded.

The principal force causing widespread deforestation and soil erosion in Costa Rica is not demand for timber. Rather, it is large-scale demand for agricultural land, a scarce commodity in a country marked by steep slopes, poor soils, and heavy rainfall. Less than 30 percent of the territory is considered appropriate for even the most limited agricultural activity. And yet, over 60 percent of Costa Rica's land base is used for agriculture, pastureland, or urban development.

Until recently, land tenure laws encouraged misuse of forestland by requiring that untitled lands be "improved" to obtain ownership. This generally promoted forest clearing at the expense of protection or well-managed production. Under current law, public and titled private lands are still not well-protected from invasion by squatters. This is especially true for large land parcels. Land owners often prefer to sell their land to logging companies or to clear it themselves, rather than watch it succumb to squatter colonization. Interest groups such as foreign investors, cattle ranchers, loggers, and campesino rights

groups have thwarted many efforts to reform environmentally destructive land tenure laws.

### Conservation Profile

Over the past twenty-five years, the conservation movement in Costa Rica has evolved from a core group of enthusiastic but generally untrained resource managers to a large cadre of technically proficient professionals involved in a wide variety of conservation efforts. The impact of this impressive development of human resources is reflected in the phenomenal growth in the number of protected wildland units and wildland managers.

Costa Rica had just a few parks and reserves in 1970; by 1987 the nation had over 55 such units, covering about 18 percent (926,000) of the national territory. The National Park Service now employs approximately 350 individuals, nearly all of whom have received some level of training, ranging from week-long workshops to full-length graduate programs.

Several other institutions, both governmental (e.g. Department of Wildlife) and nongovernmental (e.g. Tropical Science Center), have built up impressive professional expertise over the past decade. Four Costa Rican universities now have natural resource-related programs (including the National University in Heredia, Technological Institute of Costa Rica, State Correspondence University, and University of Costa Rica). The Tropical Agricultural Research and Training Center (CATIE) offers graduate courses in forestry, watershed management, and wildland management for students from the Latin American region. The Organization for Tropical Studies (OTS) also facilitates courses in tropical ecology that have been completed by thousands of students, mostly from North America although the number from Costa Rica is increasing.

The Costa Rican government has initiated an impressive array of environmental education activities for primary and secondary schools and the general public. A National Environmental Education Curriculum has been developed for the elementary school system, media coverage of environmental and conservation issues is extensive, and the National Park Service has developed educational exhibits and materials for many of the country's most popular parks and reserves. Partly as a result of these efforts, the general public's degree of conservation awareness is quite high and environmental issues often figure prominently in political elections.

In-country NGO conservation efforts focus primarily on national parks, environmental education, and conservation strategies, to the exclusion of environmental advocacy. ASCONA, once one of the strongest NGO advocacy groups in Latin America, now exists only in name due to recent financial and administrative problems.

## International Involvement

World Wildlife Fund has provided over \$2 million in grants, as well as extensive technical assistance, to Costa Rica over the past twenty-five years. WWF support has gone primarily to the National Park Service for wildland acquisition, protection and management. WWF has provided the Monteverde Cloud Forest Reserve, managed by the Tropical Science Center, with eight separate grants. WWF has also supported educational activities within the Ministry of Education, the National University, and the National Correspondence University, and a variety of training projects, primarily through CATIE.

The Conservation Foundation is currently assisting in the development of a State of the Environment report which will form the background document for a Costa Rican national conservation strategy, supported by WWF and CF as well as IUCN.

Several other international conservation and development organizations have contributed substantially to Costa Rican conservation programs. Current fundraising campaigns include the effort by Dr. Daniel Janzen to raise \$11.8 million, in cooperation with The Nature Conservancy, for the proposed Guanacaste National Park. By December 1986, Janzen and TNC had reportedly collected \$1.3 million from contributors such as the W. Alton Jones and MacArthur foundations.

The Nature Conservancy has been active in Costa Rica for a number of years. Their efforts primarily involve the development of a conservation data center, support for the National Parks and Neotropica Foundations, and parkland acquisition efforts such as the Guanacaste project, noted above.

In the past, AID has supported wildland protection and management, NGO conservation efforts, and environmental education in Costa Rica. Today, AID is not significantly active in these fields.

Other major outside contributors to Costa Rican conservation include the Organization for Tropical Studies, which has provided extensive training opportunities, the InterAmerican Foundation, which funds several components of the Gandoca Refuge Project, CATIE, which focuses on wildland research and training, and the Biosphere Reserve.

## The WWF Costa Rica Conservation Strategy

The Costa Rica strategy is based upon the following critical factors:

- Costa Rica is one of the most biologically important countries of its size in the Western Hemisphere.

- Costa Rican conservation efforts have been extraordinary. The country boasts one of the best park systems in the world, as well as an impressive array of conservation assets such as a national environmental education program, technical training programs in natural resource management, and an environmentally sensitive electorate.

- Despite extensive efforts to protect Costa Rica's wildland resources, the country is experiencing rapid deforestation and environmental degradation, especially in national forests and on private land. Several national parks are increasingly threatened by development pressures.

- International donors have contributed substantial technical and financial assistance to Costa Rican conservation activities. WWF's long history of involvement in the country includes over \$2 million in project grants.

- Despite continued degradation of wildlands, Costa Rica is still considered the prototype for similar conservation efforts in other Latin American countries. WWF and other organizations will continue to use Costa Rica as a model for conservation efforts throughout Latin America.

- The conservation movement in Costa Rica is, in a sense, experiencing a "mid-life crisis." It has evolved from a young, vigorous initiative to a more institutionalized and bureaucratic effort.

- A National Conservation Strategy for Costa Rica is due for completion in April 1988. Its recommendations may affect priorities and activities proposed in the WWF strategy.

With these factors in mind, the WWF Costa Rica Conservation Strategy has been devised to address WWF's program objectives in priority countries: institutional self-sufficiency, development of conservation skills, creation of a conservation ethic, building an ecological information base, systematic conservation of important biological resources, and integration of development with conservation.

The WWF Costa Rican Conservation Strategy focuses most immediately on improving the management of existing protected wildlands. If these areas are not defended against further deforestation and degradation, the loss would be tragic, not only for Costa Rica but for other countries looking to the country as a conservation model. The WWF plan seeks, over the longer term, to develop ecologically sound management schemes for areas surrounding these wildlands, to develop in-country conservation

skills through training efforts, and to promote institution-building and interinstitutional cooperation among local and regional conservation organizations.

It is expected that the result of this strategy will be a national park system that is better protected and less threatened, though not significantly larger, than that which exists today. The national system of forest reserves will also be better protected and managed to ensure a sustainable harvest of renewable forest products. Buffer zone areas will demonstrate increasing environmental compatibility with protected wildlands. It is also expected that conservation action in the country will become more strategic and coordinated through implementation of a national conservation strategy.

#### Analysis of Program

The basic groundwork for the systematic conservation of important biological resources in Costa Rica has already been done or is well underway, via wildland acquisition. Improving protection and management of existing national parks and forest reserves will be a major WWF focus.

The first step in realizing this goal is to systematically quantify existing and potential threats to the parks. This will be accomplished by the State of the Parks report project, to be initiated in FY88 and due for completion in FY89.

It is equally important to protect the park system by improving park management and developing management plans for buffer zones or boundary regions which balance the needs of the park and neighboring communities. WWF is addressing these issues primarily through its work in Corcovado National Park. For a number of years, WWF has also worked to improve park management through support for the general operations of the National Park Service. This may continue, depending upon the findings of the State of the Parks report. A WWF co-funded initiative to develop a National Conservation Strategy, begun in FY87 and due for completion in FY88, also includes plans for improving management of park resources and buffer zones.

In the case of the forest reserves, a major institution-building effort is needed. The Forest Service has not been as successful as the Park Service in achieving its major management goals for protected areas. Many reserves are vulnerable to illegal and inappropriate timber harvesting. The Forest Service needs strengthening, and reserve management plans must be created and implemented to give existing reserves adequate protection.

In conjunction with AID and The Conservation Foundation, WWF is addressing this problem through a major new initiative, Consolidation of the National Forest System, which initially supports a pilot project to design and manage a "model" forestry reserve. The first pilot is likely to be located in the Golfo Dulce Forest Reserve, which forms much of the buffer zone adjacent to Corcovado National Park.

Institutional self-sufficiency will be encouraged primarily through support for existing governmental and nongovernmental organizations' training and technical assistance programs. Target institutions for such support include the National Park Service, the Forest Service, the new Ministry of Natural Resources, and private foundations such as Neotropica.

WWF also plans to continue the present level of support for CATIE, which we consider our "de facto" representative in the region. Our funds support a variety of the institution's activities, giving top priority to specialized regional training efforts. In FY88, if funds are available, WWF also plans a new initiative to build environmental advocacy capabilities among existing NGOs.

Creating a cadre of skilled conservationists is an important long-term objective for the WWF program in Costa Rica. Costa Rica is a key training site for the region because a number of its training facilities, such as CATIE, serve not only Costa Rican nationals but students from neighboring countries.

As mentioned above, WWF will continue its longstanding support for CATIE's training activities. WWF will also devote the services of one staff member to evaluating the CATIE program in order to help the Wildlands Unit evolve in tune with rapidly changing Central American conservation needs. WWF will also continue its support for the wildlife management program at the National University. Like CATIE, the UNA program is largely a regional training center.

If additional funds are available, it will be important to evaluate the substantial number of training programs in the region to quantify their effectiveness and determine the need for future modifications.

Promoting a development process consistent with sustainable use of natural resources is also a principal focus of WWF's Costa Rica program. All of the park and reserve-related projects proposed in this plan have a strong emphasis on linking natural resource conservation with development needs. Projects specifically designed to serve this objective include strategic planning via creation of a Costa Rican Conservation Strategy and two field projects, the Gandoca Integrated Land Management project and the White Tailed Deer Restoration project.

To address the full range of environmental pressures facing Costa Rican ecosystems, it is critically important to investigate methods of integrating long-term needs for timber, agricultural land, and rural development with sustainable use of existing forestlands. The WWF and CF Forestry Program will work to address this need through small-scale pilot projects, such as the forestry project included in the Consolidation of the National Forest System initiative.

Fomenting a national conservation ethic is a process that is well underway in Costa Rica. At this time, the only WWF project specifically aimed at this objective is an evaluation of

environmental education programs previously carried out by WWF and other organizations, planned for FY89. The results of this evaluation should help direct future conservation education efforts in the entire region.

## Priority Projects

### Consolidation of Corcovado National Park (Existing project)

With over 560 species of vertebrates, including numerous rare or endangered species such as the Costa Rican spotted cats, tapir, white-lipped peccary, and various monkeys, Corcovado National Park is considered the "jewel" of the park system. Its 41,788 hectares harbor over 500 tree species and 8 distinct vegetative communities. Most of the park contains primary forest, giant old growth, and abundant wildlife. The relative isolation of the park combined with its natural features make it an extremely popular stop for nature tourists.

Until just a few years ago, Corcovado was a wilderness surrounded by a wilderness (a forest reserve). Recently, development of adjacent land has placed increasing pressure on the park, and the closure of regional banana company operations prompted over a thousand gold miners to invade the park between 1982 and 1985. With financial support from WWF and the Costa Rican government, the Park Service and the rural guard recently removed some 1400 miners and reinforced park boundaries. However, the threat of reinvasion is very real. The Corcovado ranger force has been strengthened by staff taken from other parks, which weakens other components of the wildlands system.

This project continues assistance WWF has provided to Corcovado for protection activities. In addition to addressing protection needs, this support will be used to plan and initiate extension and "ecodevelopment" activities in buffer zone areas to stabilize land use and improve relations between the park and its neighbors.

In addition to providing funding, WWF can also help improve wildland management in the Corcovado area by sharing experience gained in our Wildlands and Human Needs Program (WHNP). This could be achieved by sending staff from Corcovado to other WHNP project sites and linking the Park Service with experienced rural development organizations, such as those represented on the Wildlands and Human Needs Program Advisory Committee.

In FY88 the protection program in the park should be well established. In FY89 rural development and forest management plans for adjacent regions should be completed and implementation begun. In FY90 and FY91, the process of stabilizing land use surrounding Corcovado should be underway.

### Expenditures For Fiscal Year 1988:

Projected level      \$ 50,000

Corcovado continued

**WWF Program Objectives:**

- \_\_\_\_\_ Institutional self-sufficiency.
- \_\_\_\_\_ A cadre of local conservationists.
- 25% A conservation ethic.
- \_\_\_\_\_ An ecological information base.
- 50% A system of parks and protected areas.
- 25% Linkage of development with conservation.

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Gandoca Integrated Land Management (Existing project)

The Gandoca project is a multifaceted private sector attempt to link wildland conservation with sustainable rural development. Located on the southeast coast of Costa Rica, the project area encompasses a patchwork of mature rain forest, mangrove swamps, wetlands, small farms and two rural coastal communities. The area was isolated and little used until a recent highway construction project opened it to developers. Improved access has resulted in greatly accelerated deforestation brought on by land-clearing on the part of newly arrived colonists, and logging by longtime residents who are "improving" their land to demonstrate ownership.

The components of the project include: land titling, funded by WWF for the last two years, to help slow deforestation; organization of tree and crop nurseries to provide plant material for sustainable agriculture projects; agricultural extension work; environmental education; creation and management of a National Wildlife Refuge, in conjunction with the Costa Rican government; and several other ecodevelopment projects such as aquaculture and nature tourism.

The FY88 grant will continue support for the land titling program. As this task is completed, other ecodevelopment projects will receive increased support, including the extension and education work. As part of the Wildlands and Human Needs Program, WWF will continue to provide training opportunities for project staff and to facilitate communication between project personnel and the staff of similar efforts in the program.

The land titling component of this project should be completed in FY88. However, agroforestry and other ecodevelopment projects are not likely to be well-established for several years.

**Expenditures For Fiscal Year 1988:**

Projected level     \$ 50,000

Gandoca continued

**WWF Program Objectives:**

- \_\_\_\_\_ Institutional self-sufficiency.
  - 25% A cadre of local conservationists.
  - \_\_\_\_\_ A conservation ethic.
  - \_\_\_\_\_ An ecological information base.
  - 25% A system of parks and protected areas.
  - 50% Linkage of development with conservation.
- 

Consolidation of National Forest System (New initiative)

The Costa Rican Forest Reserve System encompasses extensive tracts of wildland totaling 420,000 hectares, nearly equal in size to the country's park system. Unfortunately, the Forest Service has not been as successful as the Park Service in achieving its management goals, which include the appropriate and sustainable multiple-use management of forest reserves. Lack of protection and field management has left many reserves vulnerable to illegal and inappropriate timber harvesting. The Forest Service needs strengthening at various levels. In addition, forest reserve management plans must be written and successfully implemented.

In conjunction with AID and The Conservation Foundation, WWF will provide funds and technical assistance to help carry out a field project in one of the reserves to serve as a model for similar programs in all forest reserve units. This project will include investigation into appropriate forestry practices, forest planning, and forest management activities. Technical assistance and training will be stressed, as will institution-building at the local and national levels.

In addition to providing direct support, WWF will encourage and orchestrate similar involvement in forestry activities by other international organizations, such as CATIE, AID, and CIDA.

The actual site of this project has not yet been determined, but there is a strong possibility that it will be in the 157,000-hectare Golfo Dulce Forest Reserve, which forms much of the buffer zone adjacent to Corcovado National Park. In recent years this area has suffered tremendously from inappropriate logging, farming and mining practices. Establishment and implementation of sound forest protection and management in this area will complement conservation efforts in Corcovado National Park.

In FY88 forest management needs and characteristics will be assessed. By the end of FY89 forest management plans should be complete. Implementation of forest plans will begin in FY90.

Consolidation continued

**Expenditures For Fiscal Year 1988:**

Projected level     \$    25,000

**WWF Program Objectives:**

- 50%     Institutional self-sufficiency.
- \_\_\_\_\_     A cadre of local conservationists.
- \_\_\_\_\_     A conservation ethic.
- \_\_\_\_\_     An ecological information base.
- 25%     A system of parks and protected areas.
- 25%     Linkage of development with conservation.

Support to the CATIE Wildlands Unit (Existing project)

The Wildlands Management Unit of the Tropical Agriculture Research and Training Center (CATIE) has been an instrumental force in Mesoamerican conservation efforts for over a decade. CATIE staff have provided technical assistance for a variety of conservation efforts throughout the region. CATIE training courses, seminars, and graduate programs in wildland management are directly responsible for much of the conservation advances in Central and even South America. The Unit has served as a de facto representative for WWF in the region, and is our major line of communication to Central American conservationists.

WWF has provided funding for a variety of CATIE activities but in recent years has focused its support on the training aspects of the program. WWF will continue this strategy and will provide funds for the Unit's training specialist, scholarships for CATIE wildland course participants, and funds for special events such as the Mobile Seminar on Parks and Reserves. In addition, WWF will donate the service of one staff member to evaluate the CATIE program to help the Unit evolve in time with rapidly changing regional conservation needs.

**Expenditures For Fiscal Year 1988:**

Projected level     \$    35,000

CATIE continued

**WWF Program Objectives:**

- \_\_\_\_\_ Institutional self-sufficiency.
- 75% A cadre of local conservationists.
- \_\_\_\_\_ A conservation ethic.
- \_\_\_\_\_ An ecological information base.
- 25% A system of parks and protected areas.
- \_\_\_\_\_ Linkage of development with conservation.

Wildlife Coordinator, Central America Training and Program Development

In 1985, WWF and the U.S. Fish and Wildlife Service (USFWS) agreed to jointly sponsor a position for a full-time wildlife biologist in Central America. Mr. Stephen Cornelius, a wildlife biologist with 15 years of experience in Central America, was selected for the position. Based at Costa Rica's National University, Mr. Cornelius works jointly with the University and CATIE (a regional natural resource institute based in Costa Rica).

Considerable progress has been made under Mr. Cornelius' coordination in developing the training and management recommendations for Central America. Based on site visits to every country in the region, wildlife management projects are being developed in most countries, and specific training needs and candidates have been identified. Most significant among these efforts is the graduate program at the National University in Costa Rica.

**Expenditures For Fiscal Year 1988:**

Projected level \$ 57,000

**WWF Program Objectives:**

- \_\_\_\_\_ Institutional self-sufficiency.
- 50% A cadre of local conservationists.
- 25% A conservation ethic.
- \_\_\_\_\_ An ecological information base.
- \_\_\_\_\_ A system of parks and protected areas.
- 25% Linkage of development with conservation.

Wildlife Management Program at the National University (Existing project)

Advanced academic training at the masters degree level has been identified by several U.S. government reports and the heads of wildlife agencies in Mesoamerica as the principal long-term strategy to upgrade the level of expertise among wildlife researchers, managers, and administrators in the region. Currently, the School of Environmental Sciences of the National University of Costa Rica (UNA) is the only academic institution in the region with a legitimate program leading to an advanced degree in wildlife management.

The masters program being developed at UNA directly addresses the critical training needs in wildlife management. It meets these needs at two levels: by providing intensive, formal training to selected individuals within the context and environment of Latin America, and by building a regional institution, UNA, to carry out such training.

WWF funds will continue to support the existing program. WWF will also provide scholarships for 8-12 top candidates from the Latin American region.

Expenditures For Fiscal Year 1988:

	30,000 WWF
Projected level	\$ <u>30,000 AID</u>

WWF Program Objectives:

- \_\_\_\_\_ Institutional self-sufficiency.
- 75% \_\_\_\_\_ A cadre of local conservationists.
- \_\_\_\_\_ A conservation ethic.
- \_\_\_\_\_ An ecological information base.
- 25% \_\_\_\_\_ A system of parks and protected areas.
- \_\_\_\_\_ Linkage of development with conservation.

Reintroduction of the White-Tailed Deer (Existing project)

The white-tailed deer is one of Central America's most important game species and a traditional source of protein for rural people. Deer populations have declined dramatically in many areas, as have several other important game species. This project is designed to address the management needs of the white-tailed deer, to establish a model for work on other species, and to create training opportunities. WWF has supported several facets of the project in the past, including an innovative extension and education program.

White-Tailed Deer continued

**Expenditures For Fiscal Year 1988:**

Projected level     \$   15,000

**WWF Program Objectives:**

- \_\_\_\_\_ Institutional self-sufficiency.
- 75%     A cadre of local conservationists.
- \_\_\_\_\_ A conservation ethic.
- \_\_\_\_\_ An ecological information base.
- 25%     A system of parks and protected areas.
- \_\_\_\_\_ Linkage of development with conservation.

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Costa Rican Conservation Strategy (New initiative funded in FY87)

Despite Costa Rica's impressive track record in park establishment, training, and environmental awareness, the country's natural environment continues to be degraded at a startling pace. A national conservation strategy is needed to identify and coordinate public and private sector activities required to curtail this loss and integrate conservation with future development.

The Ministry of Natural Resources is beginning to develop a National Conservation Strategy (NCS) for Costa Rica. The effort involves representatives from twelve major natural resource sectors within the national government. An advisory committee will review sectoral plans submitted by these representatives and integrate them into a conservation strategy.

WWF is providing financial support as well as technical assistance. The Conservation Foundation is also providing technical assistance. The project is slated for completion by April 1988.

\$25,000 was expensed in 1987. No future funding is projected.

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Preparation of State of the Parks Report (New initiative)

Although the eyes of the international conservation community are trained on Corcovado National Park and its current crisis, almost all Costa Rican parks are suffering severe problems. Threats to these parks include environmentally damaging activities that go on within their boundaries, such as over-use of trails and illegal hunting, as well as pressures from

Report continued

outside, such as the inflow of sediments and pollutants. It is important that actual and potential threats be identified for all Costa Rican parks and that appropriate solutions to their problems be advanced.

The proposed State of the Parks report will inventory the status of all wildlands protected under the existing system. It will also identify existing and potential threats to their integrity. This document, which will serve as a guide to national and international conservation efforts in Costa Rica, will also outline steps required to effectively confront park management and protection problems.

The project will be carried out by the Fundacion Neotropica with assistance from the Costa Rican Park Service. WWF will fund the project and provide technical assistance in project design and implementation. This one-year project should be completed by the end of 1988. The findings of the report will be used to guide future WWF support for Costa Rican parks.

**Expenditures For Fiscal Year 1988:**

Projected level	\$	<u>10,000</u>
Ideal level if funds can be obtained	\$	<u>20,000</u>

**WWF Program Objectives:**

- 25% Institutional self-sufficiency.
- A cadre of local conservationists.
- A conservation ethic.
- 25% An ecological information base.
- 50% A system of parks and protected areas.
- Linkage of development with conservation.

Institution-Building Assistance for Costa Rican NGO Conservation Groups (New initiative)

Despite the extensive cadre of trained conservationists in Costa Rica, the development of an effective NGO conservation movement with an advocacy orientation has met with limited success. There has been some progress in this field, but there is currently no strong NGO organization serving as an advocate for sound environmental management. Several foundations address this issue, but their activities focus primarily on fund-raising for governmental projects.

Institution-building continued

This project will provide support and technical assistance (in the form of workshops and seminars) for individuals and organizations attempting to initiate NGO conservation action. WWF will coordinate this project, perhaps with assistance from one of the existing NGOs, possibly ASCONA. WWF will also promote the inclusion of curricula related to NGO institution-building in existing training courses, such as those at CATIE and UNA.

Expenditures For Fiscal Year 1988:

Projected level	\$	<u>0</u>
Ideal level if funds can be obtained		<u>\$10,000-15,000</u>

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Evaluation of the Impact of Environmental Education Programs  
(New initiative)

A wide variety of environmental education activities have been carried out in Costa Rica by many different organizations, including WWF. During the initial years of the WWF project, a variety of evaluation techniques were applied. We will need to conduct an evaluation in FY89 that reviews the past six years of experience and identifies components that are most valuable and replicable. Evaluation will be particularly vital because many of the existing educational materials and programs are being used as models in other Latin American countries, and considerable time and money have been spent on their development and dissemination.

An evaluation team will systematically identify and measure the impacts of these efforts. WWF will use these findings to further refine our skill and knowledge in environmental education.

Projected \$20,000 in Fiscal Year 1989.

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Guanacaste National Park

Dr. Dan Janzen, one of the world's foremost authorities on tropical ecology, has proposed a bold plan to regenerate the highly endangered tropical dry forest in a large area surrounding Santa Rosa National Park in Costa Rica. The \$11.8 million project would facilitate the purchase of 700 km<sup>2</sup> of mostly degraded pasture land and would provide the protection and sophisticated management needed to restore this ecosystem. Funds will be used specifically to purchase a remnant 2,500 hectare plot of forest on the north boundary of the proposed new park which Janzen has named "Guanacaste National Park."

Guanacaste continued

When the Spanish arrived in Central America, there were 550,000 km<sup>2</sup> of tropical dry forest on the Pacific side of Mesoamerica. Today, less than 2% of this dry forest remains relatively undisturbed, and only .08% lies within national parks or other protected areas. Forest clearing and wild fires continue to endanger these last patches of dry forest. In addition to harboring many rare species, they provide an important seed source for the regeneration of surrounding areas. As Janzen has stated, "habitat restoration is essential before natural and anthropogenic fluctuations and perturbations extinguish many of the small populations and habitat remnants that have survived to this date."

WWF-US received \$15,500 in restricted donations for the project in FY87 and has received a further contribution of \$47,780 from a Dutch Foundation, via WWF-Netherlands. This project is significant for several reasons: Guanacaste is of ecological importance; preservation of tropical dry forests is a high priority for conservation in Mesoamerica; and the project will regenerate habitat in a severely degraded area, putting conservation on the offensive.

**Expenditures For Fiscal Year 1988:**

Projected level      \$ 148,000

**WWF Program Objectives:**

- \_\_\_\_\_ Institutional self-sufficiency.
- 25%      A cadre of local conservationists.
- \_\_\_\_\_ A conservation ethic.
- \_\_\_\_\_ An ecological information base.
- 50%      A system of parks and protected areas.
- 25%      Linkage of development with conservation.

Lomas Barbudal Biological Reserve

Lomas Barbudal, along with Santa Rosa National Park and Palo Verde Refuge, is one of the last significant remaining patches of tropical dry forest in Central America.

Small but ecologically important, its 2,400 hectares are home to several endangered plant and animal species, including over 250 species of bees, many of which are important for honey production and pollination of plants, trees and crops.

WWF-US support for Lomas Barbudal began two years ago with an emergency grant for fire fighting equipment when a wildfire

Lomas continued

threatened the reserve. At the time, WWF-US did not anticipate continuing funding. In 1986, however, WWF-US agreed to fund the initial stages of a decentralized wildland management plan which would make Lomas Barbudal financially self-sufficient. In a pilot program, the Costa Rican Park Service initiated an environmental education and outreach program which trained reserve neighbors, who had been a source of fires, in fire prevention and suppression techniques. This year's grant will provide equipment and facilities necessary to fully implement the decentralized management plan.

Expenditures For Fiscal Year 1988:

Projected level \$ 11,000

WWF Program Objectives:

- \_\_\_\_\_ Institutional self-sufficiency.
  - \_\_\_\_\_ A cadre of local conservationists.
  - 25% \_\_\_\_\_ A conservation ethic.
  - \_\_\_\_\_ An ecological information base.
  - 75% \_\_\_\_\_ A system of parks and protected areas.
  - \_\_\_\_\_ Linkage of development with conservation.
- 

Costa Rican Squirrel Monkey Studies at Manuel Antonio National Park

In 1985, WWF sponsored a survey of the endemic Costa Rican squirrel monkey undertaken by Sue Boinski, which determined that only 300 animals were extant in the immediate vicinity of Parque Nacional Manuel Antonio. Dr. Boinski's study concluded that it was "crucial that the S. o. citrinellus population in Parque Nacional Manuel Antonio be studied further" due to the fact that extensive development on the periphery of the park threatened the animals' last remaining habitat.

This project will complete a habitat evaluation, ecological study, and census of one squirrel monkey troop in Parque Nacional Manuel Antonio. It will also develop a vegetation map of the park and produce a documentary film on the squirrel monkey project. The project will be supervised by Dr. Chris Vaughn, director of the WWF-sponsored Wildlife Management Program at Costa Rica's National University.

Expenditures For Fiscal Year 1988:

Projected level \$ 3,000

Manuel Antonio continued

**WWF Program Objectives:**

- \_\_\_\_\_ Institutional self-sufficiency.
  - 25% \_\_\_\_\_ A cadre of local conservationists.
  - \_\_\_\_\_ A conservation ethic.
  - 75% \_\_\_\_\_ An ecological information base.
  - \_\_\_\_\_ A system of parks and protected areas.
  - \_\_\_\_\_ Linkage of development with conservation.
- 

Study of Marine Turtle Populations on the Pacific Coast of Costa Rica

Some of the finest available scientific data concerning the migrations and natural history of the olive ridley sea turtle have come from the Pacific coast of Costa Rica, where WWF-supported researcher Steve Cornelius and others have carried out olive ridley studies and conservation work since the 1970s. Recent data from these studies indicate reduced numbers -- and in some cases a total disappearance -- of nesting populations. Though it is believed that turtles have moved to other suitable nesting sites on adjacent beaches, the lack of detailed information from other sites has left scientists perplexed regarding the overall population status of olive ridleys.

This project will survey the coastal areas of Pacific Costa Rica to identify beaches which are important for sea turtle nesting, species which nest there, temporal distribution and duration of nesting, and sizes of turtle populations. Contact will be established with local people in the vicinity of nesting beaches for to promote environmental education and to analyze human use of the turtle resource. Biological data will be gathered and tagging programs will be initiated on major nesting beaches.

**Expenditures For Fiscal Year 1988:**

Projected level     \$ 11,000

Marine Turtle continued

**WWF Program Objectives:**

- \_\_\_\_\_ Institutional self-sufficiency.
- \_\_\_\_\_ A cadre of local conservationists.
- \_\_\_\_\_ A conservation ethic.
- 50% An ecological information base.
- 50% A system of parks and protected areas.
- \_\_\_\_\_ Linkage of development with conservation.

## Targets for the WWF Costa Rica Strategy

### Conservation of Biological Resources

- By 1990: Corcovado National Park will have a new management plan effectively integrating protection of wildland resources inside of the park with surrounding development activities. Implementation of this plan will result in a significant decrease in illegal park incursions by miners and hunters, and improved management of natural resources (especially forest resources) in regions adjacent to the unit.
- By 1990: A study will be completed on the state of the national park system which will detail the status and needs of all protected wildlands in Costa Rica.
- By 1990: The Amistad Biosphere Reserve management plan will be fully operational and protection of the area will be secured.

### Building a Cadre of Skilled Conservationists

- By 1990: The CATIE wildlands training course, which trains more than 40 Latin American wildland managers per year, will be expanded beyond the current emphasis on wildland planning to include other topics of growing concern, such as conservation project finance, project evaluation, ecotourism, basic rural development skills, extension skills and NGO development.
- By 1990: The National University will be training at least 12 biologists from the region at the masters degree level.

### Institution-building

- By 1990: At least one NGO conservation advocacy group will be active in Costa Rica.
- By 1990: The Costa Rican Forest Service will have strengthened its headquarters and field operations.
- By 1990: The Costa Rican Forest Service will have initiated at least three pilot forest management and protection projects in key areas, including the region surrounding Corcovado National Park.

### Sustainable Use of Natural Resources

- By 1990: Land use in the Gandoca region will be stabilized and development activities will be well controlled and of minimal impact.
- By 1990: At least one other project based upon the Gandoca model will have been initiated in other regions.

By 1990: A National Conservation Strategy will be complete, and a variety of key governmental and nongovernmental entities will be participating in its implementation.

Fomenting a National Conservation Ethic

By 1990: An evaluation of Costa Rican environmental education programs will be complete. New environmental education activities will reflect the results of this study.

## WWF-International Priority Projects

### Gandoca-Manzanillo National Wildlife Refuge

#### Background

As a contribution to the WWF/IUCN Wetlands Conservation Programme in Central America this project seeks to consolidate management and protection of the Gandoca-Manzanillo National Wildlife Refuge; serve as a successful example of community based conservation and sustainable development, to be promoted in similar situations elsewhere in developing countries of Latin America, conserve important coral reef, littoral, beach, estuary, swamp and tropical moist forest ecosystems. The project is justified not only because of the importance of the area but also because of the long experience of the project originators in the area and the support given to the project by the local community.

#### Activities

Preparation of a two-year operational plan for initial management of the Gandoca-Manzanillo National Wildlife Refuge; selection and training of local wardens; initiation of protection and conservation education activities in the reserve and surrounding areas; construct the basic infrastructure needed to manage the reserve.

#### Outputs

Enhanced protection and management of the Gandoca-Manzanillo National Wildlife Refuge through provision of a trained staff and establishment of an operational plan. Improved local and national awareness of the benefits of wetlands conservation. A demonstration project for promotion in other wetlands programme activities of WWF and IUCN.

#### Progress to date

The Gandoca-Manzanillo Wildlife Refuge has been legally established and its boundaries fixed. It consists of 5,013 ha onshore and 4,336 ha offshore. Three local guard managers and an administrator have been selected. A proposed highway that would have bisected the refuge and caused great ecological damage has been stopped, and a special detachment of Rural Guards, trained in natural resources issues, has been assigned to Gandoca to protect the besieged turtle nesting beach and other resources of the refuge. Further economic development work awaits completion of a biological inventory, a land-use plan, and additional funding efforts, all of which are underway.

#### Conservation methods

- 50% Protected Area Establishment
- 50% Protected Area Management

## WWF-International Priority Projects

### Tortuguero National Park

#### Background

Tortuguero National Park, established in 1975, covers an area of 19,820 ha along Costa Rica's Caribbean coast. Tortuguero is best known for its green sea turtle rookery, the largest in the western Caribbean. However, the park is also home to other endangered species such as the West Indian manatee, jaguar, ocelot, Baird's tapir, crocodile, caiman, and leatherback and hawksbill sea turtles. Vegetation in the park varies from beach communities through pure yolillo palm swamps to nearly pure stands of cativo, gavilan and cedro macho forests further inland, and extremely diverse mixed hard-wood forests in the Sierpe hills region in the heart of the park. This project provides basic funding to improve the protection and management of Tortuguero National Park.

#### Short-term objectives

1. To help implement the Tortuguero National Park Operational Plan for the period August 1984 - July 1986. 2. To improve park management through provision of equipment, and operational funds for the park's ranger corps. 3. To achieve awareness of park neighbours, visitors and nearby schools and communities by participation in a comprehensive environmental education/interpretation programme. 4. To improve and expand investigations on the natural and cultural resources of the park.

#### Long-term objectives

1. To contribute to the sustainable development of the Tortuguero region through provision of employment opportunities, maintenance of natural processes, and improved land-use practices. 2. To maintain genetically viable populations of plant and animal species in the park, and fully investigate their potential contribution to human welfare. 3. To achieve an awareness on the part of the Costa Rican government officials and park neighbours of the importance of support to the park. 4. To integrate the park with regional development schemes.

#### Activities

1. Patrol and management by park staff. 2. Training of park guards and volunteers in the field of education. 3. Preparation and implementation of education and public awareness programmes with different target groups.

#### Expected outputs

1. Implementation of management and protection plans by properly equipped and adequately trained park personnel and volunteers. 2. Increased park protection and attention to the public. Both the training and equipment will be up-graded to suit the changed conditions surrounding the park. The population in the neighbouring communities will become more receptive and gradually become allies and collaborate with the park, particularly when they comprehend the benefits the park provides.

## WWF-International Priority Projects

### Progress to date

The project was implemented in cooperation with the National Park Service, the Ministry of Interior, and the University of Costa Rica which provided volunteers for public awareness activities. Funds were used to supply equipment to the park personnel, to improve the accommodation of park guards, and to upgrade and maintain the vehicles and transport equipment. The development of environmental education and awareness programmes within the villages, communities, and schools surrounding the park was undertaken.

### Conservation methods

50% Protected Area Management  
20% Sustainable Use  
10% Awareness  
20% Education

## WWF-International Priority Projects

### Development of Amistad National Park

#### Background

Amistad National Park is the largest national park in Costa Rica. It was established in 1982 and is located in the Talamanca mountain range, bordered by Panama to the east. The park covers approximately 190,000 ha on both the Atlantic and Pacific slopes of the continental divide and contains a rich variety of tropical forests from 200 m altitude to alpine meadows at more than 3,500 m. Eight or nine ecological life zones have been registered including tropical rainforests, montane wet forest and cloudforests. The fauna is rich in species and contains endemic, rare animals (e.g. tapir, spotted cats, quetzal, etc). Most of the area remains in a virgin state although a few Indians live in the park and some Indian reserves are located near the park's limits. Amistad National Park was legally decreed on 4 February 1982. The Costa Rican Park Service has hired a superintendent and an expatriate park planner in addition to guards for protection. The guards from Chirripo National Park also serve Amistad, and the Indian reserves to the north have other guards which can be mobilized if necessary.

#### Objectives

1. To strengthen the protection of the park, in particular anti-poaching operations. 2. To improve the management capacities of the personnel, in particular between the Rio-Moska and the south-eastern boundary of the Chirripo NP. 3. To maintain an effective supervision of the Pacific sector. 4. To cooperate closely with the local population and obtain their support and understanding for the park's management objectives.

#### Activities

1. To enable the Costa Rican Park Service to transfer surplus personnel from other parks of the system to Amistad by providing basic equipment and means of transport, guard housing, camping gear, etc. 2. To train guards to meet the park's conservation objectives. 3. To carry out education/awareness activities directed at guards from the Indian reserves who can provide services to Amistad. Intensive training courses for new staff is an integral part of the regular management procedures.

#### Activities to be funded during 1986/87 include the following

1. To obtain comprehensive knowledge of the park sector between Rio-Moska and the south-eastern boundary of the Chirripo National Park. 2. To construct a guard post in the Santa Maria Pittier. 3. To obtain ownership over privately owned land between Rio-Moska and the Rio Platanillo. 4. To improve the road network. 5. To improve the communication system through provision of radios. 6. To inform and educate the local population about the benefits of the park. 7. To supervise and coordinate all activities funded by WWF.

WWF-International Priority Projects

Expected output

Conservation of a relatively undisturbed tropical rainforest area.

Progress to date

WWF funding has been used to provide equipment such as a four-wheel drive vehicle, petrol, horses and mules, camping gear (tents, sleeping bags, etc.), construction of and equipment for guard posts, office supplies, medicines, radios, and safety equipment. The environmental education programme has been underway since September 1984 in the indigenous reserves and colonist communities adjoining the Atlantic slope. In 1986, the pressure from individual land owners within the national parks became a serious problem for conservation in Costa Rica. This also effected La Amistad. Due to lack of funds, the process of land acquisition did not proceed as planned.

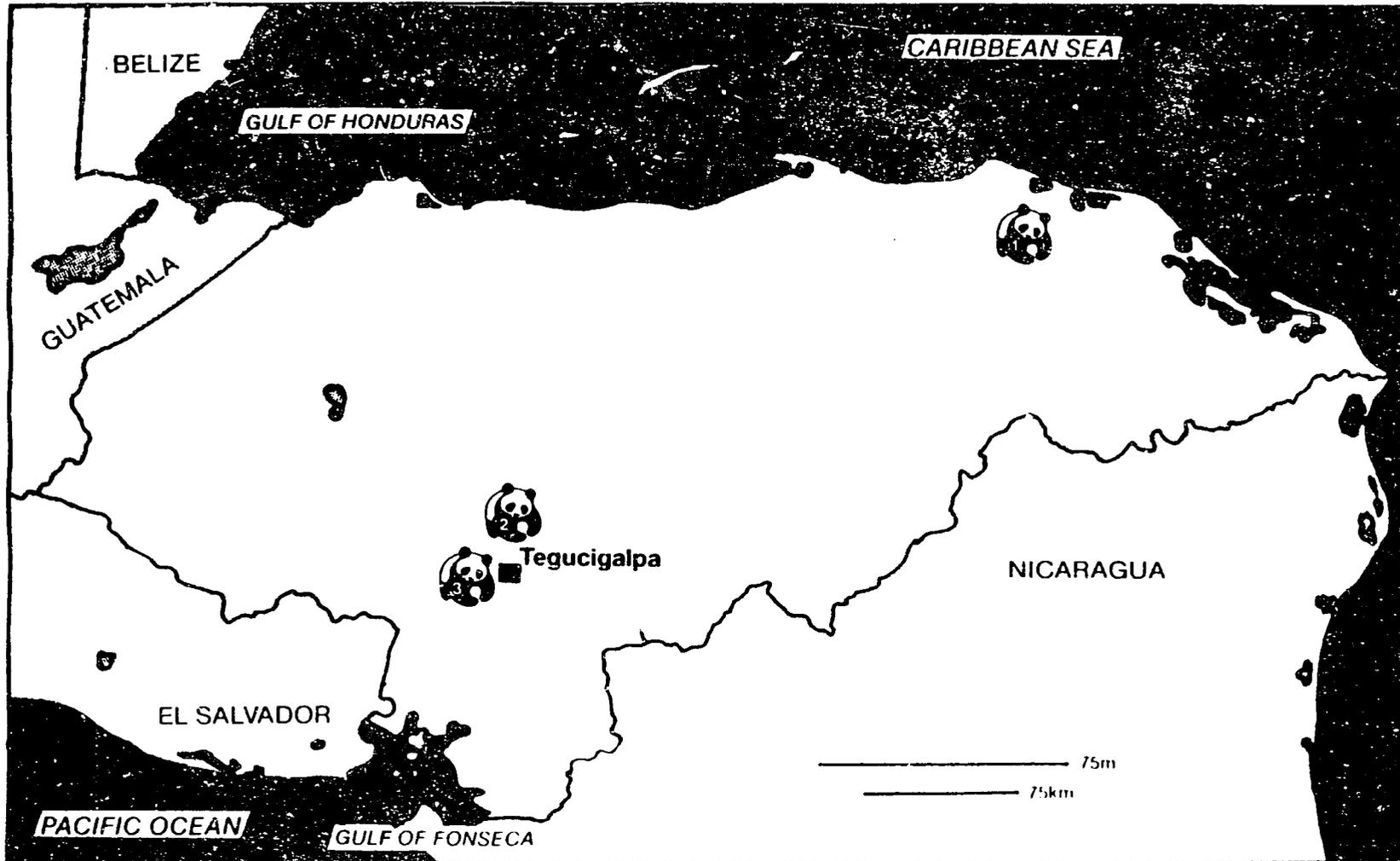
Conservation methods

100% Protected Area Management

**HONDURAS**

- #1) RIO PLATANO BIOSPHERE RESERVE
  - #2) AMINA/LA TIGRA NATIONAL PARK
  - #3) HONDURAN ECOLOGICAL ASSOCIATION
- SEE TEXT FOR ADDITIONAL PROJECTS

**HONDURAS**



53

## HONDURAS

### Introduction

In Honduras the environmental movement has been on the verge of becoming a major political force over the past ten years, but has thus far been unable to curb growing environmental destruction. Biologically, Honduras is not as diverse as Costa Rica or Guatemala, but it harbors many important wildlands, such as the Rio Platano World Heritage Site and the Bay Islands, as well as rare and endangered species. Many of these important resources face severe and imminently threatening pressures.

The following plan reviews natural resource problems and characteristics in Honduras and, based upon this information, outlines proposed WWF-supported activities that will address some of these issues.

### Biological Significance

With 1,056 species of terrestrial vertebrates, Honduras ranks a close third among Central American nations in land vertebrate fauna, but the addition of marine species from its extensive coral reef ecosystems could make this country the richest in faunal diversity in the region. Approximately 122 species of Honduras' terrestrial vertebrates are considered endangered and 18 are endemic. The country also harbors approximately 5,000 species of vascular plants. Forests cover over a third of the land (for a total of 40,000 km<sup>2</sup>, approximately half broadleaf forest and half pine).

### Conservation Threats

Eighty-two percent of Honduras is classified as hilly or mountainous, and most (70%) of those lands are characterized by poor or shallow soils. Yet, thousands of peasant farmers have been forced into these fragile areas by the lack of an equitable land distribution system, with disastrous ecological consequences. Two thirds of the original forest cover has been removed. Large areas such as the Choleteca watershed are actually beginning to show signs of desertification. Such degradation in the western half of the country is also sending waves of small farmers into the tropical rain forests of the eastern Mosquitia region.

Destruction wrought by slash and burn agriculture, large logging, agrobusiness, and cattle operations (many owned or financed by multinationals) have had a direct negative impact on the environment and have forced peasants onto steep slopes and into tropical forests. To compound these problems, the population of Honduras is growing at an annual rate of 3.2 percent, one of the highest growth rates in Central America, and is expected to double in 20 years.

## Conservation Profile

Honduras was one of the first Central American countries to create an environmental protection-like agency, a general ecodevelopment approach to wildland planning and management, a national development plan with a strong environmental orientation, and an NGO conservation movement. Although this would seem to provide all the ingredients for a solid, effective national conservation program, this is not the case. For the most part, the government has not supported or implemented the plan and has been ineffective in managing conservation programs. The NGO movement, spearheaded by the Honduran Ecological Association, has only recently begun to have a noticeable impact on environmental policy and action.

While the blueprint for a national wildland system exists in draft form and identifies over two dozen priority sites for protection, only two wildlands are currently managed as parks or reserves. Both of those, La Planada Tigra National Park and the Rio Platano Biosphere Reserve, have serious protection problems. Wildlife protection programs are equally ineffective, and legal and illegal exportation of rare species is significant.

It should be noted that the Honduran Forest Service (COHDEFOR) has been charged with the management of the nation's forests and has, at times, been fairly effective. Despite its shortcomings, it is one of the most developed forest management agencies in Latin America. It may soon become the administrator of Rio Platano, currently managed by Natural Resources (RENARE). Several Hondurans have received wildland training at CATIE and at the U.S. Fish and Wildlife Service training course. However, there is still a dearth of trained and motivated individuals in the agency.

There has been some international assistance for conservation activities in Honduras. WWF-US and WWF-International have supported work in La Tigra and Rio Platano, and have provided institutional support for the Ecological Association. AID has also supported NGO conservation work and may provide funds for La Tigra and Rio Platano. UNESCO, through the MAB and World Heritage programs, has provided grants for Rio Platano and the Copan Archeological Monument. As mentioned above, CATIE and the USFWS have also provided training expertise.

### WWF Honduran Conservation Strategy

The WWF Honduran country strategy is based on the following critical factors:

- Although the country's terrestrial vertebrate diversity is not as high as in Guatemala or Costa Rica, if coupled with the marine diversity found in the Bay Island reefs, Honduran fauna could be considered the most diverse in Central America.

ecodevelopmental approach to wildland management and have integrated this into national and local development and conservation plans, these efforts have generally proven ineffective. Environmental degradation is widespread and effective wildland management is sorely needed.

- The NGO movement is the best conservation bet at this time, although COHDEFOR may assume an increasing role in the protection of parks and reserves.

- There is some international interest in Honduran conservation. It should be remembered that Honduras is considered a top priority developing country by US foreign policymakers, who could help secure increased funds for conservation efforts.

With these factors in mind, the WWF Honduran Conservation Strategy is proposed, based on WWF's program objectives in priority countries, which are: 1) institutional self-sufficiency, 2) development of conservation skills, 3) creation of a conservation ethic, 4) building an ecological information base, 5) systematic conservation of important biological resources and, 6) integrating conservation with development.

The WWF Honduran Conservation Strategy will focus on consolidating the management of two existing wildland areas (La Tigra and Rio Platano) and helping communities adjacent to protected areas participate in wildland conservation through a series of local workshops. The strategy will also focus on building strong NGO conservation organizations (primarily the Honduran Ecological Association) and assisting conservation groups in securing support from international development and humanitarian aid groups such as AID and CARE.

The impact of this strategy will be two well-managed, model wildland units, and the initiation of several wildland protection activities in communities adjoining these and other protected areas. In addition, an NGO conservation movement which is currently struggling for survival will become more established and a major political force.

Institutional self-sufficiency will be encouraged primarily by continuing to provide specific institution-building assistance to the Honduran Ecological Association. If funds are available, WWF will also support joint efforts by the Association and the Peace Corps to promote a conservation ethic which mobilizes communities adjacent to wildlands to become more active in protecting these areas.

The systematic conservation of important biological resources will be addressed through continued support for improved management of the Rio Platano Biosphere Reserve and La Tigra National Park. Two ongoing WWF projects include training components to help develop conservation skills within RENARE and COHDEFOR, the agencies for that manage these areas, and within the AMINA youth conservation corps program. The WWF project in Rio Platano will continue to focus heavily on integrating conservation with development needs of neighboring communities. WWF will also initiate a new effort to develop a strategy for a national wildland system, as part of our support for development of a regionwide wildland protection strategy through the Central American Congress on Natural and Cultural Heritage.

**Priority Projects**

Rio Platano Biosphere Reserve (Existing project)

The half-million-acre Rio Platano Biosphere Reserve, a World Heritage site, is of tremendous national and international importance. The area has received several grants from WWF, but it still suffers from very serious natural resource management problems ranging from illegal logging and slash and burn agriculture, to settlement by refugees from the Nicaraguan conflict.

WWF recently sponsored a very successful interinstitutional workshop which produced an operational plan for the reserve. Implementation of this plan will be the focus of this project. The reserve is slated to change hands from the RENARE to COHDEFOR. This could open up possibilities for involvement of The Conservation Foundation's Forestry Program in this area. Most of the activities carried out under this grant will focus on integrating conservation with rural development, and will be funded by the Wildlands and Human Needs Program.

**Expenditures For Fiscal Year 1988:**

Projected level      \$    40,000

**WWF Program Objectives:**

- \_\_\_\_\_ Institutional self-sufficiency.
- 25%      A cadre of local conservationists.
- \_\_\_\_\_ A conservation ethic.
- \_\_\_\_\_ An ecological information base.
- 50%      A system of parks and protected areas.
- 25%      Linkage of development with conservation.

AMINA/La Tigra National Park (Existing project)

La Tigra National Park is a 75 km<sup>2</sup> cloud forest located near Tegucigalpa, the Honduran capital. It is of vital importance for watershed protection (50% of Tegucigalpa's potable water supply comes from this forest) and also harbors endangered species such as the quetzal and the puma. La Tigra has the potential to become the pilot national park for the country, as well as a model for other areas.

WWF will continue to support the conservation of this area through support for the AMINA project, a youth conservation

AMINA continued

program similar to the Youth Conservation Corps (YCC). The project is managed by the Ecological Society and RENARE. It includes both field projects and environmental education. It has been very successful in the past, and will continue to serve as our vehicle for assisting La Tigra National Park.

**Expenditures For Fiscal Year 1988:**

Projected level	\$ <u>0</u>
Ideal level if funds can be obtained	\$ <u>7,000</u>

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Institutional Support for the Honduran Ecological Association  
(Existing project)

WWF currently administers a Macarthur Foundation grant to the Ecological Association earmarked for institution-building activities. In administering this grant, WWF will provide technical assistance regarding the most effective use of these funds and for general institution-building activities of the organization. WWF may support a workshop concerning institution-building. WWF will also aid the Association in developing contacts and in securing funding from international aid and development organizations.

**Expenditures For Fiscal Year 1988:**

Projected level	\$ <u>25,000</u>
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**WWF Program Objectives:**

- 100% Institutional self-sufficiency.
- \_\_\_\_\_ A cadre of local conservationists.
- \_\_\_\_\_ A conservation ethic.
- \_\_\_\_\_ An ecological information base.
- \_\_\_\_\_ A system of parks and protected areas.
- \_\_\_\_\_ Linkage of development with conservation.

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Development of a Plan for a National Wildland System (New initiative)

This project is discussed in detail in the WWF Guatemala Long Range Plan, under the project titled, "Central American

Development continued

Congress on Natural and Cultural Heritage." It will provide modest financial and technical support for the "in office" development of a priority list and strategy for a national system of wildlands. The list and strategy will be used to develop a regional strategy for the protection of wildlands.

Expenditures For Fiscal Year 1988:

Projected level \$ 5,000

WWF Program Objectives:

- 25% Institutional self-sufficiency.
- A cadre of local conservationists.
- 25% A conservation ethic.
- An ecological information base.
- 50% A system of parks and protected areas.
- Linkage of development with conservation.

Regional Workshops for Initiating the Establishment of Protected Wildlands by Joint Public and Private Sector Initiative  
(New initiative)

The Ecological Association and the US Peace Corps to mobilize communities adjacent to wildlands to become actively involved in protecting these areas. For example, a recent interinstitutional meeting held near the Celaque cloud forest may result in the initiation of protection activities in this very important area. This is an interesting new strategy and worthy of support on a trial basis. It may prove to be a methodology uniquely suited to Honduras, which has generally weak governmental resource management programs.

Expenditures For Fiscal Year 1988:

Projected level \$ 5,000

First Planning Meeting of Central American Regional Conservation NGO Network (REDES)

This project enabled the Regional Network of Non-Governmental Conservation Organizations for Sustainable Development of Central America (REDES) to hold its first planning

REDES continued

meeting. Representatives of six regional NGOs from Costa Rica, Guatemala, Panama, El Salvador, Nicaragua and Honduras met in Honduras last August to develop a work plan and budget for the Network and prepare for the Central American Environmental Congress held in Guatemala in October 1987.

The Regional Network was created during the highly successful Central American Action Conference held in Nicaragua in May, 1987. The conference participants were inspired to form the Network to work together to solve Central America's environmental problems.

**Expenditures For Fiscal Year 1988:**

Projected level     \$ 2,000

**Current funding percentages of WWF Program Objectives in Promoting:**

<u>100%</u>	Institutional self-sufficiency.
_____	A cadre of local conservationists.
_____	A conservation ethic.
_____	An ecological information base.
_____	A system of parks and protected areas.
_____	Linkage of development with conservation.

## WWF-International Priority Projects

### La Tigra National Park, Development and Management

#### Background

The project provides assistance for implementing resource protection, environmental education, and rural development programmes of La Tigra, Honduras's pilot National Park, a cloud forest located just 27 km from the country's capital city, Tegucigalpa. It provides 50% of that city's drinking water, protects ecologically valuable cloud forests and has tremendous potential for environmental education and promoting increased public and decision-maker support for conservation and sustainable development.

#### Objectives (short-term)

1. Carry out a programme of activities to ensure minimum adequate management of La Tigra NP. 2. Achieve major increases in the environmental awareness of park visitors and especially neighbours, to reduce park management problems and obtain major short-term increases in public and decision-maker support for the establishment and management of a comprehensive protected areas system in Honduras.

#### Objectives (long-term)

1. Stabilize land-use in and around La Tigra NP to assure an adequate drinking water supply for Tegucigalpa, improve the quality of life of park neighbours, and protect the park's ecological values. 2. Contribute through environmental education and interpretation programmes at La Tigra, to a major increase in public and decision-maker environmental awareness, leading towards achievement of World Conservation Strategy goals in Honduras.

#### Activities

1. Carry out a comprehensive EE programme in all communities and schools in the buffer zone surrounding La Tigra NP. 2. Design and construct exhibits for both park visitor centres. 3. Construct and place boundary and information/interpretation signs at all entrances, trails, and major points of interest. 4. Produce at least one entrance brochure and two theme-specific brochures on the park and its resources. 5. Purchase/utilization of equipment and supplies needed to implement EE activities. 6. Purchase basic libraries/sets of educational materials for six schools in park buffer zone and for the two ranger posts. 7. Sponsor two short courses, on bee-keeping and flower raising, for park neighbours. 8. Contracting of park neighbours on part-time basis to assist in resource protection, maintenance and construction activities (200 man-days). 9. Hold two short courses on EE for all primary school teachers in park buffer zone. 10. Sponsor one-month in-service training visit to Costa Rican NP by one park ranger. 11. Construct and outfit a new ranger station at the Jutiapa West Park entrance. 12. Carry out a major maintenance and repair project for buildings in the abandoned Rosario mining camp on the park's west boundary, to

## WWF-International Priority Projects

repair the existing ranger station and visitor center, and rehabilitate two more buildings, one to be used for lodging for volunteers and course participants, another for a scientific investigation station. 13. Purchase basic tools, equipment, and supplies needed for park operations, such as parts, first aid kits, one pack horse, furniture to outfit ranger posts, the dormitory for volunteers and course participants, and the investigation center. 14. Carry out boundary surveys. 15. Carry out a three-day intensive exercise to produce a detailed two-year operational plan for La Tigra's management, including a detailed outline of the use of funds from IUCN and RENARE and clearly defining staff responsibilities and a timetable for plan implementation. 16. Expand the park volunteer programme to a major effort involving at least 700 man/days of volunteered time in the first year.

### Progress to date

The project's technical supervisor, Mark Halle, undertook a thorough field assessment of the project on 1 February 1986, reviewing progress on each of the project's activities in accordance with AHE's progress report. After a slow start, the project has made satisfactory progress. Of 17 distinct activities carried out with WWF funding, 3 had been completed, 3 more were nearing completion, and all of the remainder were under way. One further factor underlines the importance of this project's activity: IUCN, in discussion with AHE and the Honduran authorities in February 1987, agreed to provide support for the design of a large-scale project in the buffer zone. The project design phase, carried out with AHE and CATIE, will begin in April 1987. This development will help reinforce the work being carried out with WWF funding and will give some assurance of the sustainability of the project's achievements.

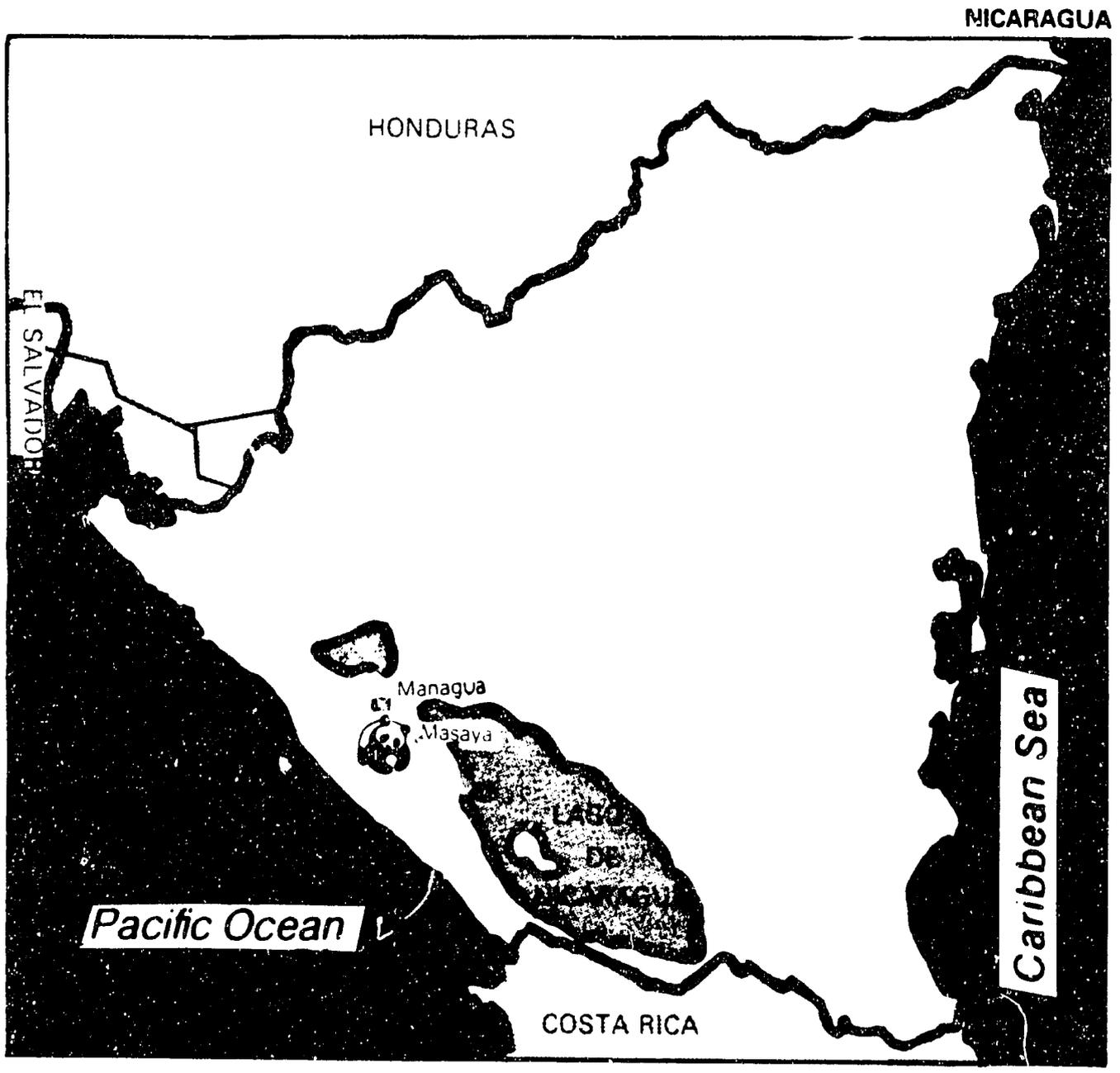
### Conservation methods

100% Protected Area Management

- 65 -

**NICARAGUA**

#1) VOLCAN MASAYA NATIONAL PARK VISITOR CENTER  
SEE TEXT FOR ADDITIONAL PROJECTS



## NICARAGUA

### Introduction

Despite the turmoil that now characterizes Nicaragua, conservationists there are moving ahead with innovative strategies and effective field activities. The country harbors more tropical forest than any other Central American nation (for example, more than twice as much as Costa Rica) and many wildlife species that have been extirpated in other parts of the region are still common in Nicaragua. Nevertheless, resource destruction is widespread and expected to increase. The political situation is not conducive to extensive involvement by U.S. organizations. Still, there are some solid conservation opportunities that promise a substantial payoff for a modest investment. Environmentalists have long argued that conservation issues transcend politics and political borders: Nicaragua offers an excellent opportunity to put this belief into practice.

The following plan reviews the natural resource problems and characteristics of Nicaragua, and, based on this information, outlines proposed WWF-supported activities to address some of these issues.

### Biological Significance

With 1,009 species of terrestrial vertebrates, Nicaragua ranks fourth in species diversity among Central American countries. Of this number, 121 species are listed by CITES as endangered and nine are considered endemic. While Nicaragua's species list is relatively low compared to some of the other nations in the region (Costa Rica, for example, has 1,369 terrestrial vertebrates), many of these species maintain healthy populations in the country but are rare or extirpated elsewhere. This is due primarily to two factors. First and most importantly, extensive tracts of forests still exist in Nicaragua. The country has approximately 45,000 km<sup>2</sup> of woodland, more than half of which is primary broadleaf forest. The jungles of the Nicaraguan Mosquitia represent the largest expanse of tropical forest north of the Amazon basin. This area harbors healthy populations of small cats, tapir, and even harpy eagle. Nicaragua also has some important tropical dry forests in the western part of the country, such as the 4,000-hectare forest protected by the Volcan Masaya National Park, and 38,000 hectares of mangrove, dry tropical forest and wetland encompassed in the Estero Real Natural Reserve in the Gulf of Fonseca. The second principle reason for Nicaragua's healthy wildlife populations is that ownership of weapons is strictly controlled and ammunition is expensive. In addition, border conflicts have forced rural populations out of important habitat areas, reducing hunting pressure.

### Conservation Threats

Nicaragua loses more than 1,000 km<sup>2</sup> of forest, each year, the greatest volume loss in Central America. Population growth is growing at the highest rate in the region (3.4%) and the population is expected to double in 20 years. If population pressure rises and Nicaragua's economy continues to deteriorate, pressure on forest resources will accelerate. Trade in endangered wildlife, initially curtailed under the new government, has increased as the economy has weakened. Fortunately, pesticide use, once among the highest in the world, has dropped recently with the implementation of integrated pest management.

Perhaps the greatest threats the military conflict with counterrevolutionaries. The war itself has had some direct impacts on wildlife and wildlands, as combatants are known to burn natural areas, kidnap government biologists and foresters, and shoot wildlife. But the drain on the economy from the continued conflict has had more far-reaching effects: government conservation programs are severely reduced, and local people are increasingly tempted to exploit natural resources for fast, hard currency.

### Conservation Profile

Despite the aforementioned economic and political problems, the Nicaraguan conservation movement continues to grow. Before 1979, there was only one national park under effective management and another two declared areas that were unmanaged. With the creation of IRENA (the Natural Resources Institute), all of these areas, plus two additional units, are under active management.

In 1983, 12 new areas in the Pacific watershed were officially declared natural reserves. This increased Nicaraguan territory under protection tenfold from 13,000 hectares to 133,000 hectares. IRENA is now conducting reconnaissance studies and inventories for these reserves. These baseline studies will integrate protection with sustainable utilization of some of the renewable resources. In addition to these efforts, IRENA has been promoting the creation of two large reserves in the Caribbean watershed. The Bosawas would cover 1,400,000 hectares. The Reserva Natural de la Paz would encompass 430,000 hectares and is proposed as an international park which would have a Costa Rican segment. If these units are established, Nicaragua will have the largest extension of protected wildland in the Central American isthmus.

But the environmental movement in Nicaragua is still struggling. Some key individuals have left the country and those that have stayed work under very difficult circumstances. The NGO conservation movement is dominated by one group, the Nicaraguan Association of Biologists and Ecologists (ABEN), which is growing stronger. In 1987 ABEN will host a Central American meeting of university and NGO conservation groups.

Several international organizations have assisted with

Nicaraguan conservation efforts. WWF has provided funds for the development of interpretive exhibits at the Volcan Masaya visitor center. IUCN, CATIE, UNEP and OAS have provided assistance to IRENA, as have the overseas development agencies of Sweden, Norway, Denmark, France, Holland, Great Britain, Cuba and Mexico.

#### WWF Nicaraguan Conservation Strategy

The Nicaraguan country strategy is based upon the following critical factors identified previously in this document. They include:

- Biodiversity in Nicaragua is not as high as in some of the other Central American countries, but the country does have the largest expanses of tropical broadleaf forests remaining in Mesoamerica.
- Wildlife populations are generally in good condition, and many species that are rare or extirpated in other Central American countries are common in Nicaragua.
- A shattered economy and political conflicts are exacerbating the destruction of natural resources. Total annual deforestation is greater than in any other Central American nation.
- IRENA has declared over a dozen reserves in the last six years and has developed plans to create the largest wildland system in Central America. IRENA's approach stresses integration of wildlands with rural development needs. Several wildland sites are under active management, but lack of human and financial resources inhibits protection of the entire system.
- IRENA has initiated several innovative environmental education programs. The Volcan Masaya National Park, located within an hour's drive of Nicaragua's major population center, is being developed as a national conservation education center.
- The uncertain political future of Nicaragua certainly raises concern over the wisdom of conservation investments in this troubled country, yet conservationists there have demonstrated that their priority is protection of natural resources, not politics.

Based upon these factors, and taking into consideration WWF's program objectives (institutional self-sufficiency, development of conservation skills, creation of a conservation ethic, building an ecological information base, systematic conservation of important biological resources and, integrating development and conservation), the following long-range country plan is proposed:

The WWF Long Range Plan will focus on education programs that use existing parks and reserves as vehicles for environmental education. As a secondary focus, WWF will support the systematic conservation of important biological resources, including wildlands and wildlife.

The impact of this strategy will be improved protection of wildland resources and more tangible economic benefits from conservation activities.

To promote a culturally sensitive conservation ethic, WWF will continue to support the development of an interpretation and environmental education center at the popular Volcan Masaya National Park. If funds are available, WWF will also provide core support for IRENA's impressive new environmental education unit.

To help continue the systematic conservation of important biological resources in Nicaragua, WWF will support the IRENA sea turtle management program at the Chacocente Refuge. This program is considered one of the best examples of integrated natural resource management in Central America. WWF will also promote this objective through a larger regional effort to develop a national wildlands system strategy for all of Central America, as described in the Guatemala Long Range Plan.

**Priority Projects**

Volcan Masaya National Park Visitor Center (Existing project)

This 5,000-hectare park is important from an ecologic, economic, and strategic point of view. The park protects around 4,000 hectares of an extremely rare tropical dry forest ecosystem. Because of the scenic beauty of its active volcanic crater, the park receives considerable national and foreign visitation (over 50,000 persons/year). But its most salient feature, from a conservation perspective, is its close proximity to the bulk of the Nicaraguan population: 60 percent of all Nicaraguans live within 50 kilometers of the park, presenting a tremendous educational opportunity. WWF is supporting the development of an interpretation and education center at the impressive new visitors complex IRENA is now building near the edge of the crater. Exhibits in the center will cover a wide array of conservation issues and will have a strong ecodevelopment focus. It is expected that this center will serve as an important vehicle for raising environmental awareness among much of the Nicaraguan population.

**Expenditures For Fiscal Year 1988:**

Projected level      \$ 8,000

**WWF Program Objectives:**

25%      Institutional self-sufficiency.

\_\_\_\_\_      A cadre of local conservationists.

25%      A conservation ethic.

\_\_\_\_\_      An ecological information base.

50%      A system of parks and protected areas.

\_\_\_\_\_      Linkage of development with conservation.

-----  
Support for the Chacocente Refuge Turtle Project (New initiative)

This refuge, which protects both important olive ridley sea turtle nesting beaches and tropical dry forest, is considered one of the best examples of integrated natural resource management in Central America. IRENA has initiated an innovative sustainable turtle management program which features a very effective education and extension program. WWF will provide financial support for this project and will assist in the training of project personnel.

Chacocente continued

**Expenditures For Fiscal Year 1988:**

Projected level	\$	<u>0</u>
Ideal level if funds can be obtained	\$	<u>10,000</u>

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General Support for IRENA Environmental Education Activities (New initiative)

IRENA's fledgling but impressive education unit is carrying out some of the most exciting conservation education and extension work in the region. With miniscule funding and very little training, the highly motivated educational unit has produced several effective educational materials. It has also carried out workshops and training courses around the country. Some of these projects could serve as useful models for the rest of the region.

WWF will provide financial support for these efforts and will facilitate training opportunities for the unit's staff.

**Expenditures For Fiscal Year 1988:**

Projected level	\$	<u>0</u>
Ideal level if funds can be obtained	\$	<u>10,000</u>

-----  
International Seminar on the San Juan River Watershed

This project will support an international seminar on the creation of a binational wildland reserve in the watershed of the San Juan River that divides Nicaragua and Costa Rica. This region, which still harbors large tracts of tropical broadleaf forest, has been identified by both Costa Rican and Nicaraguan conservationists as a priority site for protection, and was chosen as a regional wildland management priority at the recent WWF-supported Central American Congress on Natural and Cultural Resource Management.

**Expenditures For Fiscal Year 1988:**

Projected level	\$	<u>2,000</u>
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Seminar continued

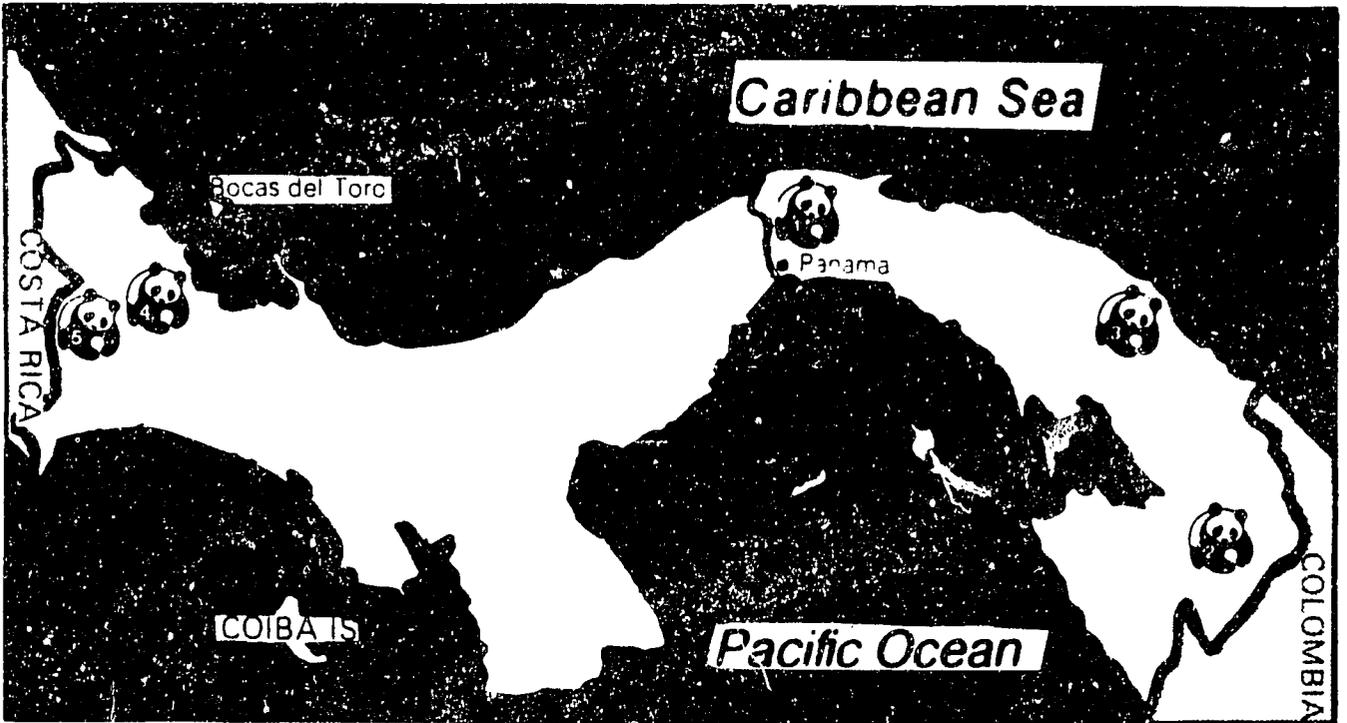
**WWF Program Objectives:**

- \_\_\_\_\_ Institutional self-sufficiency.
- \_\_\_\_\_ A cadre of local conservationists.
- \_\_\_\_\_ A conservation ethic.
- \_\_\_\_\_ An ecological information base.
- 100% A system of parks and protected areas.
- \_\_\_\_\_ Linkage of development with conservation.

**PANAMA**

- #1) NATURAL RESOURCES EDUCATION WITH FUNCACION PA.NA.M.A.
  - #2) DARIEN BIOSPHERE RESERVE
  - #3) KUNA WILDLANDS CONSERVATION
  - #4) BOCAS DEL TORO NATIONAL PARK
  - #5) LA AMISTAD NATIONAL PARK
- SEE TEXT FOR ADDITIONAL PROJECTS

PANAMA



## PANAMA

### Introduction

In no other country in Central America is the financial well-being of the national economy more obviously linked to protection of wildlands than in Panama. The Panama Canal, which depends directly on rain water captured and filtered by the forested watershed of the reserve, is a primary income generator. One ecologist described it as the "life-blood of the country." And these forests, biologically speaking, are some of the most diverse in all of Mesoamerica. Yet, despite significant national and international support, Panamanian conservationists have still not come to grips with the problem of massive destruction of wildlands. Even the canal watershed is imminently threatened.

Perhaps because of the government's inability to deal with these problems, local and national nongovernmental conservation efforts have mushroomed. The NGO sector now provides perhaps the greatest hope for stemming environmental destruction. These groups for the most part work cooperatively with government agencies. This collaboration is proving quite effective in some cases. WWF will continue to support NGOs and encourage their continued integration with national conservation programs.

The following plan briefly reviews the status of natural resource conservation in Panama and outlines an integrated set of proposed WWF-supported activities that address these issues.

### Biological Significance

Panama serves as a mixing ground for species that have evolved in North and South America. Furthermore, three of the four major migration routes of migratory birds converge in Panama, as a result of its location between the continents and its ideal climate. Habitats range from lowland rainforest, cloud forest and upper montane forest, to extensive Caribbean and Pacific coastal ecosystems, including coral reefs and Central America's most extensive mangrove forests. Panama is home to over 840 species of birds, 217 species of mammals, 207 reptiles and 155 amphibia. In total, the country has over 1419 species of fauna, 146 (10%) of which are endangered and 55 (4%) of which are endemic to the country.

### Conservation Threats

Although much basic research has been carried out on Panama's fauna, very little information is available on the status of many potentially endangered species. Habitat destruction is clearly the single greatest threat to the survival of Panama's rich biota. Panama continues to lose up to 500 km<sup>2</sup> of rainforest per year and, as of 1983, figures show that the amount of remaining primary forest has been reduced to 21,500 km<sup>2</sup>. Seventeen percent of the country's land has been categorized as "seriously eroded or degraded." It is estimated that the present rate of deforestation will result in the destruction of 10,000

km<sup>2</sup> of wooded lands within 25 years.

A prime concern of Panamanian conservationists is rapid deforestation in and around the Panama Canal watershed. This problem threatens the canal's longevity and, potentially, the livelihood of thousands of Panamanians.

### Conservation Profile

Panama has the second largest number of protected areas in Central America (behind Costa Rica) with a total of over 660,902 hectares (over 8% of the country's territory) in national parks or protected areas. Over 200,000 hectares are presently proposed for new parks or protected areas. These areas can benefit greatly from WWF's support for continued establishment.

Within the country, public and private support for conservation has focused on these parks during the last four to five years. The Panamanian government has become supportive to the point of reconstituting its natural resources directorate into an autonomous government institute. To meet public and private demand for action to protect national parks and other protected areas, a strong, progressive and sophisticated movement has evolved. This movement is made up of very diverse groups, representing many audiences, interests and markets.

Panama's current vice-president, Dr. Roderick Esquivel, is personally interested in the conservation of Panama's natural environment, and attended the recent inauguration of Fundacion PA.NA.M.A.'s new offices in Panama City. Thanks to Dr. Esquivel's influence, Panama will host the 1992 World Parks Congress.

The old RENARE (Department of Natural and Renewable Resources -- which was under the Ministry of Development and Agriculture) has finally come into its own, becoming INRENARE, an autonomous government "institute." INRENARE will be a major recipient of part of a USAID natural resources/institution-building project. The project will include measures to bolster the institute's personnel and office capabilities, offering training, technical assistance and funds to implement reforestation and possibly wildlands and parks management projects. WWF has worked with RENARE for a number of years and will continue to work with the new INRENARE to improve park management and infrastructure.

### International Involvement

Major international organizations active in Panama include The Nature Conservancy (which is about to open a Conservation Data Center and is very active in the development of its in-country representative group, ANCON), the Smithsonian Institution (represented by the Tropical Research Institute), and, of course, the U.S. Army Southern Command Headquarters.

USAID has a large mission in the country and has been very active in natural resource conservation in past years. Future

plans will bring an estimated \$35-40 million through a new natural resources and institution-building project. In past years, WWF has focused its support for Panamanian conservation efforts on the establishment and management of protected areas via the Kuna Yala Wildland project (PEMASKY) and the Darien Biosphere Reserve project. WWF has also concentrated on promotion of a conservation ethic via the USAID/WWF Natural Resources Education project, carried out in cooperation with Fundacion PA.NA.M.A.

1987 marked a turning point in WWF's involvement in Panama, characterized by the passing of project leadership to local groups: all PEMASKY responsibilities passed to the Kuna Indians, so there is now little or no technical assistance provided by non-natives; and all Darien project responsibilities passed to a local non-governmental organization, ANCON. The year also brought a new chapter in the life of the USAID/WWF Natural Resources Education project. The \$1 million project now has a new WWF management team, a new Panamanian board of directors, and clearer priorities and directions for the future.

#### The WWF Panamanian Conservation Strategy

As currently envisaged, the post FY87 program will focus largely on systematic protection of biological resources through reserves. Priority should be given to parks and protected area establishment and infrastructure development. Given the recent major investment in institutions and the modest scale of our program in Panama, this seems the appropriate next step.

Support for the Fundacion PA.NA.M.A. will continue, with USAID funds, through 1988. Since the Fundacion's primary activities focus on the system of parks, training, small-group development, and environmental education, this organization will carry on many of WWF's objectives from within Panama.

Funding will continue over the next two years for the Darien National Park. The Kuna wildlands management project (PEMASKY) will receive \$15,000 this year, and future funding for continued community environmental education programs.

WWF will fund a small-scale community education project through the Fundacion PA.NA.M.A. in the Bocas del Toro region. This project will complement an ongoing project to help create a local conservation NGO and to create environmental awareness among locals.

Funds will also be provided for planning and on-the-ground projects in the Bocas del Toro region. WWF hopes to bring together the resources offered by ANCON to assist INRENARE in implementing some of IUCN's planning recommendations as outlined in the 1985 Bocas del Toro planning and development document. Funding for this area will continue for three to five years.

La Amistad National Park is likely to receive its first WWF grant to aid in establishment of the park and possibly some area research or additional planning. Both this and the Bocas del

Toro project may be carried out in conjunction with ANCON and INRENARE.

With the above described plan, WWF can hope to foment development of the second most advanced system of parks and protected areas in Central America. The institutional support will aid in-country organizations and individuals who will be capable of continued planning and management of the improved wildlands systems.

#### Institutional self-sufficiency

In the last three to four years, Panama's conservation movement has slowly gained momentum. Non-governmental organizations are springing up right and left, including AIPEP, ANCON, and the Fundacion PA.NA.M.A., among others.

A primary goal for the WWF program will be ongoing support for Panama's NGO community. WWF sees continuing opportunities to strengthen individual NGOs through support for projects they administer. WWF has indirectly aided the strengthening of ANCON through support for a project it administers in the Darien Biosphere Reserve.

Fundraising and competition have become fierce among these groups, and the big questions remain: How can organizations most effectively fundraise in this "bank rich" country? Can the large international banking community be tapped for some of its offshore banking dollars? Will this fundraising competition remain "healthy" to the movement, or will it be its downfall? Members of our team will visit Panama in April in an effort to begin addressing some of these questions.

WWF has pursued its institution-building goals in Panama principally through the USAID/WWF Natural Resources Education project. This effort started in 1984 and will terminate in November 1988, when USAID's \$1 million donation to WWF to support the project will run out. Meanwhile, the Fundacion PA.NA.M.A., with a new management team of Felix Nunez and Carol Lively, is building up its fundraising capability so as not to require large injections of money from outside for future institutional and administrative needs.

#### Systematic conservation of important biological resources

The country's national parks system currently boasts nine officially recognized parks. As in many other countries, these parks exist mainly on paper, lacking the financial, institutional and infrastructural support they need to achieve true park status. Most national parks now have management plans, but few have been implemented. Plans also exist to designate parks or protected areas. The government seems willing to name areas as parks, but quite hesitant to set aside public funds for their demarcation or management. Some of the areas yet to be named (such as the proposed La Amistad National Park sharing borders with Costa Rica, and Bocas del Toro) are quite extraordinary.

Improving the system of national parks and protected areas is a top priority within the WWF Panama country program. WWF expects to continue working with local NGOs to improve the management and infrastructure of designated areas, including the Darien Biosphere Reserve and the Kuna Yala Wildland. WWF financial involvement in Darien and PEMASKY is expected to decline after FY88, as local groups become increasingly self-supporting.

The new funding/institution-building program financed by USAID and INRENARE's conversion to an autonomous government institute make this an opportune time for WWF to improve collaboration with INRENARE. We have worked closely and successfully with RENARE in the past and look forward to our future role with INRENARE.

The Panama plan recognizes the need to provide support for areas not yet designated as protected areas, particularly the proposed La Amistad National Park along the Costa Rican border. Another proposed park, Bocas del Toro, requires support for planning, environmental education, on-the-ground operations and infrastructure development. This project will be initiated through collaboration between IUCN, Fundacion PA.NA.M.A. and ANCON. Funds are proposed for La Amistad National Park and Bocas del Toro projects in FY88.

#### Cadre of skilled conservationists

WWF supports explicit training activities and seeks to build training components into all park and protected area projects in the country.

In FY87, WWF supported two training projects in Panama: the USAID/Fundacion PA.NA.M.A. Natural Resources Education project, and the Fundacion's First Annual Seminar on Management and Administration of National Parks and Protected Areas.

If the mobile park seminar is successful, the Fundacion may request funds for future programs. This type of training has been shown to be very effective in the past and may be transferrable to other countries in the future.

WWF also expects one or two Panamanian wildland and wildlife managers to attend CATIE, Universidad Nacional, and other regional training programs. WWF may provide scholarships or participant travel to specific degree programs or courses.

#### Culturally appropriate conservation ethic

The WWF strategy in Panama focuses on building a conservation ethic through financial and technical support to local organizations. In past years, WWF efforts in Panama have concentrated on the Kuna Yala Wildlands project, through which the Kuna Indians received support to manage their own lands in a culturally appropriate, yet ecologically sound manner. The USAID/WWF project includes important environmental education components, all developed by Panamanians for Panamanians.

Given the recent development of local NGOs with expertise in this area and WWF's limited resources in Panama, it is unlikely that WWF will pursue additional activities in the near future.

Development process consistent with sustainable use of natural resources

WWF actively supports sustainable use through the Kuna Yala project (PEMASKY) in the San Blas province, where native people are taking over responsibility for the management of natural resources in their own province. The WWF forestry program is presently considering a new forestry initiative in the country, to be carried out in combination with an ongoing Smithsonian iguana management project. Plans are to combine forestry with that project's training program, and to work with established local groups.

Ecological information base

Panama is one of the most well-researched countries in Central America. Biological information is dispersed among libraries and universities throughout the world, though much of it may be found in the Smithsonian Tropical Research Institute (STRI) library in Panama City and among STRI's large scientific staff. The Nature Conservancy is considering establishing a Conservation Data Center in the country, in cooperation with ANCON, its in-country representative.

WWF will support a meeting of area GOs and NGOs in Guatemala to address the issue of ecological information on a regional basis. WWF will not undertake any other informational activities in Panama at this time, although several WWF projects with other objectives may provide useful data.

**Priority Projects**

Natural Resources Education Project with USAID/Panama and the  
Fundacion PA.NA.M.A. (Existing project)

This is our largest institution-building project, aimed at firmly establishing the Fundacion de Parques Nacionales y Medio Ambiente (PA.NA.M.A.) as a strong non-profit environmental organization in Panama. In 1984, WWF was awarded \$1 million from USAID to administer this project through November 1988. The Fundacion is comprised of 24 smaller, regional-member groups. After a rocky start, a new management team now has the project successfully on its feet.

This project contemplates the support of groups which help provide infrastructure for the country's national parks and protected areas at a local level. One of their biggest mandates is to provide environmental education in areas surrounding parks, and in Panama as a whole. A grassroots approach, such as that used by the Fundacion, is proving effective in garnering support for conservation among residents in areas around parks.

**Expenditures For Fiscal Year 1988:**

Projected level      \$ 250,000

**WWF Program Objectives:**

- \_\_\_\_\_ Institutional self-sufficiency.
  - 50%      A cadre of local conservationists.
  - 50%      A conservation ethic.
  - \_\_\_\_\_ An ecological information base.
  - \_\_\_\_\_ A system of parks and protected areas.
  - \_\_\_\_\_ Linkage of development with conservation.
- 

Darien Biosphere Reserve (Existing project)

The ultimate goals of the Darien Biosphere Reserve project continue to be those of earlier projects carried out with WWF money in the area: the achievement of lasting protection of the park, and implementation of comprehensive investigation, recreation, tourism, environmental education, and ecodevelopment programs in the park and surrounding areas.

This year's project is aimed at assistance to INRENARE through ANCON, a Panamanian NGO. Funds will help ANCON finish the reserve's management plan, develop education materials, provide training and planning, and develop appropriate

Darien continued

infrastructure. This project will also help develop a strong working relationship between park staff and representatives of the Comarca Embera (provincial) government.

Expenditures For Fiscal Year 1988:

	\$ 19,000 WWF-US
Projected level	<u>\$ 19,000 WWF-INT</u>

WWF Program:

- \_\_\_\_\_ Institutional self-sufficiency.
- 25% A cadre of local conservationists.
- \_\_\_\_\_ A conservation ethic.
- \_\_\_\_\_ An ecological information base.
- 50% A system of parks and protected areas.
- 25% Linkage of development with conservation.

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Kuna Wildlands Conservation, San Blas Province (Existing project)

The Kuna Indians of San Blas province on Panama's northern coast have initiated a conservation program to help their tribe appropriately manage their own resources.

In 1986, foreign technical assistance through WWF was terminated. WWF, however, wishes to continue financial support to the program, which is now operated by the Kuna themselves. WWF funds will help maintain continued vigilance of the area, strengthen education programs, and purchase a vehicle to carry out these programs.

Expenditures For Fiscal Year 1988:

Proected level	<u>\$ 25,000</u>
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Kuna continued

**WWF Program Objectives:**

- 25% Institutional self-sufficiency.
  - 25% A cadre of local conservationists.
  - \_\_\_\_\_ A conservation ethic.
  - \_\_\_\_\_ An ecological information base.
  - 50% A system of parks and protected areas.
  - \_\_\_\_\_ Linkage of development with conservation.
- 

Bocas del Toro National Park research and development (New initiative)

This is a newly conceived project to be carried out on the heels of a diagnostic trip and subsequent strategy written by Alan Moore, under IUCN contract. IUCN has developed a \$1.3 million development plan which calls for various planning teams to draw up action plans for tourism, studies of area colonization, and sea turtle investigations, among others.

The Fundacion PA.NA.M.A. has developed plans for an environmental education campaign for the area, to be carried out in the Bocas del Toro region and in Panama in general. This project will complement a Fundacion effort (funded by the Fundacion) to establish a local conservation group in the region. The new group will aid in carrying out the project, as will the Fundacion, which has expertise in non-formal, community-level conservation education.

Other funding options for this project exist with ANCON, which recently proposed development of a marine park in the Basimentos islands, just off the Bocas del Toro coast. Characteristics of the area include mangroves, tropical rainforests, and beaches where several species of sea turtle nest. Various mammals, amphibians and reptiles inhabiting the islands have developed interesting variations which merit further research. The area and its islands, with their white, sandy beaches, are particularly suited for tourism and present interesting possibilities for a combination marine/land park.

Before proceeding with project development and funding, WWF must ensure collaboration between the various interested organizations. WWF must also be confident that there is a coherent, unified plan for development of the area.

Bocas del Toro continued

Expenditures For Fiscal Year 1988:

	\$ 13,000 WWF-US
Projected level	<u>\$ 13,000 WWF-INT</u>

WWF Program Objectives:

- \_\_\_\_\_ Institutional self-sufficiency.
- 25% \_\_\_\_\_ A cadre of local conservationists.
- \_\_\_\_\_ A conservation ethic.
- \_\_\_\_\_ An ecological information base.
- 50% \_\_\_\_\_ A system of parks and protected areas.
- 25% \_\_\_\_\_ Linkage of development with conservation.

La Amistad National Park (Panama/Costa Rica) (New initiative)

The proposed La Amistad National park will cover approximately 120,000 hectares, and will border Costa Rica along its southernmost limits. La Amistad means "friendship" in Spanish, signifying the effects of a national park which shares borders, and much more, with a neighboring country. The proposed park is covered mainly by lowland and montane rainforests. These forests are largely untouched because of their inaccessibility, and it is for this reason that the area has a high level of animal species endemism. The proposed park will serve to protect the major watershed feeding into the Bocas del Toro region.

ANCON has expressed interest in developing the park further. At present, they are expecting to spend approximately \$50,000 of their own funds (raised mainly in Panama) to set up implementing legislation that establishes La Amistad as a national park.

WWF money will finance the training and placing of park guards at posts along the park perimeter, and development of general park infrastructure. The goal will be to establish some existing presence at the park which will form the basis for further progress.

Expenditures For Fiscal Year 1988:

	\$ 13,000 WWF-US
Projected level	<u>\$ 13,000 WWF-INT</u>

La Amistad continued

WWF Program Objectives:

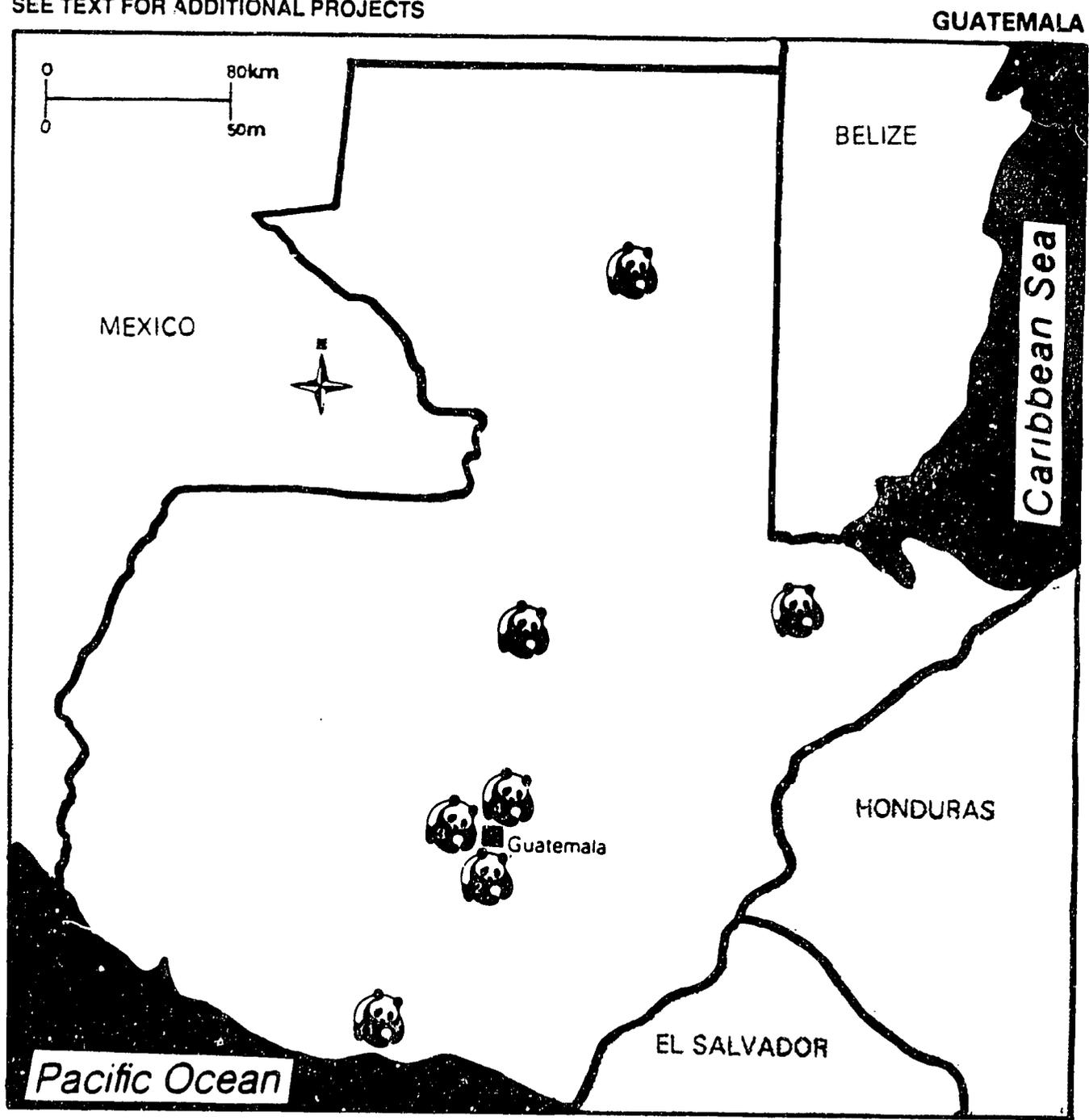
- \_\_\_\_\_ Institutional self-sufficiency.
- 25% A cadre of local conservationists.
- \_\_\_\_\_ A conservation ethic.
- 25% An ecological information base.
- 50% A system of parks and protected areas.
- \_\_\_\_\_ Linkage of development with conservation.

93'

**GUATEMALA**

95-

- #1) MONTERRICO BIOTOPE INTEGRATED DEVELOPMENT PROJECT
  - #2) INSTITUTION BUILDING WORKSHOPS FOR NGO CONSERVATION GROUPS
  - #3) COORDINATION OF CONSERVATION AND DEVELOPMENT
  - #4) SECOND CENTRAL AMERICAN CONGRESS ON NATURAL AND CULTURAL HERITAGE PROTECTION
- SEE TEXT FOR ADDITIONAL PROJECTS



## GUATEMALA

### Introduction

Much like many of the smoking volcanoes that tower above the broken Guatemalan landscape, the conservation movement in this country, though currently dormant, is beginning to show signs of dynamic activity. Several bright and energetic conservation professionals have recently been placed in key positions in the public, private and university sectors. This, coupled with a general environmental renaissance that has slipped in on the coattails of democracy, leads us to conclude that there is an opportunity for the World Wildlife Fund to play a major role in elevating the status of wildland and wildlife management in this spectacular country. Guatemala is, from both a natural and cultural resource standpoint, one of the most diverse nations in the Western Hemisphere and certainly worthy of a major investment of WWF financial and technical assistance. But the situation is changing rapidly, and environmental and ethnic degradation continue at a shocking pace.

The following plan reviews natural resource conservation problems and characteristics in Guatemala and outlines proposed WWF-supported activities that will address these issues.

### Biological Significance

Diverse physiographic features such as numerous volcanoes (33), mountain ranges with elevations rising to over 4,000 meters, both Pacific and Atlantic coastlines and an ecologically unique location in the Middle American land bridge (at the transition point between the Madrean-Cordilleran and Central American Biogeographical Provinces), results in Guatemala's unusually high biological diversity. The 1139 terrestrial vertebrate species and 258 freshwater fishes make Guatemala's vertebrate fauna the most diverse in Central America. The number of endemic vertebrate species (45) is the second highest in the region, as is the number of endangered species (133, as compared to Costa Rica's 138).

Floral diversity is also impressive. Ten life zones harbor over 8000 species of vascular plants (comparable to Costa Rica) and it is estimated that 70% of the high mountain flora is endemic. Of special economic interest are the more than 20 species of conifers, which represent the world's second highest diversity of these important trees, surpassed only by Mexico. There are approximately 45,000 km<sup>2</sup> of forest cover, of which around 25,000 km<sup>2</sup> are classified as broad-leaved forest (the second highest amount in Central America, after Nicaragua).

### Conservation Threats

Guatemala's rugged landscape, rapidly expanding population of 8.6 million (the highest in Central America and growing at an annual rate of 3.1%), and land distribution that has forced most of the small farmers onto steep slopes, are all a portant for

environmental disaster. Forest clearing for cattle, petroleum development, forest industries and hydroelectric projects, has contributed to the second highest national deforestation rate in Central America (90,000 hectares/year which is about the same as Honduras but less than Nicaragua). More than half of the original forest cover has been removed, with over 60% of this deforestation occurring in the last 20 years. Only 4% of the land surface is classified as appropriate for intensive agricultural use. It is not surprising that 35% of Guatemala is now considered seriously eroded or degraded.

In addition to habitat destruction from inappropriate land use, other human actions such as the excessive application of pesticides (some of the highest percentages of pesticide use in the world) and spiraling urbanization (20% urban growth in the last five years) are also having a detrimental impact on Guatemalan flora and fauna. More than one out of ten terrestrial vertebrate species is endangered, and the list continues to grow.

This destruction is caused by a variety of factors. Inequitable land distribution is a major reason for the high density of farmers working steep slopes or fragile lands, such as the broadleaved forests of the Peten. Lack of environmental legislation and powerful vested interests (in many cases a direct result of decades of military rule) have also allowed large corporations, both domestic and foreign, to run roughshod over the environment. Another primary factor contributing to declining wildlife populations is wildlife trade. In 1978, for example, over 50,000 reptiles were legally exported. While legal exports have since been curtailed significantly, illegal exports continue.

### Conservation Profile

Conservation in Guatemala took a giant step backward in 1980 with the death of Dr. Mario Dary, rector of the University of San Carlos, founder of the Centro Conservacionista (CECON) and its biotope reserve system and, in the opinion of many, the father of the Guatemalan conservation movement. It has only been in the last year or so that the conservation outlook for the country has been as optimistic as it was in the late seventies.

Guatemala has never had a strong national park system. INAFOR, the government's forest and park management agency, has never been given more than a token budget to manage the country's wildland system which, although it includes over twenty sites, shows little evidence of on-the-ground management and protection activities. Consequently, all of the parks have serious management problems and some have actually lost most of the natural and esthetic resources they created to protect. The parks department has only seven people in its central office, although the new director is well trained and has mapped out a strategy for increasing the effectiveness of his department.

In response to this lack of governmental conservation initiative, CECON, with the support of the Institute of Tourism,

developed their biotope system as a model of how wildlands should be protected and managed. There are currently four established biotopes, and seven more sites are slated for inclusion in this system. CECON has been fairly successful at developing these prototypes and their new, dynamic director promises to improve the system even more. Both CECON and INAFOR boast some well-trained individuals, but in general the wildlands and wildlife efforts have been hampered by a lack of trained personnel.

Some other entities, such as the Guatemalan Tourism Department (INGUAT) and the National Institute of Anthropology, also assist in the management of wildlands. For instance, Tikal, the largest protected area and a UNESCO World Heritage Site, is managed by the National Institute of Anthropology.

Tourism was once an extremely important economic activity but the political violence of the early '80s devastated this industry. It is growing once again. Nature tourism especially shows tremendous growth potential.

Guatemala's first environmental law was passed recently. While it is not as strong as conservationists had hoped, it could serve as a solid base for building governmental involvement in environmental management.

The NGO conservation movement is characterized by tremendous diversity and energy, but little cooperation and limited accomplishments. CECON has been fairly successful in wildland protection. The advocacy group Defensores de la Naturaleza has carried out several successful environmental awareness campaigns. But both of these organizations and certainly the six or so other prominent NGOs are in desperate need of institution-building skills. There are solid opportunities for these conservation groups to obtain significant funding from individuals and businesses within Guatemala. But this will only occur when they demonstrate greater effectiveness and direction.

There has been relatively little outside involvement in Guatemalan environmental affairs. The World Wildlife Fund has supplied modest financial and technical support, but this has been sporadic and somewhat affected by the political unrest of recent years. This support included the development of a profile on Guatemalan conservation in 1984. No other international NGOs have been significantly involved, nor have government agencies provided direct support for wildland and wildlife activities, except for the U.S. Peace Corps and the U.S. Fish and Wildlife Service. The US Agency for International Development sponsored an environmental profile and provides substantial support for a fairly successful reforestation program, but this has been the extent of their environmental program. Several Guatemalans have received training at the Wildlands Management Unit at CATIE in Costa Rica, but even CATIE has provided little technical assistance in the last five years. Conservation advances in this country have arisen almost entirely from indigenous efforts.

## WWF Guatemalan Conservation Strategy

The Guatemalan conservation strategy is based upon the following critical factors:

- From a biodiversity standpoint, Guatemala is one of the most important countries in Mesoamerica. It has the highest vertebrate faunal diversity of the Central American nations and the second greatest expanse of broadleaved forest.
- Deforestation, pesticide use, urbanization and other inappropriate development practices are severely degrading environmental resources and causing the extirpation of many plant and animal species.
- Although more than 20 parks have been declared, government efforts to manage wildlands and wildlife have not been extensive, and the Department of National Parks and Wildlife is extremely weak.
- Nongovernmental conservation efforts have been somewhat successful, especially CECON's biotope system and Defensores de la Naturaleza's environmental education activities. But even these groups are struggling and would benefit from institution-building activities.
- Despite the aforementioned problems, new leadership in several key positions in both the public and private sector (such as a new head of the National Parks Department and a new head of CECON), coupled with a new environmental law and blossoming interest in environmental protection, indicates that there may be a "window of opportunity" for international conservation groups such as WWF to have a widespread, positive impact on Guatemalan conservation efforts.

Based on those factors, the following long range country plan is proposed with WWF's program objectives (institutional self-sufficiency, development of conservation skills, creation of a conservation ethic, building an ecological information base, systematic conservation of important biological resources and, integrating development with conservation) in mind:

The WWF Guatemala Long Range Plan will focus on consolidating CECON's Biotope System, helping INAFOR establish on-the-ground management activities in five to ten of its top priority wildlands, and aiding in the development of nongovernmental conservation groups. All of these proposed activities will include strong training elements and the transfer of institution-building skills.

The impact of this strategy will be a well-established model system of biotopes which will serve as a catalyst for similar governmental and nongovernmental wildland conservation activities. In addition, several wildlands that are managed by the government will also be consolidated and used as a springboard for active management of the entire wildlands system. Finally, the NGO conservation movement which currently

shows much promise but little action will be more solidly established and effective and will demonstrate much greater collaboration.

Systematic conservation of important biological resources will be the primary objective of WWF's Guatemalan program. This will be carried out through financial and technical backstopping of CECON and INAFOR, to help them establish and manage a country-wide system of wildlands.

Institutional self-sufficiency will be encouraged through institution-building workshops carried out for conservation NGOs. In addition, WWF will provide technical assistance to CECON and INAFOR to aid them in securing funds from international organizations such as AID, CIDA and The Nature Conservancy.

The development of conservation skills will be facilitated through workshops on wildland management themes sponsored for personnel from CECON and INAFOR, and through institution-building activities aimed at conservation NGOs.

Integration of development with conservation will be promoted primarily through the management strategies to be used at selected biotopes, national parks and reserves, such as Monterrico Biotope and Rio Dulce National Park.

Creation of a conservation ethic will be left primarily in the hands of the Guatemalans, but environmental education skills will be emphasized in all workshops and training exercises. WWF will aid the Guatemalans in organizing and running a regional conference on natural and cultural heritage management that should be an effective tool for raising the level of environmental awareness within the country.

The building of an ecological information base will not be a major WWF priority during these years. It will be an integral part of the wildland management activities of CECON and the Department of National Parks.

**Priority Projects**

General Support for the CECON Biotope System (Existing project)

CECON is actively managing four wildlands under its Biotope System. While none of these sites is large, they do protect valuable ecosystems and species. Perhaps even more importantly, they are a catalyst for promoting similar wildland protection efforts by the public and private sectors. The system, however, is still not adequately protected or managed and from an ecological standpoint it is not yet a complete representation of the major ecosystems found in Guatemala. CECON staff have a good idea of where they want to take the system and the effort and financial commitment required.

This project, which doubles the level of support WWF has given CECON in the past, will increase technical assistance and training. It is projected that three years of increased funding and technical backstopping will help CECON become one of the premier wildland management agencies in Mesoamerica.

**Expenditures For Fiscal Year 1988:**

Projected level	\$ 47,000
Ideal level funds can be obtained	\$ 60,000

**WWF Program Objectives:**

- \_\_\_\_\_ Institutional self-sufficiency.
- 25% A cadre of local conservationists.
- \_\_\_\_\_ A conservation ethic.
- \_\_\_\_\_ An ecological information base.
- 50% A system of parks and protected areas.
- 25% Linkage of development with conservation.

Support to the Monterrico Biotope Integrated Development Project (New initiative)

Unlike other existing biotopes, the Monterrico reserve has several thousand human inhabitants living within its borders and extensive harvesting of reserve resources (fish, wildlife, turtle eggs, mangrove, etc.) occur. A plan for fully integrating this community into natural resource management programs is getting underway. Some "codevelopment" projects have already been initiated.

WWF support will provide the financial and technical assistance needed to make this a model integrated development

Monterrico continued

project. This will be used as a training ground and demonstration site for promoting similar efforts in other biotopes, parks, and reserves.

Expenditures For Fiscal Year 1988:

Projected level	\$ <u>23,000</u>
Ideal level if funds can be obtained	\$ <u>25,000</u>

WWF Program Objectives:

- \_\_\_\_\_ Institutional self-sufficiency.
- \_\_\_\_\_ A cadre of local conservationists.
- 25% A conservation ethic.
- \_\_\_\_\_ An ecological information base.
- 25% A system of parks and protected areas.
- 50% Linkage of development with conservation.

General Support to the Department of National Parks and Wildlife, INAFOR (New initiative)

Although the department of National Parks and Wildlife, INAFOR, is extremely underfunded and understaffed, it is still the principal government agency involved in wildland management, and, at least on paper, it is charged with the protection of over two dozen parks and reserves. Thus it is an institution that cannot be ignored and must eventually be transformed into an effective land managing agency.

This project will support that transformation by providing some funding, training and technical assistance. It will also aid the department in securing substantial financial support from USAID and other potential funding sources. The project will identify a series of logically planned actions that will strengthen the institution and improve government decision-makers' recognition of its importance. At least five priority park sites will receive financial and technical support.

Expenditures For Fiscal Year 1988:

Projected level	\$ <u>10,000</u>
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INAFOR continued

**WWF Program Objectives:**

- 50% Institutional self-sufficiency.
- 25% A cadre of local conservationists.
- 25% A conservation ethic.
- \_\_\_\_\_ An ecological information base.
- \_\_\_\_\_ A system of parks and protected areas.
- \_\_\_\_\_ Linkage of development with conservation.

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Institution-Building Workshops for NGO Conservation Groups (New initiative)

The NGO conservation movement in Guatemala shows tremendous energy, but lacks the skills and direction needed to elevate it from its current, rather ineffective status. This project will support a series of workshops aimed at addressing all aspects of NGO conservation work. The workshop should help create much more effective, coordinated citizen action.

These workshops will be held each year and will focus on key topics. Training materials will be produced and distributed to Guatemalan conservationists to backstop knowledge gained in the training sessions.

**Expenditures For Fiscal Year 1988:**

Projected level	\$ <u>7,000</u>
Ideal level if funds are available	\$ <u>10,000</u>

**WWF Program Objectives:**

- 100% Institutional self-sufficiency.
- \_\_\_\_\_ A cadre of local conservationists.
- \_\_\_\_\_ A conservation ethic.
- \_\_\_\_\_ An ecological information base.
- \_\_\_\_\_ A system of parks and protected areas.
- \_\_\_\_\_ Linkage of development with conservation.

Coordination of Conservation and Development Efforts in Guatemala  
(New initiative)

The many rural development and humanitarian efforts being carried out in Guatemala by national and international aid groups, such as Save the Children and Catholic Relief Services, offer conservationists a tremendous opportunity to link resource protection and economic development at the local level. Many of these groups have substantial experience, contacts and resources, and are often very effective in realizing their goals. If these groups incorporate conservation and environmental management into their activities, they could potentially have a greater impact on land use than the conservation community.

This project will focus on working with these groups to increase their concern for and involvement in conservation. This will be carried out through personal communication and the organization of annual workshops on this theme. These actions will be complemented by institution-building activities with the conservation NGOs that will eventually coordinate their efforts with those of development NGOs.

Expenditures For Fiscal Year 1988:

Projected level	\$	<u>0</u>
Ideal level funds can be obtained	\$	<u>10,000</u>

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Support for the Second Central American Congress on Natural and Cultural Heritage Protection (New initiative)

Twelve years ago the first Central American congress on protection of natural and cultural heritage was held in Costa Rica. This event, attended by a small group of (primarily Central American) park directors from the public sector, proved to be the springboard for much of the region's subsequent wildland conservation activity. At that meeting, national and regional strategies were mapped out which helped guide the logical development of protected wildland systems. Some of the participants, such as the Costa Ricans, have been extremely successful in their efforts. Others, such as the Guatemalan Parks Department, have yet to establish even one well-managed pilot park, even though the establishment of pilot parks was one of the strategies identified at the meeting.

This project will provide technical and financial assistance to an interagency team of Guatemalans from the public, private and university sectors, who will organize and manage a second regional conference. The event will be much larger than the first. It will include representatives from the private and NGO sectors, as well as the international development and conservation communities. The meeting will focus on identifying the progress and problems of the last ten years and mapping out a strategy for the next decade. It will also include sessions to identify wildland management priorities for each country, similar

Congress continued

to the Andean plan. These individual country strategies will aid WWF and other conservation organizations in identifying regional priorities. Although this is a regional event, it could be instrumental in promoting greater support for wildland conservation within Guatemala.

**Expenditures For Fiscal Year 1988:**

Projected level	\$ <u>23,000</u>
Ideal level if funds are available	\$ <u>25,000</u>

**WWF Program Objectives:**

<u>10%</u>	Institutional self-sufficiency.
<u>10%</u>	A cadre of local conservationists.
<u>10%</u>	A conservation ethic.
<u>10%</u>	An ecological information base.
<u>50%</u>	A system of parks and protected areas.
<u>10%</u>	Linkage of development with conservation.

## WWF-International Priority Projects

### Conservation of Monterrico Coastal Zone

#### Background

The Monterrico Protected Biotope, established in 1977, is a wildlife refuge on the southern section of the Pacific coast of Guatemala. This complex of wetlands is the habitat of more than one hundred species of birds, including several migratory species such as the Hudsonian godwit. Other important wildlife in the area include crocodiles, iguanas and sea turtles such as the hawksbill and the leatherback. The area is home to one of the last important remnants of mangrove forests on the Pacific coast of Guatemala. These forests were drastically reduced in acreage during the past three decades due to irrational cutting and conversion to other land uses. Biotope management is now entrusted to CECON (Center of Conservation Studies), a dependency of the University of San Carlos, Guatemala. This institution has already developed a small environmental campaign in the area that includes the construction of an information kiosk in the village of Monterrico, the production of a brochure on marine turtles and an EE workshop with elementary-school teachers of the nearby towns. Besides this, CECON has designed an ambitious list of programmes to be developed in the biotope with activities such as a detailed inventory of the resources, research on threatened species of habitats, construction of guard-posts and implementation of a strong EE campaign. Lack of funds is the main factor preventing the full development of the plan.

#### Objectives (short-term)

1. Provide financial support for a full inventory of the natural resources of the Monterrico Biotope.
2. Contribute to the design and implementation of a management plan for the site.
3. Support an environmental education campaign in towns adjacent to the biotope and interpretation activities for visitors.
4. Improve and expand investigations and monitoring of the natural resources of the biotope.
5. Train local villagers in techniques to manage wildlife species.

#### Objectives (long-term)

1. Contribute to the preservation of the diversity of wetlands ecosystems within the biotope.
2. Improve living conditions in nearby villages through the development of sustainable exploitation techniques for biotope resources which have been traditionally used, although without sound management practices, by local communities.
3. Achieve awareness on the part of tourists visiting the area, local residents, and the Guatemalan public on the importance of protection of the Monterrico biotope.

#### Progress to date

The education campaign is underway, with an information kiosk at the harbour from which all boats leave for Monterrico. The research upon which the management plan will be based is being carried out as planned. Pilot projects on farming of iguanas are being established.

WWF-International Priority Projects

Conservation methods

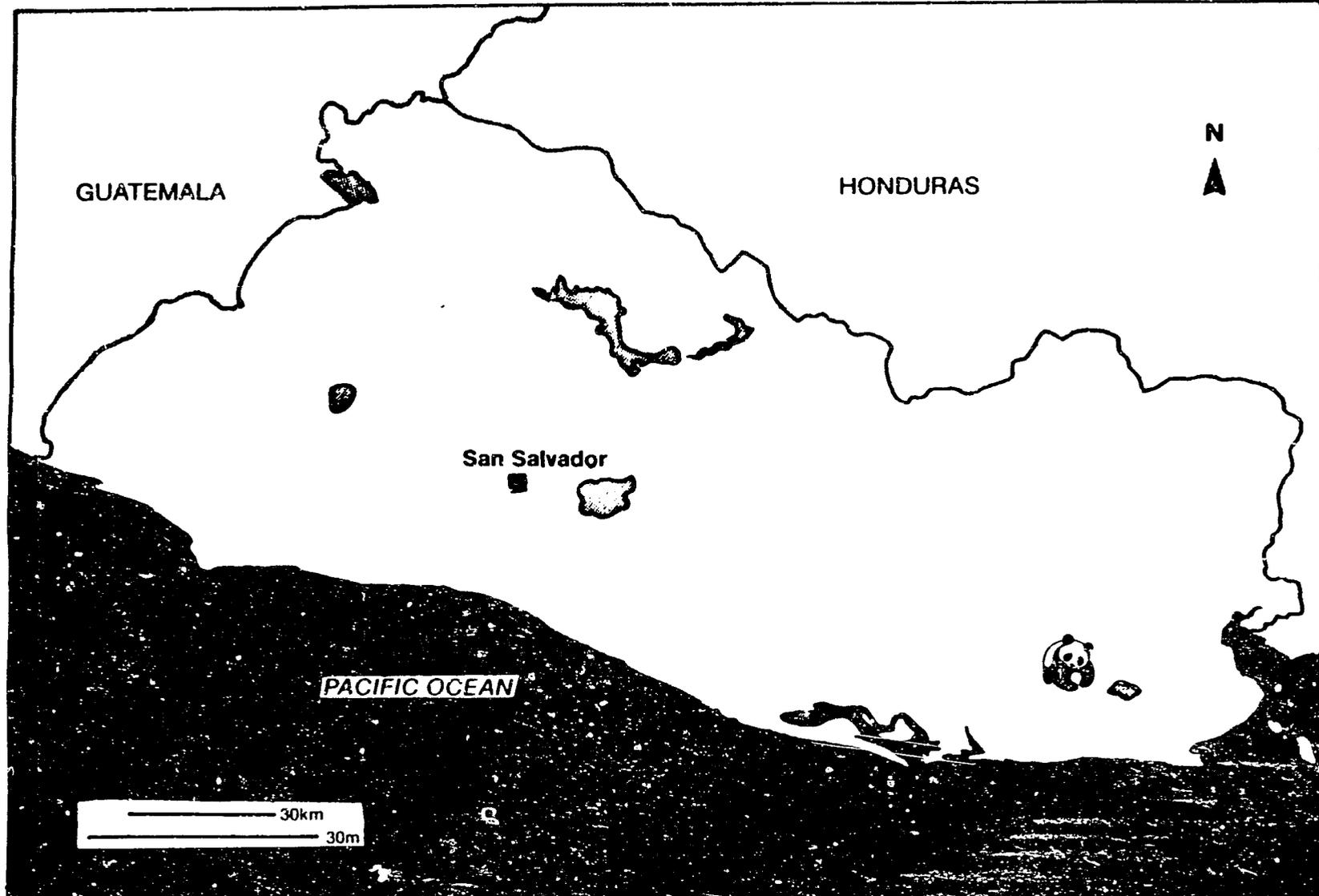
60% Protected Area Management  
20% Education  
20% Awareness

-109-

EL SALVADOR

#1) LAGUNA JOCOTAL INTEGRATED DEVELOPMENT PROJECT  
SEE TEXT FOR ADDITIONAL PROJECTS

EL SALVADOR



## EL SALVADOR

### Introduction

El Salvador is often described as an environmental disaster in the making, yet some of the most innovative conservation activities in Latin America are being carried out in this troubled nation. Seven years of civil war, a disastrous earthquake in 1986, massive deforestation, serious industrial and agricultural pollution problems, and the highest population density in the region have ravaged the country's natural environment. Bombing and defoliation have destroyed habitats, while slashed national budgets and unsafe working conditions in many parts of the country stand in the way of conservation progress. And yet, a well-trained, dedicated cadre of conservationists is pioneering integrated development and conservation activities which could become models for other Mesoamerican nations. Unfortunately, the economic, political and ecological situation in El Salvador is perhaps more representative of the region than the relatively stable situation in countries such as Costa Rica. For this reason, it is important that we pay particular attention to the Salvadorans' successful ecodevelopment activities, initiated under extremely difficult conditions.

The following plan reviews the natural resource problems and characteristics of El Salvador and outlines proposed WWF-supported activities that will address some of these issues.

### Biological Significance

Biological diversity of El Salvador is the lowest of the Central American countries. There are 682 terrestrial vertebrate species, of which 88 are listed by CITES as endangered. Wildlife numbers are generally very reduced, although some species such as the black-bellied tree duck and olive ridley sea turtle, have benefited from protection and management efforts.

The country has eight vegetative life zones, most of which have been severely altered. Nevertheless, there are still 1,400 km<sup>2</sup> of forest, including 17,000 hectares of tropical dry forest, which is endangered throughout Central America, and 450 km<sup>2</sup> of mangrove.

### Conservation Threats

Although studies suggest that the most appropriate land use for almost two thirds of El Salvador is forest protection or production, over 80% of the country's original forest cover has been destroyed, primarily for agriculture. This loss has been disastrous to the country's economy and its ecology. Several species of wildlife, such as the tapir, the scarlet macaw, and the jabiru stork, have been extirpated. And, with 95% of the country classified as hilly or highland, it is not surprising that much of the landscape is seriously eroded or degraded; this has significantly reduced agricultural production and general

economic output.

The two major causes of this destruction are overpopulation (El Salvador is the most densely populated country in Latin America) and inequitable land distribution. Ninety-five percent of the country's farms are classified as having insufficient land to satisfy minimum family needs, while another two percent are large operations that control half of all arable land. This has squeezed many small farmers onto marginal terrain, and is a principal reason for the civil war and political chaos of recent years. In fact, some resource managers have referred to the conflict in El Salvador as the Western Hemisphere's first "ecological war."

### Conservation Profile

Both the public and private sectors have persevered in their conservation efforts in the face of these hardships. The Salvadoran Park Service is considered to be one of the best in Latin America and most of the 16 wildland units it manages are fairly well protected. Several units include ecodevelopment projects and wildlife management activities that are producing tangible benefits for the surrounding rural communities. These activities include captive breeding of iguanas, white-tailed deer, sea turtles, and butterflies. Several wildlands also have forest management and reforestation activities to produce firewood and building material.

El Salvador has also initiated an ambitious agrarian reform program that is affecting all farms over 500 hectares, and these "haciendas" include 54% of the best forest lands. Most of these areas will be managed by the Park Service. This represents one of the first agrarian reform laws in Latin America to include a wildland conservation component.

The NGO conservation movement is limited to a few groups. One of these, the "Grupo Ecologico Montecristo," has developed an innovative environmental education program that is essentially implemented by high school students. More than 20 high school ecological clubs have been formed, all of which have produced environmental education materials and carried out environmental awareness events.

There has been little international assistance for Salvadoran conservation work. WWF-US and WWF-International have contributed sporadically to various projects (five grants since 1974). The US Agency for International Development is by far the largest contributor, with its donation of nearly \$1 million to the Ministry of Natural Resources for its "Programa de Generacion de Empleo," a part of which was used in the ecodevelopment work carried out by the Park Service.

The dearth of international assistance should not be construed as a lack of faith in the Salvadorans. In fact, the Salvadorans have proven their ability to maintain an impressive level of field conservation work. In many ways they have shown themselves to be a better conservation investment than can be

found in other Latin American nations. The relatively low biological diversity of the country is, or at least should be, the major reason for reduced levels of international support.

#### WWF Salvadoran Conservation Strategy

The Salvadoran country strategy is based upon the following critical factors which:

- Biodiversity in El Salvador is not as high as in other Central American countries, although there are still some ecosystems of international significance, particularly tropical dry forest and mangrove swamps, as well as some significant species.
- The wildlands that do exist are relatively well managed by the Salvadoran Park Service.
- The Park Service has taken an "ecodevelopment" approach to wildland management and has initiated several integrated development projects at park and reserve sites. Because the economic, ecological and political situation in El Salvador is, unfortunately, becoming increasingly representative of the situation in much of Central America, these projects could serve as very appropriate models for other wildland sites in the region.
- AID has been a major contributor in the past to these ecodevelopment projects.
- The NGO conservation sector is not large but one group is involved in an innovative conservation education program.
- The political, economic, and natural disasters which have plagued El Salvador during the last eight years have inhibited conservation programs, yet Salvadoran conservationists have proven to be very effective.

Based upon these factors, and taking into consideration WWF's program objectives (institutional self-sufficiency, development of conservation skills, creation of a conservation ethic, building an ecological information base, systematic conservation of important resources and, integrating conservation and development), the following plan is proposed:

The WWF Long Range Plan for El Salvador will seek to integrate conservation and development and develop conservation skills through its support for the Laguna Jocotal National Wildlife Refuge model ecodevelopment project, managed by the Salvadoran Park Service. WWF will also promote the creation of a conservation ethic through support for an environmental education program carried out by the Grupo Ecological Montecristo.

**Priority Projects**

Laguna Jocotal Integrated Development Project (New initiative)

The Laguna Jocotal National Wildlife Refuge is the site of one of the most significant wildlife management projects in Latin America. Through scientific management of the black-bellied tree duck (primarily from the construction of nest boxes), populations of this important protein source have increased from 700 to 30,000 in the last ten years. Rural peasants now sustainably harvest the ducks and their eggs. The lagoon is also important for local fishermen, and fishing harvests are closely regulated. A reforestation project and an iguana-rearing effort in the area have been discontinued due to lack of funds.

This project will provide financial support to continue and expand the duck and fish management initiatives, and to continue the iguana and reforestation projects. The site will be used as a prototype for similar projects at national and regional levels.

**Expenditures For Fiscal Year 1988:**

Projected level	\$	<u>22,000</u>
Ideal level if funds are available	\$	<u>25,000</u>

**WWF Program Objectives:**

- \_\_\_\_\_ Institutional self-sufficiency.
- 25% A cadre of local conservationists.
- \_\_\_\_\_ A conservation ethic.
- \_\_\_\_\_ An ecological information base.
- 25% A system of parks and protected areas.
- 50% Linkage of development with conservation.

Support for the Grupo Ecological Environmental Education Program (New initiative)

This project supports the establishment of conservation clubs in secondary schools, primarily in San Salvador. The facilitators of the project are local teachers and conservationists. Once the clubs are established, the students themselves will develop most of the programs.

WWF funds will provide technical assistance, primarily through training workshops for the program facilitators, and some funding for the production of educational materials.

Grupo continued

Expenditures For Fiscal Year 1988:

Projected level     \$ 5,000

Appendix A: Funding Towards WWF Objectives  
 (Funding from WWF-International is not included in this matrix.)

	INSTITUTIONAL SELF-SUFFICIENCY	CONSERVATION ETHIC	SYSTEM OF PARKS AND PROTECTED AREAS	LOCAL CADRE OF CONSERVATIONISTS	ECOLOGICAL INFORMATION BASE	LINKAGE OF DEVELOPMENT WITH CONSERVATION	TOTAL \$
BELIZE	\$ 5,000	\$ 21,250	\$ 61,000	\$ 31,750		\$ 33,000	\$152,000
COSTA RICA	\$ 15,000	\$ 30,250	\$179,450	\$ 99,800	\$ 11,750	\$ 95,750	\$432,000
HONDURAS	\$ 28,250	\$ 1,250	\$ 22,500	\$ 10,000		\$ 10,000	\$ 72,000
NICARAGUA	\$ 2,000	\$ 2,000	\$ 6,000				\$ 10,000
PANAMA	\$ 6,250	\$125,000	\$ 35,000	\$142,000	\$ 3,250	\$ 8,000	\$320,000
GUATEMALA	\$ 15,500	\$ 10,000	\$ 29,250	\$ 16,000		\$ 23,250	\$ 94,000
EL SALVADOR			\$ 5,500	\$ 5,500		\$ 11,000	\$ 22,000
REGIONWIDE	\$ 4,300	\$ 16,550	\$ 11,500	\$ 30,800	\$ 2,300	\$ 16,550	\$ 82,000
TOTAL \$	\$ 76,300	\$206,000	\$350,200	\$305,050	\$ 17,300	\$201,550	\$1,184,000

**Appendix B: WWF-US Project Budgets**

Funding sources for the following projects include WWF-Canada, USAID, USFWS, W. Alton Jones, and Weyerhaeuser, as well as WWF-US general funds. Projects funded by WWF-International are shown separately in Appendix C.

Project Title	Projected Budget	Ideal Budget*
<b>BELIZE</b>		
Cockscomb Jaguar Preserve Development	\$ 45,000	\$ 45,000
Bermudian Landing Howler Monkey Reserve	5,000	10,000
Hol Chan Marine Reserve	72,000	80,000
Development of a National Environmental Education Program	15,000	25,000
Trip for Belize Decision Makers to the National Parks of Costa Rica	5,000	7,000
Institution-Building Workshop for Belizean Conservationists	10,000	10,000
Development of a Wildlands Systems Plan and Technical Backstopping for Existing Wildland Units	0	100,000
<b>Belize Total</b>	<b>152,000</b>	<b>277,000</b>
<b>COSTA RICA</b>		
Consolidation of Corcovado National Park	50,000	50,000
Gandoca Integrated Land Management	50,000	50,000
Consolidation of National Forest System	25,000	25,000
Support to CATIE Wildlands Unit	35,000	35,000
Wildlife Coordinator, Central America Training and Program Development	57,000	57,000

\*Total Project Budget if additional funds can be obtained.

Project Title	Projected Budget	Ideal Budget*
Wildlife Management Program at the National University	\$ 60,000	\$ 60,000
Reintroduction of the White-Tailed Deer	15,000	15,000
Preparation of State of the Parks Report	10,000	20,000
Institution-Building Assistance for Costa Rican NGO Conservation Groups	0	10,000- 15,000
Guanacaste National Park	148,000	148,000
Lomas Barbudal Biological Reserve	11,000	11,000
Costa Rican Squirrel Monkey Studies at Manuel Antonio National Park	3,000	3,000
Study of Marine Turtle Populations on the Pacific Coast of Costa Rica	11,000	11,000
<b>Costa Rica Total</b>	<b>475,000</b>	<b>495,000- 500,000</b>
<b>HONDURAS</b>		
Río Platano Biosphere Reserve	40,000	40,000
AMINA/La Tigra National Park	0	7,000
Institutional Support for the Honduran Ecological Association	25,000	25,000
Development of a Plan for a National Wildland System	5,000	25,000
Regional Workshops for Initiating the Establishment of Protected Wildlands by Joint Public and Private Sector Initiative	0	5,000
First Planning Meeting of Central American Regional Conservation NGO Network	2,000	2,000
<b>Honduras Total</b>	<b>72,000</b>	<b>104,000</b>

\*Total Project Budget if additional funds can be obtained.

Project	Projected Budget	Ideal Budget*
<b>NICARAGUA</b>		
Volcan Masaya National Park Visitor Center	\$ 8,000	\$ 8,000
Support for the Chacocente Refuge Turtle Project	0	10,000
General Support for IRENA Environmental Education Activites	0	10,000
International Seminar on the San Juan River Watershed	2,000	2,000
<b>Nicaragua Total</b>	<b>10,000</b>	<b>30,000</b>
<b>PANAMA</b>		
Natural Resources Education Project with USAID/Panama and the Fundacion PA.NA.M.A.	250,000	250,000
Darien Biosphere Reserve	19,000	19,000
Kuna Wildlands Conservation, San Blas Province	25,000	25,000
Bocas del Toro National Park Research and Development	13,000	13,000
La Amistad National Park (Panama/Costa Rica)	13,000	13,000
<b>Panama Total</b>	<b>320,000</b>	<b>320,000</b>
<b>GUATEMALA</b>		
General Support for the CECON Biotope System	47,000	60,000
Support to the Monterrico Biotope Integrated Development Project	23,000	25,000

\*Total Project Budget if additional funds can be obtained.

Project	Projected Budget	Ideal Budget*
General Support to the Department of National Parks and Wildlife, INAFOR	\$ 10,000	\$ 10,000
Institution-Building Workshops for NGO Conservation Groups	7,000	10,000
Coordination of Conservation and Development Efforts in Guatemala	0	10,000
Support for the Second Central American Congress on Natural and Cultural Heritage Protection	23,000	25,000
Guatemala Total	110,000	140,000
<b>EL SALVADOR</b>		
Laguna Jocotal Integrated Development Project	22,000	25,000
Support for the Grupo Ecological Environmental Education Program	0	5,000
El Salvador Total	22,000	30,000

\*Total Project Budget if additional funds can be obtained.

**Appendix C: WWF-International Project Budgets  
for Central America**

**Belize:**

-Environmental Education Programme \$ 20,000

**Costa Rica:**

-Gandoca-Manzanillo Wildlife Refuge \$ 20,000

-Tortuguero National Park \$ 40,000

-La Amistad National Park \$ 53,000

**Honduras:**

-La Tigra National Park \$ 43,000

-Cuero y Salado \$ 26,350

-Amigos de la Naturaleza \$ 12,485

**Panama:**

-Darien National Park \$ 18,750

-La Amistad, Panama Sector \$ 12,500

-Bocas del Toro Conservation Strategy \$ 12,500

**Guatemala:**

-Conservation of Monterrico Coastal Zone \$ 13,000

-Support for Guatemalan Biotopes \$ 50,000

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**TOTAL**

**\$321,585**

### **Acknowledgments**

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