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Parks in Peril Third Year Evaluation 1993

**U.S. Agency for International Development
and The Nature Conservancy
COOPERATIVE AGREEMENT
#LAC 0782-A-00-047-00**

**October 29, 1993
Submitted by:
Latin American and Caribbean Program**

INTRODUCTION

The Nature Conservancy (TNC) respectfully submits this **THIRD YEAR EVALUATION OF THE PARKS IN PERIL PROJECT** report in compliance with the requirements set forth in the U.S. Agency for International Development and TNC Cooperative Agreement No. LAC 0782-A-00-0047-00, page 7, clause 1E.2.(e) End-of-Year Evaluation: "After each year, the Recipient shall submit five (5) copies of a report to the AID Project Officer which evaluates the progress, successes, and shortfalls in achieving the Annual Work plan's proposed goals. Included will be recommendations for development of the next year's work plan. The report shall cover the period October 1 through September 30, and shall be submitted not later than November 30 of each year."

Thirteen staff from TNC's Latin America and Caribbean Program, professionals from three partner nongovernmental conservation organizations (NGOs), and three contracted protected areas specialists (Appendix A) conducted project evaluations during the June-September 1993 period. This year, TNC designed terms of reference and a detailed, quantitative evaluation form (Appendix B) to evaluate significant achievements, limitations, and recommended actions in Parks in Peril (PiP) sites for the coming year. The evaluators completed the form for 22 AID funded PiP sites; three sites--Morne Trois Piton National Park in Dominica, Del Este National Park in the Dominican Republic, and Calakmul Biosphere Reserve in Mexico--were excluded from this evaluation because project implementation activities in these sites have only recently begun.

As a result of PiP project activities at the 22 evaluated sites, more than 5.7 million hectares (14.1 million acres) are being protected. The project has made progress in on-site protection and management, compatible use and economic development, and long-term financial security. This evaluation report contains detailed results, conclusions, and recommendations for future PiP activities in the 22 evaluated sites. The document is divided into five sections and includes in Appendix C two tables; Table #1 represents a summary of evaluation findings, and Table #2 quantifies compatible use activities at these sites:

- I. Program History
- II. Achievements
- III. Limitations
- IV. Conclusions and Recommendations
- V. Appendices
 - A. List of Evaluators per Site
 - B. Terms of Reference and PiP Site Evaluation Form
 - C. Tables
 - D. Individual Parks in Peril Site Evaluations

I. PROGRAM HISTORY

The Nature Conservancy and its partner organizations designed the Parks in Peril program to build a conservation infrastructure in the western hemisphere's most imperiled ecosystems. The primary objective of Parks in Peril is to ensure minimum critical management for targeted sites, elevating them from common "paper parks" to functional protected areas. The program assists local government environmental organizations (GOs) in the establishment of a permanent management presence in each protected area by surveying and posting critical boundaries; recruiting, training, and equipping rangers and field personnel; installing protection infrastructure; promoting local community participation in natural resource use and management activities; and identifying and developing long-term financial mechanisms to generate funds for management costs.

In December 1989, The Nature Conservancy submitted an unsolicited proposal for \$2.0 million to AID for the Parks in Peril project. In September 1990, AID and TNC entered into a Cooperative Agreement No. LAC 0782-A-00-0047-00 to support PiP project activities during FY 1991-1993. In September 1991, this agreement was amended to provide \$3.0 million in additional support to the project and incorporate a \$1.6 million add-on from the AID/Mexico Mission using funds from the Global Climate Change project. In September 1992, the agreement was amended a second time to grant \$3.0 million more to support the project. In September 1993, the third amendment to the agreement included an additional \$5.0 million. Under the original PiP Cooperative Agreement and subsequent amendments, AID has obligated a total of \$13,957,184. The Nature Conservancy and Host Countries are matching this amount with a total of \$5,421,000. Overall, the total estimated amount of the project is \$19,944,184.

The Nature Conservancy and its respective partner NGOs and GOs have jointly developed individual work plans and budgets for each participating site. These plans were submitted on an individual basis to AID/LAC/DR/E and the respective AID Mission in-country for review and approval. To date, AID has granted approval for a total of 25 PiP sites, and on-site protection activities have been initiated in each. These 25 high priority Parks in Peril sites are:

Belize:	Rio Bravo Conservation and Management Area
Bolivia:	Amboro National Park Noel Kempff Mercado National Park
Colombia:	La Paya National Park Chingaza National Park Sierra Nevada de Santa Marta National Park Cahuinari National Park

Costa Rica:	Corcovado National Park
Dominica:	Morne Trois Piton National Park
Dominican Republic:	Jaragua National Park Del Este National Park
Ecuador:	Machalilla National Park Podocarpus National Park
Guatemala:	Sierra de las Minas Biosphere Reserve
Mexico:	El Triunfo Biosphere Reserve El Ocote Forestry and Faunal Reserve La Encrucijada Ecological Reserve Sian Ka'an Biosphere Reserve Ria Lagartos/Ria Celestun Special Reserves of the Biosphere Calakmul Biosphere Reserve
Panama:	Darien Biosphere Reserve Panama Canal Watershed Protected Areas.
Paraguay:	Mbaracayu Forest Nature Reserve
Peru:	Pampas del Heath National Sanctuary Yanachaga-Chemillen National Park

II. ACHIEVEMENTS

In the third full year of operation, the Parks in Peril project has seen significant progress in the institutional cooperation among participant host country GOs and NGOs. The individual Parks in Peril Site Evaluations (Appendix B) provide detailed, quantified information. From these findings, recommendations on future PiP activities for each protected area are drawn. In terms of the overall project, there are several notable achievements for FY 1993, which include:

1. Work plans and budgets for 25 priority Parks in Peril sites have been approved and on-the-ground protection and management activities are underway. This critical support for field operations has established a permanent presence in each of these areas and, as a result, has strengthened patrolling and protection activities in these sites, five of which were initiated during FY 1993.

2. Basic protection infrastructure has been established in all 22 PiP sites. A total of 81 ranger centers/posts have been newly constructed or improved with project support. These permanent facilities provide housing, control bases, and stopover points for 282 rangers. Of the sites evaluated, 19 have installed communication systems with a total of 104 radios. The rangers now have field equipment and transportation both of which greatly facilitate their daily operations activities. A total of 1,214 km of critical boundaries have been demarcated and 21 sites receive continuous field supervision (see Appendix C, Table #1).
3. Community extension support and outreach programs in these sites have substantially increased in FY 1993. These programs have yielded positive biodiversity protection benefits and have employed 191 people from local communities (see Appendix C, Table #1). A review of the 22 FY 1993 site evaluations indicates that NGOs are forming strong linkages with local communities. For example, local employment is increasing through ranger and extensionists jobs and contracts for the construction and maintenance of facilities and boundary trails. A further indication of these linkages is the increasing degree of informal support that local communities provide to on-the-ground park staff through assistance in community affairs, patrolling, environmental education, and enforcement of park regulations.
4. Training opportunities for field personnel have increased in the past year of the project. As a result, there has been an increase in field training courses that address important issues such as natural resources, personnel, and protected management, and community relations. For example, roughly 36 park ranger courses were held locally and over 300 rangers and extensionists received on-site training and basic instruction on varied topics. In addition to local training opportunities, TNC hosted 300 participants at "Conservation Training Week" in the Dominican Republic (March-April 1993), out of which 42 NGO and GO representatives from eight countries were sponsored by the PiP project. Moreover, seven protected areas specialists from PiP project sites in six countries received training at the Colorado State University "Wildlands Management Course" (July-August 1993) this past year.
5. The ecological significance of 22 PIP sites has been determined and the critical threats to 19 of these have been identified through detailed threats analyses. A total of 19 different studies are underway or are completed to obtain critical baseline biological and socio-economic data (see Appendix C, Table #1). These data have been collected using inventories and surveys and five of these studies were conducted as Rapid Ecological Assessments (REA). This methodology allows scientists and managers to rapidly evaluate a site's natural resources, develop appropriate and focused monitoring programs and make

informed management decisions. Local Conservation Data Centers (CDC) are actively involved in managing the baseline biological information that is generated at specific PiP sites and other sites within the host country. The acquisition of this baseline biological and socio-economic information and the establishment of data centers is facilitating the creation of solutions to key biodiversity conservation issues.

6. NGOs and GO natural resource agencies have signed PiP project agreements for the 22 sites and are closely collaborating in the implementation of the project. Several innovative national and international conservation partnerships have been developed with universities, indigenous groups, local communities, and development organizations.
7. The Parks in Peril project has had a multiplier effect by attracting diverse sources of funding for protection related and compatible use activities in the 22 sites (see Appendix C, Table #2). The Nature Conservancy's conservation finance team continued to work towards the development of long-term, sustainable sources of funding for the conservation programs undertaken in PiP project sites. NGOs and GOs in Belize, Bolivia, Colombia, Costa Rica, Dominican Republic, Ecuador, Guatemala, Mexico, Panama, Paraguay, and Peru have received technical assistance from TNC's conservation finance team. In these countries, 12 of the 22 sites have initiated the process of identifying, and will eventually develop, long-term sustainable financial mechanisms. This year, TNC has undertaken the task of conducting long-term financial evaluations for four sites (Amorbo National Park, Noel Kempff National Park, Corcovado National Park, and Darien Biosphere Reserve). A final analysis of these evaluations is near completion.
8. The total number of PiP project coordinators in local NGOs and GOs has increased from four in 1992 to 17 in 1993. This growth has substantially improved the inter-institutional cooperation and coordination among NGOs, GOs, TNC, and AID Missions. As a result of the Parks in Peril project, NGOs and GOs are rapidly increasing skills and capacities for project planning and administration, logistical support for field operations, resource management, and community extension.
9. NGOs and GOs have established sound management systems and solid institutional and administrative procedures. Parks in Peril project reports have been submitted in a timely fashion. Accounting systems for financial management, including the establishment of procurement, acquisition, and audits, are in place.

10. AID Missions play an active role in site selection, work plan design, and in identification of alternative funding sources.
11. TNC has hired Dr. Kent Redford as Director of its Conservation Science and Stewardship Department, partially funded by the PiP project, who is the new Director of the Parks in Peril program and has initiated work on a model for the program.

III. LIMITATIONS

The Nature Conservancy, NGOs, GOs, and AID have accumulated experience in the three years of project implementation. However, in terms of the overall project there are still some limitations, which delay project implementation activities in some sites, and these need to be addressed:

1. The PiP project has placed a limited focus on the issues of compatible human uses in the surrounding buffer zones as an important factor in the conservation of biological diversity. There is limited community participation in the most critical resource management decisions, and, in general, the basic human needs of people in the communities surrounding or in PiP sites are not being met. For example, only nine of the 22 PiP sites evaluated indicated even a low level of community involvement in the decision-making process of resource management, while the rest lacked such participation (see Appendix C, Table #1).
2. Eleven of the PiP sites still require a practical and flexible management plan (see Appendix C, Table #1) that will not only suit local needs, but also define long-term objectives, target interventions, costs, and funding sources. Close to half of the current sites are operating on year-to-year work plans.
3. There are significant logistical obstacles to overcome in some of these PiP sites before an on-the-ground presence can be situated in key areas of the sites. These include: the distance and difficulty of access to the sites; the transport of labor, materials, and supplies; inclement weather; and security factors. At times, NGO and GO central offices do not provide the necessary resources or logistics in a timely fashion to support field operations.
4. Developing critical threats analyses and/or baseline biological data remains to be done in four of the 22 sites (see Appendix C, Table #1). Monitoring has begun in a few sites. However, baseline data collection has not been integrated with the development of monitoring programs in most cases.

5. Low salaries and low morale, high turn-over and inadequate numbers of park rangers, coupled with limited training opportunities, continue to impede the building and strengthening of local management capacity. Furthermore, differing interpretations by GOs and NGOs about their respective project roles and responsibilities have slowed implementation. Inter-institutional conflicts have often weakened overall PiP project implementation.
6. In the few sites that have long-term financial plans, delays have occurred in the disbursement of funds provided through commercial swaps. Such is the situation of the two sites, Amboro and Noel Kempff Mercado National Parks, in Bolivia. Moreover, the collection of comprehensive financial information for the 22 PiP sites is taking longer than anticipated due to the presence of various institutions that fund different projects in each site.
7. In-country politics, coupled with unstable economic conditions and unclear natural resource policies, have slowed the implementation of project activities in some PiP sites. Priority attention is not being given to environmental issues and land tenure conflicts that negatively impact the consolidation and management of some PiP sites.

IV. CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of the evaluators, the following general conclusions and recommendations are made:

1. Conclusion: The first three years of the Parks in Peril project were instrumental in gathering the information and experience necessary for adjusting the model of the program.
Recommendation: Continue developing, with the assistance of AID, a model for the Parks in Peril program that resolves issues concerning tracking of sites, pre-investment planning, and end-of-project status (EOPS).
2. Conclusion: The Parks in Peril project is meeting current expectations and, while the program is being modified, an expansion in the number of PiP sites is recommended in order to allow more NGOs and GOs to participate in the project.

Recommendation: Continue the project without major modification in structure and management until completion of Recommendation #1. Gradually incorporate five new sites during the next fiscal year.

3. Conclusion: As part of the learning process, the reporting formats and procedures have been evolving but still need some improvement.

Recommendation: Using the information gathered by the three year evaluation, the results of the model, and experience gained in this round of reporting, develop a more comprehensive work plan and evaluation format that includes more attention to aspects such as environmental impact assessments.

4. Conclusion: Although there are more management plans for PiP project sites than previously, they usually lack detail and do not contain strategic goals and objectives to effectively identify and program management actions.

Recommendation: Initiate procedures for spending funds on the coordinated in-country development of management plans that contain both specific objectives and elucidation of strategic goals; as well as allowing refinement of threats matrices and examination of assumptions for compatible development activities.

5. Conclusion: Community extension, gender issues, indigenous affairs, compatible use, and economic development programs have emerged as popular and viable supplements to traditional conservation and protection actions.

Recommendation: Develop a strategically based in-house capacity to respond to increased interest in these issues and use this capacity to advise partners and develop the inter-institutional agreements with specialized organizations, U.S. based or in-country, to address some of these issues.

6. Conclusion: The Parks in Peril program is increasingly asked to provide information on a variety of conservation and management related subjects.

Recommendation: Incorporate into the PiP program an explicit learning component. Begin this by preparing a "learning packet" that will package current activities and collectively allow NGOs and GOs to gain access to much of the relevant information. This packet will permit all groups concerned, including AID and TNC, to learn from the first three years of Parks in Peril activities.

7. Conclusion: The Parks in Peril program is now at a stage of maturity to begin assessing the extent to which its investments achieve its goal of conserving biodiversity in the Latin America and Caribbean region.

Recommendation: Begin developing a more rigorous, ecoregional based assessment of the "portfolio" of Parks in Peril investments and recommend ways to balance these to better represent the ecosystems of the Latin American and Caribbean region.

APPENDIX A

Appendix A

List of Evaluators per Site

Belize

Rio Bravo Conservation and Management Area

Evaluator: Mark Des Meulles, TNC, Conservation Corps Assignment

Bolivia

Amboro National Park

Noel Kempff Mercado National Park

Evaluators: Hugo Salas, TNC, In-Country Technical Advisor
Len West, TNC, Andean Protected Areas Specialist

*Financial Evaluation: Eric Halperin, TNC

Colombia

La Paya National Park

Chingaza National Park

Evaluators: Manuel Benjamin Vivas, In-Country Consultant
Cristina Kirkbride, TNC, Country Program Director, Colombia and Venezuela

Cahuinari National Park

Evaluators: Dilver Pintor, In-Country Consultant
Cristina Kirkbride, TNC, Country Program Director Colombia and Venezuela

Sierra Nevada de Santa Marta National Park

Evaluators: Carlos Eduardo Angel, Fundacion Pro-Sierra Nevada de Santa Marta,
Biodiversity Program Director
Cristina Kirkbride, TNC, Country Program Director, Colombia and Venezuela

Costa Rica

Corcovado National Park

Evaluator: Laurie Hunter, TNC, Central America Protected Areas Specialist

*Financial Evaluation: Eric Halperin, TNC

Dominican Republic

Jaragua National Park

Evaluators: John Tschirky, TNC, Protected Areas Specialist
Domingo Marte, TNC, Country Program Director, Dominican Republic

Ecuador

Machalilla National Park

Podocarpus National Park

Evaluator: Hugo Arnai, TNC, Protected Areas Specialist

Guatemala

Sierra de las Minas Biosphere Reserve

Evaluator: Dave Maginel, TNC, Conservation Corps Assignment

Mexico

El Triunfo Biosphere Reserve
El Ocote Forestry and Faunal Reserve
La Encrucijada Ecological Reserve
Sian Ka'an Biosphere Reserve
Ria Lagartos Special Reserve of the Biosphere
Ria Celestun Special Reserve of the Biosphere
Evaluator: Jerome Touval, Independent Consultant

Panama

Darien Biosphere Reserve
Evaluators: Brian Houseal, TNC, Country Program Director, Panama
Personnel at ANCON
*Financial Evaluation: Eric Halperin, TNC

Panama Canal Watershed Protected Areas

Evaluators: Brian Houseal, TNC, Country Program Director, Panama
Personnel at ANCON

Paraguay

Mbaracayú Forest Nature Reserve
Evaluator: Alan Randall, TNC, Country Program Director, Paraguay

Peru

Pampas del Heath National Sanctuary
Evaluators: Francisco Estremadoyro and Fernando Rubio, FPCN

Yanachaga-Chemillen National Park

Evaluators: Francisco Estremadoyro and Pedro Aguilar, FPCN
Dennis McCaffrey, TNC, Senior Specialist

* A comprehensive long-term financing evaluation is in progress for these sites.
October 27, 1993

APPENDIX B

TERMS OF REFERENCE

PARKS IN PERIL
EVALUATION
THE NATURE CONSERVANCY
June 2, 1993

I. Objectives

The objectives of this Conservation Corps Assignment/South-South Exchange/Contract/Assignment will be, on behalf of The Nature Conservancy (TNC), to conduct on-site evaluations of specific protected area sites as part of The Nature Conservancy sponsored Parks in Peril program.

II. Tasks

Specific duties of this assignment/exchange will be to:

- 1) Review of all relevant project documentation
 - a) Approved Fiscal Year 1993 PiP Work Plan
 - b) Memorandum of Agreement (convenios) and/or other appropriate contracts
 - c) 1991 and 1992 PiP site evaluation (if conducted)
 - d) PiP Quarterly Site Reports
 - e) Other documents (if applicable)
- 2) Site Visits
 - a) Conduct with on-site park and NGO personnel
 - b) Review specific progress to date, based on work plan
 - c) Prepare detailed site description, commentary and practical recommendations for future action and/or changes in program activities
- 3) Interviews
 - a) NGO Partners
 - b) GO Partners
 - c) AID Mission Environmental Officer
 - d) Other Bilateral and Multilateral Development Officers
 - e) Other NGOs, international NGO reps
 - f) Local communities around PiP site
- 4) Maps/Photos/Reports

Collect best available park boundary, vegetation, colonization and baseline maps, aerial photos, satellite images and other appropriate reports.

5) Report Preparation

Each PiP site written evaluation will focus on technical, financial and administration components using the following format:

- I. Introduction
(brief description of PiP site, evaluation team composition, work plan and target institutions and individuals)
- II. Evaluation: (refer to enclosed questionnaire).
The overall technical, financial and administration evaluations should discuss the following:
 1. Achievements
 2. Limitations
 3. Recommendations
 4. Summary of Recommendations (presentation of practical recommendations for future actions)
 - a. Technical: qualitative and quantitative assessment of the effectiveness of PiP supported management activities.
 - b. Financial: development and implementation of long-term financial plans includes a quantitative analysis of sources including local NGOs, local/regional/national government agencies, bilateral development agencies (USAID, GTZ), multilateral development agencies (IDB, WB), other international NGOs, debt swap accounts.
 - c. Administration: evaluate efficiency and effectiveness of NGO administrative procedures as they relate to commodities procurement, budget management, financial report preparation and submission.

**PARKS IN PERIL PROGRAM
1993 EVALUATION FORM**

PROTECTED AREA NAME:

GENERAL INFORMATION:

Country:

NGO Partner:

Address:

PIP project officer:

Government agency:

Address:

PIP project officer:

Conservation objectives of protected area:

-
-
-
-

Is there an NGO/GO agreement to work on this PIP site?

yes ___ no ___ on file at TNC ___

Is the TNC/NGO agreement up to date?

yes ___ no ___ on file at TNC ___

Is the PIP Work Plan and Budget up to date?

yes ___ no ___ on file at TNC ___

Name of evaluator:

Address:

Phone:

Fax:

PERFORMANCE INDICATORS:

I. ON-SITE PROTECTION AND MANAGEMENT

A. Have the ecological values of the area been identified?

yes ___ no ___

size (hectares):

key ecosystems:

key processes:

endemic species:

threatened species:

migratory species:

B. Have critical threats been located on a map?

yes ___ no ___

type:

source:

significance:

C. Are critical boundaries surveyed and posted?

yes ___ no ___

of kilometers demarcated:

D. Are rangers trained and equipped?

yes ___ no ___

of rangers on-site:

type of training received:

E. Does the personnel have transport and communications equipment?

yes ___ no ___

and type:

F. Have basic protection facilities been constructed on-site?

yes ___ no ___

location:

type and M2 size of facilities:

G. Does the area have continuous field logistical support?

yes ___ no ___

type of NGO support:

type of GO support:

H. Are ecological carrying capacity studies, baselines and monitoring underway?

yes ___ no ___

type of study:

I. Has a Management Plan been completed for the area?

yes ___ no ___

year of publication:

J. Are Annual Operations Plans and Budgets completed?

yes ___ no ___

PERFORMANCE INDICATORS:

II. COMPATIBLE RESOURCE USE:

A. Have key social and economic values of the protected area been identified?

yes ___ no ___

key values:

B. Have basic human needs of local communities been satisfied (ie., health, safety, welfare, etc.)?

yes ___ no ___

key issues:

C. Is there direct community and resource user participation in resource management and allocation decisions?

yes ___ no ___

key formal mechanisms:

D. Is the land tenure in the area stable?

yes ___ no ___

land tenure system:

Is local partner protecting land through acquisition?

yes ___ no ___

size and location (acreage/buffer):

E. Are there diverse agricultural and natural resource uses within the carrying capacity of the protected area buffer zone?

yes ___ no ___

principal land/resource uses:

F. Are local people employed by PIP project funds?

yes ___ no ___

of men ___

types of positions:

of women ___

types of positions:

PERFORMANCE INDICATORS:

III. LONG-TERM FINANCIAL SECURITY

A. Have the long-term financial needs of the protected area been identified?

yes ___ no ___

categories and projected budget:

title and year of document:

B. Are there local revenues that support the protected area?

yes ___ no ___

type of support and estimated annual US\$ dollar revenue to area:

C. Are there national budget allocations that support the protected area?

yes ___ no ___

type of support and estimated annual US\$ dollar amount:

D. Are there international funds that support the protected area?

yes ___ no ___

type of support and estimated annual US\$ dollar amount:

E. Has a Financial Plan been approved for the protected area?

yes ___ no ___

categories and projected budget:

sources of funds:

title and year of document:

F. Is an fiscally responsible administrative system in place to manage the funds?

yes ___ no ___

external audit at TNC? yes ___ no ___

G. Are financial resource committed to operations of the area?

yes ___ no ___

categories and projected budget:

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

I. ON-SITE PROTECTION AND MANAGEMENT:

A. Has there been a change in the natural vegetation or land cover?

yes ___ no ___ no information ___

how was this change measured?

cite source(s):

B. Has there been a change in the distribution, abundance or status of key species?

yes ___ no ___ no information ___

how was this change measured?

cite source(s):

C. Has there been a change in water quantity or quality?

yes ___ no ___ no information ___

how was this change measured?

cite source(s):

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

II. COMPATIBLE RESOURCE USE:

A. Have there been changes in the pattern or intensity of land or natural resource use?

yes ___ no ___ no information ___

how were these changes measured?

cite source(s):

B. Have there been changes in the social or economic conditions of local residents?

yes ___ no ___ no information ___

how were these changes measured?

cite source(s):

C. Have there been changes in the policies or institutions?

yes ___ no ___ no information ___

how were these changes measured?

cite source(s):

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

III. LONG-TERM FINANCIAL SECURITY:

A. Has a trust fund or endowment been established for the protected area?

yes ___ no ___

type:

principal and annual dividend:

B. Are there diverse sources of funds/revenues for the area?

yes ___ no ___

type and amount:

sources:

APPENDIX C

Table #1

Perks in Peril : FY 1993 Evaluation												
Totals per country												
	Total Bolivia	Total Colombia	Total Ecuador	Total Paraguay	Total Peru	Total Costa Rica	Total Guatemala	Total Panama	Total Mexico	Total Belize	Total D. Republic	TOTAL 22 PIP SITES
ON-SITE PROTECTION & MANAGEMENT												
# Hectares in protected areas:	1,557,700	1,450,374	201,000	42,339	224,109	41,788	236,300	928,929	805,787	92,713	137,400	5,738,439
Management plan completed:												
Yes	0	2	2	1	1	1	1	0	1	1	1	11
No	2	2	0	0	1	0	0	2	4	0	0	11
Operations plan completed:												
Yes	2	4	2	1	2	1	1	2	4	1	1	21
No	0	0	0	0	0	0	0	0	2	0	0	2
Ecological values determined:												
Yes	2	4	2	1	2	1	1	2	6	1	1	23
No	0	0	0	0	0	0	0	0	0	0	0	0
Critical threats/areas located:												
Yes	2	4	2	0	2	0	1	2	4	1	1	19
No	0	0	0	1	0	1	0	2	2	0	0	4
Studies/monitoring underway:												
Yes	2	3	1	0	2	1	1	2	5	1	1	19
No	0	1	1	1	0	0	0	0	1	0	0	4
Radio equip. installed:												
Yes	2	3	1	1	1	1	1	2	5	1	1	19
No	0	1	1	0	1	0	0	0	0	0	0	3
# Radios on-site:	20	5	3	3	1	10	21	31	31	4	9	104
# Personnel:	53	25	28	12	20	36	18	114	88	5	19	418
# Rangers:	43	21	24	9	17	36	18	49	42	4	19	282
# Ranger training events:	6	3	2	3	0	2	2	15	5			38
# Km demarcated:	380	0	12	150	70	30		316	125	60	70	1,214
# Ranger centers:	13	7	7	5	3	10	4	13	12	3	4	81
Basic transportation:												
Yes	2	4	2	1	2	1	1	2	6	1	1	23
No	0	0	0	0	0	0	0	0	0	0	0	0
Continuous field supervision:												
Yes	2	4	0	1	2	1	1	2	6	1	1	21
No	0	0	2	0	0	0	0	0	0	0	0	2
COMPATIBLE USE/ECONOMIC DEVELOPMENT												
Socioeconomic values identified:												
Yes	2	3	2	1	2	1	1	2	6	1	1	22
No	0	1	0	0	0	0	0	0	0	0	0	1
Basic human needs met:												
Yes	0	0	0	1	1	0	0	1	0	0	0	3
No	2	4	2	0	1	1	1	1	6	1	1	20
Local participation in resource mgmt:												
Yes	0	0	0	1	1	1	1	2	?	0	?	9
No	2	4	2	0	1	0	0	0	3	1		13
Land tenure stabilized:												
Yes	2	2	2	1	1	0	1	0	2	1	1	13
No	0	2	0	0	1	1	0	2	2	0	0	8
# Local people employed with PIP funds:	16	19	16	12	19	0	11	65	18	1	14	191
LONG-TERM FINANCIAL SECURITY												
Long-term financial needs identified:												
Yes	2	0	0	1	2	1	0	0	3	1	1	11
No	0	4	2	0	0	0	1	2	3	0	0	12
Funding from external sources:												
Yes	2	4	2	1	2	1	1	2	5	1	1	22
No	0	0	0	0	0	0	0	0	0	0	0	0
Amount	\$1,094,177.00	\$1,643,166.00	\$424,875.00	\$60,000.00	\$84,960.00	\$0.00	\$542,000.00	\$800,000.00	\$2,388,062.00	\$482,567.00	\$594,000.00	\$8,113,607.00
Funding from Federal/State sources:												
Yes	2	4	2	0	2	1	1	2	5	0	1	20
No	0	0	0	1	0	0	0	0	0	1	0	2
Amount	\$247,218.00	\$208,140.00	\$0.00	\$0.00	\$34,100.00	\$0.00	\$20,000.00	\$77,000.00	\$154,468.00	\$0.00	\$16,000.00	\$758,926.00
Funding from local sources:												
Yes	2	0	0	0	1	1	0	2	1	1	0	8
No	0	4	2	1	1	0	1	0	4	0	1	14
Amount	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$29,000.00	\$318,000.00	\$75,000.00	\$80,000.00	\$0.00	\$500,000.00
Financial plan approved:												
Yes	2	0	0	1	0	0	0	0	0	1	0	4
No	0	4	2	0	2	1	1	2	5	0	1	18

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PARKS IN PERIL PROJECT
Current Compatible Use Activities
Table #2

PARK & COUNTRY	Activity	Implementing Institution	Amount	Funder
1) Rio Bravo National Park BELIZE	Environmental Education Ecotourism Sustainable Forestry	PFB PFB PFB	\$117,000 \$50,000 \$1,800,000	TNC/PIP TNC MacArthur Foundation
2) Amboro National Park BOLIVIA - 1987/1993	Reforestation Rural Assistance Program	FAN/Peace Corps PRODECAF/FAN/CORDECRUZ	\$20,000 \$2,000	AID/PIP, Peace Corps AID/PIP + CDF, SENMA
3) Noel Kempff National Park BOLIVIA - 1987/1993	Ecotourism	FAN	\$168,000	TNC, FAN
4) Chingaza National Park COLOMBIA	Agroforestry		\$15,000	AID/PIP
5) Cahuinari National Park COLOMBIA	Training on Comp. Use Activities		\$10,000	AID/PIP
6) Sierra Nevada de Santa Marta National Park COLOMBIA	Agroforestry & Technical Training Environmental Education & Fish Culture Research	FPSN FPSN	\$25,000 \$20,000	AID/PIP AID/PIP
7) La Paya National Park COLOMBIA	Environmental Education Programs Land Use Study	FN/INDERENA FN	\$15,000 \$20,000	AID/PIP AID/PIP
8) Corcovado National Park COSTA RICA	Land Tenure & Titling Project BOSCOSA/CEDARENA	FN	\$30,000	AID/PIP
9) Jaragua National Park DOMINICAN REPUBLIC	Environmental Education Sheep Raising	G. Jaragua, Peace Corp Fundacion Terranova	\$25,000 \$15,000	Peace Corps, WWF, AID/PIP Fundacion Terranova
10) Machalilla National Park ECUADOR PIP FY93	Community Training Sust. Dev. Land Tenure "Casas Viejas" Reforestation of Rio Ayampe Watershed Ecotourism Workshop	FN FN FN FN	\$5,000 \$5,000 \$5,000 \$3,500	TNC/FN TNC/FN AID AID
11) Podocarpus National Park ECUADOR PIP FY93	Environmental Education Reforestation/Agroforestry Socioeconomic studies		\$23,400 \$15,600 \$9,500	AID, TNC/FN, WWF/FN, TNC AID TNC/FN, WWF/TNC

PARKS IN PERIL PROJECT
Current Compatible Use Activities
Table #2

PARK & COUNTRY	Activity	Implementing institution	Amount	Funder
12) Sierra de las Minas GUATEMALA	Rapid Rural Assessment	DN	\$20,000	Biod. Support Program Otenberg/TNC coord.
	Improved Agricultural Land Land Tenure	DN	\$110,000	
	Agroforestry	DN	\$15,000	AID/RENARM
13) El Triunfo Biosphere Reserve MEXICO	Sustainable Coffee Farming	IHN	\$7,000	AID/PIP
	Specialty Mushroom Crops	IHN	\$7,000	PIP/GCC/TNC
	Study Diversification of Comp. Use Act.	IHN	\$8,400	
	Ecotourism		\$10,000	
14) El Ocote Ecological Reserve MEXICO	Land Use/Soil Study			
	Reforestation (pilot project)	IHN	\$16,500	PIP/GCC/TNC
	Environmental Education		\$10,000	
Land Use Studies		\$16,500		
15) Rias Lagartos/Celestun MEXICO	Ecotourism		\$22,500	
16) La Encrucijada Coastal Wetland Reserve MEXICO	Environmental Education	IHN		PIP/GCC/TNC
17) Sian Ka'an Biosphere Reserve MEXICO	Research on Comp. Use Act.		\$16,500	PIP/GCC/TNC
18) El Darien Biosphere Reserve PANAMA	Natural Forest Management		\$100,000	AID/PIP/TNC
	Indigenous Land Tenure		\$50,000	
19) Mbaracayu Reserve PARAGUAY	Sustainable Agriculture Training	FMB	\$200,000	MacArthur, AID/PIP, FMB
20) Yanachaga National Park PERU	Ecotourism	FPCN	\$20,000	TNC, AID

APPENDIX D

Parks in Peril

1993 Evaluation

Belize

**Rio Bravo Conservation
and Management Area**

**PARKS IN PERIL PROGRAM
1993 EVALUATION FORM**

**PROTECTED AREA NAME: RIO BRAVO CONSERVATION & MANAGEMENT
AREA**

GENERAL INFORMATION:

Country: Belize, Central America

NGO Partner: Programme For Belize

Address: P.O. Box 749
Belize City, Belize
Tel: (501) 2-75616; (501) 2-75617
Fax: (501) 2-75635

PIP project officer: Joy Grant

Government agency: NA

Is there an NGO/GO agreement to work on this PIP site?
Yes and it is on file at TNC.

Is the TNC/NGO agreement up to date?
Yes and it is on file at TNC.

Is the PIP Work Plan and Budget up to date?
Yes and it is on file at TNC.

Name of evaluator: Mark P. DesMeules,
Director of Science & Stewardship

Address: Vermont Field Office of TNC
27 State Street
Montpelier, VT 05650

Phone: (802) 229-4425

Fax: (802) 229-1347

INTRODUCTION

This evaluation was conducted during the period of August 8 through August 16, 1993. I spent one day in Virginia at the International Headquarters of The Nature Conservancy. During this time, Dr. Gina Green, Protected Areas Specialist and Belize Country Program Manager, provided me with a wealth of both historic and current information regarding Programme For Belize (PFB). Beyond this, my time was spent in Belize with a variety of staff and other participants in the PFB. My time in Belize was spent both at the offices of PFB in Belize City, reviewing program and budget information and conducting formal interviews, and in the field viewing the Rio Bravo Conservation and Management area, meeting field staff and continuing my interviews. My field travels in and around the Rio Bravo Conservation and Management Area provided an opportunity to view most of the lands owned by PFB and adjacent lands. We did not cross either the Mexican or Guatemalan borders to the West of the PFB lands.

I am no stranger to Belize. As a Smithsonian Peace Corps Volunteer in Guatemala during the period covering 1976-1979, I had several opportunities to visit Belize and become acquainted with the culture and country. I have recently worked with the Guatemalan PIP counterpart (Sierra de las Minas) assisting in both planning, fundraising, and field work. I would state categorically, that this experience and familiarity with the program, country and culture is invaluable in conducting this evaluation.

This PIP Evaluation covers the use of AID funds' disbursed during the period from October 1, 1992 through September 30, 1993. It is very important to keep in mind that this evaluation will be commenting not only on the specific tasks the PIP funds were meant to accomplish but also on the synergistic and beneficial effect that these PIP funded components have had on the whole Rio Bravo conservation program.

Interviews were performed and extensive contact was established with the following individuals during my presence in Belize:

Joy Grant, Executive Director (PFB)

Roger Wilson, Technical Advisor (PFB)

Rene Nuñez, Assistant to the Deputy Prime Minister and former Technical Advisor to PFB

Bart Romero, Manager of Rio Bravo Conservation and Management Area

John Masson, PFB Guide/Consultant and former Site Manager

Yvette Figueroa, Executive Secretary/Business Administrator

Martin Meadows, Tour Guide and former land manager and mahogany marketer from the Rio Bravo area.

I also met with several community leaders involved in community outreach programs, members of the Blue Creek Mennonite Community, PFB Guards, eco-tourists, and various researchers using the Rio Bravo Research Center.

Conservation objectives of protected area

These are summarized in the April 22, 1992 Work Plan and Budget and are presented in the Management Strategy (see Appendix A), under the heading of Conservation Goals and Strategies. While there is a bit of redundancy in the way these are laid out, the sum of these, presented below, outline what are very sensible, well thought out, and comprehensive conservation goals and strategies that are clearly working at Rio Bravo.

Conservation Goals and Strategies

Fundamental management concepts are:

- * **Protection of Belize's natural heritage and biodiversity;**
- * **Production of sufficient cash return from sensible utilization of the area to pay for its perpetual care;**
- * **Participation in the proper economic development of the greater Rio Bravo area including surrounding population centers to further the national economic interest.**

In applying these concepts, Rio Bravo aims to be:

- * **Financially self-sufficient model of resource management;**
- * **Natural history recreation and tourism area;**
- * **Center for education and training;**
- * **Experimental area for forestry, agriculture, and agroforestry;**
- * **Research area into ecology, archeology, and forest management;**

- * Reserve for the native fauna and flora;
- * Center for the study of the Maya heritage;
- * Belizean portion of a tri-national park.

The following actions have so far been, or are in the process of being, undertaken to address these aims:

- * Establishment of a research center, with on-going environmental monitoring and forest ecology work (now in third year) and archeological research (commencing in 1992 on a ten-year programme).
- * Establishment of a zoning system setting aside extensive tracts in all characteristic habitats as strict reserve, and identifying areas suitable for development of sustainable forest land-use (in progress). Establishment of adequate site and land protection measures (from March 1992, with USAID support).
- * Development of sustainable harvesting of forest products in appropriate zones, with associated resource assessment and monitoring programmes; agreements for chicle harvesting have already been drawn up, whilst those for timber are under negotiation.
- * Establishment of use of Rio Bravo for recreation and education, with annual summer courses for U.S. and Belizean students (undertaken over the past three years, and under further development); employment and training of two Belizean research students per year, within the research programme.
- * Development of a strong in-country administrative structure, in the Programme for Belize's main office and at Rio Bravo, to manage the work programme (achieved, and undergoing further development).

PERFORMANCE INDICATORS:

I. ON-SITE PROTECTION AND MANAGEMENT

A. Have the ecological values of the area been identified?

YES.

size: 229,000 acres

key ecosystems:

The dominant vegetation formations are subtropical broadleaf forests on limestone substrates. Within the Rio Bravo area, more than a dozen floristically distinct vegetation types can be recognized. However, vegetation has been broken into five forest types for management and scientific purposes: upland broadleaf forest, swamp forest, palm forest, savanna and marsh. (Brokaw and Mallory, 1988)

Two-thirds of the Rio Bravo area is upland broadleaf forest. This vegetation type varies greatly in canopy height, structure, and species composition.

key processes: Poorly known/understood at present.

endemic species: None identified within the Rio Bravo area.

threatened species:

Nine mammals and fifteen birds of conservation concern have been recorded from Rio Bravo. More detail is provided in the April 22, 1992 Rio Bravo - Parks in Peril Work Plan and Budget (Appendix A.).

migratory species:

Several Neotropical migrants are known to inhabit Rio Bravo. A banding program is being conducted by the Manomet Bird Observatory.

OBSERVATIONS AND COMMENTS

There is general agreement that more detailed ecosystem mapping needs to be done. Mapping to date is on a very broad scale focusing on major forest types and lumping wetlands into one wetland category called marsh. A more detailed ecosystem map of the Rio Bravo area will help to provide guidance in making ecosystem management decisions and will point to additional information/research needs. While an ecosystem mapping approach is generally synonymous with mapping plant communities, it's essential that

more detail provide plant and animal species lists for each community and their level of ecological importance to the most important (endangered) species e.g. critical for the nesting of the Solitary eagle.

With the exception of watershed deliniation at the archeological site identified as La Milpa, few key processes have been identified or described within Rio Bravo. A more detailed ecosystem map will help to target areas where such processes are present and need to be defined.

B. Have critical threats been located on a map?

YES.

type:

timber theft

 unauthorized chicle extraction

 poaching (primarily large mammals and birds)

 agricultural incursion (squatters)

 smuggling

 archeological looting

oil extraction

source:

Timber theft, unauthorized chicle extraction, poaching, and agricultural incursion are all local source threats (problems traced to individuals/groups of individuals coming from the surrounding communities). Smuggling (using Rio Bravo as a conduit for the transportation of illegal goods such as drugs from many different source countries and mahogany from the Peten, Guatemala) traces its source to foreigners but can and has utilized locals to facilitate the transport through Rio Bravo. Archeological looting falls into the same source category as smuggling. Oil extraction would be a combination of local government and multinational corporate involvement.

significance:

Timber theft is considered a serious and present day threat. A high degree of damage can occur within a short period of time and tracking down and bringing to justice those responsible can be extremely time consuming. Just this year, 423 trees (mostly mahogany) were cut in one incident along the western border of Rio Bravo. Over flights and ground patrols spotted this problem and the Belize Armed Forces were called in which quickly put a stop to any further damage. Timber theft is an imminent threat on 5% of the existing Rio Bravo lands.

Unauthorized Chicle extraction is considered a serious and present day threat affecting 30% of the existing Rio Bravo lands. This is a particularly difficult theft to spot because it is generally quite localized and the chicle is easy to render and transport. The worst

case situation is that aggressive and careless harvesting by illegal harvesters will result in tree mortality.

Poaching is not considered to be a serious threat. It is considered to be incidental and occasional and something that border patrols can control effectively.

Agricultural incursion, primarily squatters clearing land for corn cultivation, is no longer considered to be a significant threat. The last group of squatters vacated Rio Bravo, under the direction of PFB, nearly two years ago.

Smuggling or the transportation of contraband through Rio Bravo is not considered a serious threat.

Archeological looting is not considered a serious threat however it is recognized that vigilance and frequent patrols must be maintained at all times.

Oil extraction, resulting from exploration that occurred several years ago, is not considered a serious threat but it is certainly one that deserves a careful watch. Changing world markets could stimulate interest in oil extraction and careful controls would need to be exercised to ensure the protection of the Rio Bravo ecology.

C. Are critical boundaries surveyed and posted?
YES.

of kilometers demarcated: sixty kilometers

D. Are rangers trained and equipped?
YES.

of rangers on-site: Three at any given time.

There are four rangers on staff but one is on break while the other three are on duty.

type of training received: Basic but adequate.

E. Do personnel have transport and communications equipment?
YES.

and type:

Transportation is provided by two Land Rovers. Communications include four field radios (VHF) for rangers and program manager and base stations at the Rio Bravo headquarters, north gate, and PFB headquarters in Belize City.

- F. **Have basic protection facilities been constructed on-site?**
YES.

location: North gate

type and M2 size of facilities:

Two fully equipped guard houses (bath, kitchen, bedroom, office) each 54 square meters. One gate station (office room only) 23 square meters.

- G. **Does the area have continuous field logistical support?**
YES.

type of NGO support:

There is a full time station manager who is charge of all field operations. There is also an assistant station manager who is the immediate supervisor of the four park rangers.

type of GO support:

There is no direct in country government support, with the exception of duty exemption on all equipment and supplies brought into Belize by PFB.

- H. Are ecological carrying capacity studies, baselines and monitoring underway? YES.

type of study:

Fourteen permanent baseline plots studying ecosystem composition, structure, and change over time have been established. One chicle baseline plot has been established for monitoring the impact of chicle harvesting on the health and survival of the trees. Eight neotropical migrant plots have been established to determine species presence, nesting and to detect both short and longterm changes.

- I. Has a Management Plan been completed for the area?
YES.

year of publication:

A preliminary plan was prepared in 1990. This plan was ammended in 1991. The latest version needs to be reviewed and updated since progress has been good since 1991.

- J. Are Annual Operations Plans and Budgets completed?
YES.

There is an Annual Plan and Budget, a Three Year Plan and Budget (1993-1996), and a three year Fundraising Plan.

PERFORMANCE INDICATORS:

II. COMPATIBLE RESOURCE USE:

- A. Have key social and economic values of the protected area been identified?
YES.

key values:

The Rio Bravo area has not played a significant role, either socially or economically, for surrounding communities. The land tenure in this area generally provided significant income to the owner, with sporadic social and economic importance provided to the surrounding communities. This was probably quite different in much earlier times. At various times throughout the recent land tenure history of Rio Bravo, the area has been used for occassional milpa agriculture, hunting, chicle, allspice, fishing and timber. Chicle, allspice and timber were in large part controlled by the owner. Restricting these uses, under PFB management and protection, and

because the level of use was very low, the impact to social or economic needs of the surrounding communities has also been very low.

Future and carefully planned management and resource use may very well make surrounding communities more socially and economically dependent on Rio Bravo. This relationship could develop around carefully planned and low impact harvesting of many different types of forest products (chicle, allspice, mahogany) and create a positive economic, social and educational relationship with surrounding communities.

- B. Have basic human needs of local communities been satisfied (i.e., health, safety, welfare, etc.)? NO.**

key issues:

substandard sanitary facilities
few houses have running water
inadequate police protection
poor health care and unemployment

There was quite a lot of discussion generated by this question. It resulted in considering what a Belizean would expect if he/she were to live in the bush and what might be considered minimum standards for anyone regardless of where they live or what the "country norm" might be. It appears to be reasonable to conclude that fewer than 50% of the people living in local communities lack the minimum standards which would include adequate sanitary facilities, running water, police protection with less than a day's response time, health care within less than a day's access and with some form of emergency response, and some form of regular employment.

- C. Is there direct community and resource user participation in resource management and allocation decisions? NO.**

key formal mechanisms:

While any sort of formal resource use has not yet been established as part of the Rio Bravo program, PFB has begun to establish the groundwork necessary for community input. There have been several PFB initiated and sponsored trips to Rio Bravo for community leaders. There is also regular contact with social and craft groups in several communities around Rio Bravo. These activities are establishing the community contacts from which formal mechanisms for community and resource user participation in resource management and allocation decisions will be made.

- D. **Is the land tenure in the area stable?**
YES.

land tenure system:

If you define unstable land tenure as lands changing hands regularly, then land tenure is quite stable. The system is primarily based on private ownership and, around Rio Bravo, this generally means large tracts in excess of 50,000 acres. There are areas within the Mennonite community to the north, San Filipe to the north and Rancho Delores to the south, where multiple private owners with small tracts (less than 1,000 acres) exist. Some of these come under one of two government controlled systems described as either lease hold or free hold. Lease hold refers to lands under government distribution to applicants where the applicant must successfully work the land for a period of years and then the land title transfers to the applicant. Free hold pertains to individuals who do not have title to their land but can demonstrate that they have lived and worked on the land for a certain number of years. They are then granted ownership, akin to what is often referred to as adverse possession or squatters rights.

- Is local partner protecting land through acquisition?**
YES.

size and location (core/buffer):

Rio Bravo is currently made up of three parcels. One 110,000 acre tract of land was purchased in 1989 from a Belizean businessman, Mr. Barry Bowen. A second parcel, a contiguous tract of land consisting of 42,000 acres, and a third parcel consisting of 50,000 acres donated by Coca Cola Foods. Additional land purchases are currently being negotiated. All of these parcels include both core and buffer lands.

- E. **Are there diverse agricultural and natural resource uses within the carrying capacity of the protected area buffer zone?**
NO.

principal land/resource uses:

The entire core/buffer is forested. There is currently no resource use occurring within this area.

- F. **Are local people employed by PIP project funds?**
YES.

of men one types of positions: Senior Project Coordinator
of women none

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III. LONG-TERM FINANCIAL SECURITY

- A. Have the long-term financial needs of the protected area been identified?
YES.

categories and projected budget:

Major categories include operations, land and endowment. These are divided into annual goals covering a projected three year period.

	Yr 1.	Yr 2.	Yr 3.
Operations	650,000	700,000	750,000
Land:			
TNC loan	400,000	380,000	360,000
NRE payment	304,000	289,000	275,000
MAS loan	50,000	150,000	-
Colby lands	150,000	150,000	150,000
Endowment	330,000	330,000	330,000
Total	1,884,000	1,999,000	1,865,000

title and year of document: FUND-RAISING STRATEGY : 1993
- 1996 (see Appendix B)

- B. Are there local revenues that support the protected area?
YES.

type of support and estimated annual US\$ dollar revenue to area:

20% of current operations (\$80,000) are generated annually through fees from ecotourism and research activities at the Rio Bravo Research Station.

- C. Are there national budget allocations that support the protected area?
NO.

type of support and estimated annual US\$ dollar amount: none

- D. Are there international funds that support the protected area?
YES.

type of support and estimated annual US\$ dollar amount:

Type is best divided into support coming from organizations and support from corporations. The 1993 - 1996 fundraising strategy indicates estimated US\$ amount for three years (see Appendix B). Year one estimates are included below.

Established funding sources give the following estimates of income:

a. Secured funds:

US-AID	200,700
MacArthur	75,000
Parks in Perii	16,300
MAB	12,000
TNC	100,000
W. Alton Jones	10,000
Total	414,000

b. Established support organizations (estimated sums):

Nat. Arbor Day	50,000
WWLCT	250,000
WWLCT	60,000
US ex-CMA	100,000
STR dons.	43,700
TNC (AaA)	200,000
Total	703,700

c. Corporate support (estimated sums):

Coca-Cola Mort.	90,000
Perkin Elmer	240,000
Total	330,000

Both b and c are amounts identified in the fund-raising strategy plan and are not at present secured funds.

F. **Was a Financial Plan been approved for the protected area?**
YES. (Approved by FFB Board of Directors and Financial Committee)

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categories and projected budget:

Financial Plan - fiscal year 1994 (see Appendix C).

Audit fees (belize office only) 3,000 (all figures \$US)

Insurance	9,600
Office supplies	9,600
Salaries/benefits	50,244
Telephone/fax	12,000
Public relations	21,600
Legal fees	6,000
Vehicle maintenance	7,200
Miscellaneous	8,400
Promotional material	14,400
Total	142,044

F. **Is a fiscally responsible administrative system in place to manage the funds?**

YES.

external audit at TNC? yes (1992-93 copy)

PFB conducts an annual audit, and their financial manager prepares monthly budget actuals, and quarterly balance sheets and income statements.

G. **Are financial resources committed to operations of the area?**

YES.

categories and projected budget: (see Appendix B and C)

Appendices D and E provide budget breakdowns and expenditures by category for the year which this review covers (October 1992 - September 1993).

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

I. ON-SITE PROTECTION AND MANAGEMENT:

- A. **Has there been a change in the natural vegetation or land cover?**
No information
- B. **Has there been a change in the distribution, abundance or status of key species?** No information
- C. **Has there been a change in water quantity or quality?**
No information.

II. COMPATIBLE RESOURCE USE:

- A. **Have there been changes in the pattern or intensity of land or natural resource use?**
YES.

how were these changes measures?

Corn cultivation by squatters within Rio Bravo was measured by aerial and ground reconnaissance. The intensity of this land use was extremely low to begin with so this was not a difficult task. All of these formerly cleared areas are being used as research sites to determine agricultural impact on soils and to track their succession back to subtropical moist forest. Evidence of past chicle harvesting can be observed throughout the Rio Bravo forests. This has been measured qualitatively through field observations. Chicle harvesting is no longer occurring. Some of the previously harvested trees have died while others have recovered. There is no quantitative analysis of this resource use. Selective timber harvest has taken place on these lands over the past 150 years. This is no longer occurring. There is no quantitative data specific to the past timber harvest/impact to forest community structure and only anecdotal information regarding species and number of individuals removed over time.

cite source(s): PiP Evaluation interviews

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B. Have there been changes in the social or economic conditions of local residents?

No information

Its too early to say. A number of the sustainable resource use activities planned for Rio Bravo have the potential to change both social and economic conditions of local residents. All of these, including PFB's community outreach program, are too young to assess this type of change. Parks in Peril support is clearly providing PFB with the resources to establish projects and programs that are designed to have a positive impact of social and economic conditions of local residents.

C. Have there been changes in the policies or institutions?

NO.

Studies currently underway as well as those planned for Rio Bravo will help to establish guidelines for compatible resource use. All of this work is being facilitated through PiP support, and will provide information and guidance necessary to influence changes in Belizan policy and institutions governing resource use throughout the country.

III. LONG-TERM FINANCIAL SECURITY:

A. Has a trust fund or endowment been established for the protected area?

NO.

At present, there is no endowment for the Rio Bravo Conservation and Management Area. PFB is very aware of the need to begin the process of building endowment and financial security for the future independence of the Rio Bravo program. The 1993 - 1996 Fund-Raising Strategy (see Appendix B) identifies an endowment goal of \$990,000 for the period covering 1993 - 1996. The importance of building this endowment must emphasized as one of the most important building blocks for the future of the program.

B. Are there diverse sources of funds/revenues for the area?

YES.

Parks in Peril : FY 1993 Evaluation

	Rio Bravo	Total Belize
ON-SITE PROTECTION & MANAGEMENT		
# Hectares in protected areas:	92,713	92,713
Management plan completed:		
Yes	1	1
No	0	0
Operations plan completed:		
Yes	1	1
No	0	0
Ecological values determined:		
Yes	1	1
No	0	0
Critical threats/areas located:		
Yes	1	1
No	0	0
Studies/monitoring underway:		
Yes	1	1
No	0	0
Radio equip. installed:		
Yes	1	1
No	0	0
# Radios on-site:	4	4
# Personnel:	5	5
# Rangers:	4	4
# Ranger training events:		
# Km demarcated:	60	60
# Ranger centers:	3	3
Basic transportation:		
Yes	1	1
No	0	0
Continuous field supervision:		
Yes	1	1
No	0	0
COMPATIBLE USE/ECONOMIC DEVELOPMENT		
Socioeconomic values identified:		
Yes	1	1
No	0	0
Basic human needs met:		
Yes	0	0
No	1	1
Local participation in resource mgmt:		
Yes	0	0
No	1	1
Land tenure stabilized:		
Yes	1	1
No	0	0
# Local people employed with PIP funds:	1	1
LONG-TERM FINANCIAL SECURITY		
Long-term financial needs identified:		
Yes	1	1
No	0	0
Funding from external sources:		
Yes	1	1
No	0	0
Amount	\$482,567	\$482,567
Funding from Federal/State sources:		
Yes	0	0
No	1	1
Amount	\$0	\$0
Funding from local sources:		
Yes	1	1
No	0	0
Amount	\$80,000	\$80,000
Financial plan approved:		
Yes	1	1
No	0	0

Parks in Peril

1993 Evaluation

Bolivia

Amboro National Park

**Noel Kempff Mercado
National Park**

**PARKS IN PERIL PROGRAM
1993 EVALUATION FORM**

PROTECTED AREA NAME: AMBORO NATIONAL PARK

GENERAL INFORMATION:

Country: Bolivia

NGO Partner: Fundacion Amigos de la Naturaleza
Casilla 2241
Santa Cruz, Bolivia

PIP Proj. Officer: Adolfo Moreno

Government Agency: SENMA (Secretariat of the Environment)

Is there an NGO/GO agreement to work on this PIP site?
Yes, a copy of the agreement is on file at TNC.

Is the TNC/NGO agreement up to date?
Yes, and it is on file at TNC.

Is the PIP work plan and budget up to date?
Yes, and they are on file at TNC.

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Note: Salas conducted the field evaluation from Bolivia while West translated and formatted the evaluation and provided additional background data, where needed.

I. INTRODUCTION

Amboro National Park is located in the mountainous eastern sector of the department of Santa Cruz, and extends westward to the department of Cochabamba. The park protects an area of high biodiversity and lies in an important biogeographical transition zone called, "el Codo de los Andes" (the Elbow of the Andes), an elongated finger of land extending eastward from the main Andean chain toward the flatlands of eastern Bolivia.

The topography of the park is variable with craggy peaks and sheer cliffs in the south dropping off to smooth alluvial plains in the north. These characteristic natural features and land configurations together with the unique geographical location of the park have produced seven biological life zones, distinct subtropical weather patterns, and an unusually diverse flora and fauna. From a physical and climatic point of view, the location of the park is of great importance and marks an abrupt shift from the southern temperate zone to the northern tropical forests.

The different natural community types found within the park include the Yungas, Chaco, and Amazonia biogeographical provinces that incorporate a vertical succession of ecological zones ranging from 500 meters to more than 3,000 meters above sea level (masl).

A plethora of rare, endangered, and endemic species can be found within the confines of the park, including spectacled bear (Tremarctos ornatus), bush dog (Speothos venaticus), crested curassow (Crax unicornus), red fronted macaw (Ara rubrogenys), cock-of-the-rock, (Rupicola peruviana saturata) and military macaw (Ara militaris boliviana).

During 1991, the Fundación Amigos de la Naturaleza (FAN, or Friends of Nature) and other institutions in the department of Santa Cruz petitioned the Bolivian government to enlarge the park boundaries. This request was formally presented to the government and was approved by both the President and the Cabinet under Supreme Decree 22938 on October 11, 1991. With the approval of this measure, Amboro National Park was enlarged to 637,700 hectares, now extending into the department of Cochabamba and thus allowing for geographical continuity with Carrasco National Park, creating a continuous protected area of a little over 1,200,000 hectares.

The enlargement of Amboro has changed the values, physical and biological characteristics, and socio-economic considerations of the park. Another important aspect is the change in administration of the protected areas. According to Bolivian law, these areas were previously directed by the Center of Forestry Development (CDF). However, since 1992, the administration of these areas fell under the jurisdiction of the Secretary General of the Environment and the National Office of Protected Areas (SENMA).

The principal threats facing the park are colonization and subsequent deforestation of the lowland hills running into the park. A major highway financed by the Inter-American Development Bank skirts the northern border of the park and has served as the principal transportation route for poor disenfranchised Bolivians seeking work opportunities in the lowlands of Cochabamba and Santa Cruz. Over 1000 families have colonized the northeastern sector of the park, organizing agricultural unions and cooperatives.

Slash and burn agriculture and animal poaching occur around the borders of the park and small groups of gold miners have been discovered inside the northern park boundary.

With the recent enlargement of Amboro, the borders of the southern and western sectors have been pushed forward to include more territory. This enlargement has created a certain degree of conflict with local populations and colonists who lay claim to these lands. A government sponsored agency, Linea Roja (Red Line), has relocated park boundaries to ameliorate land disputes with surrounding local communities.

Amboro was chosen as one of the original ten PIP sites in 1990 because of its size, location, biological diversity, ecological representativeness, protection urgency, and the potential strength and commitment demonstrated by the local conservation partners. The original work plan was submitted on 20 November 1990 and approved by the U.S. Agency for International Development (AID) on 20 February 1991. Site evaluations were conducted in July 1991 and July 1992.

In October 1993, AID/PIP funding concludes its three years of assistance for this park. This final evaluation serves to measure the degree of success achieved in terms of the goals and objectives set by the original work plan. The principal institutions participating in the implementation of the NKM-PIP project are The Nature Conservancy (TNC) and FAN, a private non-profit conservation organization located in Santa Cruz. As mentioned above, changes in the Bolivian government infrastructure during the last year have resulted in a shift of official responsibility for parks management from CDF to SENMA.

The criteria used to conduct this evaluation were drawn up from the TNC matrix "Factors for Success", agreed upon by AID and TNC, then put in the form of a questionnaire. The series of questions were designed to analyze PIP program progress in three basic categories: 1) On-Site Protection and Management, 2) Compatible Resource Use, and 3) Long-Term Financial Security.

The report that follows includes the results of that questionnaire, a summary of the conservation goals outlined in the original park work plan, a summary of project achievements and limitations, and a final section discussing perceptions and recommendations for the future of the park. An in-depth financial evaluation for Amboro has been prepared and submitted by Mr. R. Halperin.

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II. PROJECT SUMMARY

A. ACHIEVEMENTS

1. Technical

a. Land Protection and Biodiversity Management

- Hiring and training of a field coordinator, community extensionist, and eleven park guards. Seventeen more park guards working in the northern sector of the park have also participated in FAN-sponsored training modules.
- Initiation of regular patrolling activities have resulted in a significant conservation presence along approximately 200 km of the park's southern border. Reports from park staff indicate that illegal incursions and resource extraction has dropped noticeably since the initiation of these activities.
- The field coordinator has established an efficient work schedule system for park guards and employee objective evaluations are conducted each month.
- The size of the park was legally expanded from 180,000 has. to approximately 637,000 has. The expansion represents a significant increase in the potential to protect biological diversity and provides virtual geographic continuity with Carrasco National Park (Cochabamba). The total area under jurisdiction of these parks covers approximately 1,200,000 has.
- Boundary marking by the Linea Roja group has essentially finished and was successful in locating legally titled properties outside of the park borders. Final placement of signs and markers is almost done.
- Construction materials purchased and FAN contractors have built or acquired excellent administration and park ranger facilities in La Yunga, San Juan de Potrero, and Comarapa. The main office is located in Samaipata. All facilities are spacious and fully equipped with wood furniture.

Additional patrol stations are being constructed in the Karahuasi and Santa Rosa zones with financing from the Linea Roja project.

- Park staff are opening approximately 80 km of patrolling trails into the more difficult access areas of the park. This has been somewhat delayed due to inclement weather.
- Three Peace Corps volunteers have worked diligently with FAN and local community groups on environmental education programs and a native tree nursery.

- Basic equipment and materials purchased and distributed to park staff
- Communication equipment has been installed in the park to ensure links between home stations, guard posts, and patrolling guards.
- Transportation purchases (motorcycles, bicycles, horses, and a four-wheel drive vehicle) have facilitated management activities, especially the transfer of personnel and materials as well as patrolling.
- Training modules have greatly improved staff knowledge and attitudes regarding protected areas management.
- The purchase of a light Cessna aircraft and Geographic Positioning System (GPS) instrumentation have greatly assisted in the accurate marking of park boundaries as well as in ranger patrols and enforcement.
- Placing of signposts have assisted in consolidating northern and eastern borders of the park.
- FAN's political influence in Santa Cruz and La Paz has increased as they have expanded their activities, professional contacts, and experience. The group has demonstrated a high degree of skill in public relations and in working with groups generally associated with environmental alteration - i.e., powerful logging and development groups in Santa Cruz. Much of this success stems from their ability to comply with the goals and objectives they set for themselves as an organization.

b. Land Tenure and Compatible Human Use

- The Linea Roja boundary marking has essentially finished to the satisfaction of most affected parties.
- Environmental education materials have been distributed to selected community groups
- Seminars on agroforestry, fruit tree planting/pruning and harvesting, and conservation have been presented and received well by various communities in the southern sector of the park (e.g., San Juan de Potrero, El Chape, and Las Lauras). Edwin Villagomez, the community extensionist, is excellent. He is from the area and is culturally sensitive, creative, and industrious.
- The joint FAN/US Peace Corps tree nursery/reforestation program has yielded excellent results within Samaipata and surrounding communities. The nursery project was implemented and grew in size within a short period of time, creating a great deal of interest in conservation techniques and native species planting.

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- FAN has deftly organized project support through local Dominican parishes located along the border of the park. The priests in these parishes have great influence on local opinion and they have been extremely active and vocal in spreading the word about conservation and the benefits of the park.
- PRODECAF, a small private non-profit rural development group in Samaipata, works closely with park staff in providing technical and financial assistance to local farmers on sustainable crops in the southern buffer zone areas. FAN also coordinates on a regular basis with at least three other local development institutions - CIAT (Tropical Agricultural Research Center), ASOPROF (Bean Producers Association) and AGROPLAN.

c. Public Relations, Education, and Extension

Significant advances have been made in public relations and communications with national and regional officials as well as the local communities (esp. Samaipata, Comarapa, Buena Vista, and San Juan de Potrero) in terms of advertising the presence, purpose, and goals of the park.

- When the PIP reconnaissance team first visited the region in October 1990, park staff-community relations were very tense. The attitude among many park guards was defensive and argumentative. Since that time, training courses in public relations have helped tremendously and park staff use non-confrontational techniques with local residents, listening and explaining the benefits of conservation in town meetings and schools through environmental education programs (talks and slide shows on resource management, endangered species, agroforestry and sustainable development practices). Although most of the work has concentrated along the southern border, these courses have been extended to communities along the IDB highway as well.
- Park ranger training modules have been set up and carried out on a regular basis. Materials distributed have included park ranger "how-to" training manuals and texts on ecology, agrarian reform, current national laws, field guides, and first aid techniques. TNC provided the Manual de Guardarecursos produced in Guatemala as a reference text for FAN workshop leaders.
- Conservation videos and reference materials were purchased for the Samaipata administrative office for use among community and school groups.
- Photographic and video instruments and materials purchased to facilitate community extension and education efforts
- Park guards and managers have participated in a variety of national workshops, international forums and courses (Colorado State University protected areas workshop

-two park employees, Yellowstone National Park - one park employee, and various TNC conservation training events - various FAN and government employees).

- Principally through the diligent efforts of FAN's Project Coordinator in Samaipata, the project has gained support from a variety of municipalities, private organizations, and local and national institutions.

d. Research and Monitoring

- Current research projects being carried out include botanical and zoological inventories, a socioeconomic analysis of the local communities, and a reptile ecology project.
- Park rangers are being trained to include basic biological and sociological observations in their reports.
- SENMA-IDB has installed climatic and hydrological monitoring equipment in several areas of the park.

2. Financial

- Financial security for Amboro is highly probable within the next few months as GEF funds, debt swap funds, and other international agreements with the Swiss and German governments come into play and the designed financial plan is implemented through the Biological Diversity Conservation Project.
- The long-term financial needs of the protected area were identified and local revenues are now being provided through ecotourism in the park.
- The Bolivian government has set aside budget allocations for protection of the park through annual investments and revenue collected for park operations.

3. Operations and Administration

- Eleven park guards and one park guard supervisor have been contracted and trained to implement protection and public relations activities along the southern border of the park. SENMA employs 17 rangers and a Park Director in the northern sector of the park. Both groups coordinate efforts.
- Relations between interest groups have improved markedly since the implementation of PIP activities in 1991.

B. LIMITATIONS

1. Technical

a. Land Protection and Biodiversity Management

- A management plan has not been prepared for the park. Although management activities generally follow a system of priorities, this needs to be formally outlined in a management plan. Although the facilities constructed on-site are well-done and planned, the development of each site should have been designed beforehand with a set management pattern in mind with reference to specific threats.
- The changing political climate resulting in a restructured federal bureaucracy has cast a shadow of doubt over how the northern sector of the park will be protected and managed. The exact government agency responsible for park protection activities is still being arranged. It will be necessary for FAN and the governing federal agency to quickly define roles and responsibilities to avoid losing momentum gained over the last three years.
- Certain physical and vegetation maps need to be replaced and/or updated. Current aerial photos and satellite imagery would greatly facilitate management efforts.
- Government park staff members will need greater degree of park management and administration training.
- Park guard salaries are low and there is still not enough incentive for them to stay for the long-term. If the drop-out rate increases sufficiently, this could compromise management gains achieved.
- Local labor and political unions represent a powerful political and economic force that could adversely affect the park if FAN and/or SENMA do not maintain their presence and influence. Many community figures still don't buy the idea of providing strict protection for the park.
- Myths and legends regarding fauna and flora of the park still abound and serve as an ongoing threat to some species, especially the spectacled bear, whose parts and products are considered by some locals as sources of physical and/or sexual prowess. Bears are also killed outright because of their tendency to forage in agricultural areas. They are also killed out of fear that they may represent demons, kidnappers, or rapists.

Both subsistence and commercial hunting of this and other endangered species still occurs rather frequently. However, an accurate measure of the impacts of hunting practices must be done to assess the true degree of threat to these taxa.

- Inclement weather and inaccessibility limit the capacity of park staff to reach some key points within the park.
- Although marking and posting of borders has advanced well, some of the work has been delayed due to controversy over the correct location of park borders.

b. Land Tenure and Compatible Human Use

- Land tenure issues are problematical in the park (La Playa and Siberia zones are particularly conflictive). Intensive community activities funded by PIP and others have produced positive results by swaying opinions of some hard-core anti-park organizers. However, progress is slow and there is no guarantee that a broad conservation constituency can be developed.
- The initial euphoria among conservationists produced by the increase in size of the park was tempered after it was discovered that the new park boundaries had inadvertently swallowed large tracts of private land. The Linea Roja program demarcated and posted new boundaries in an attempt to ameliorate landowner complaints. This program has advanced well although surrounding land claims by multiple owners have created a certain degree of confusion as to which owners hold the actual legal titles. According to local sources, this is apparently being resolved but could resurface at any time if a final solution is not quickly found.

c. Public Relations, Education, and Extension

- Some communities are still not included in the park extension and education programs. Many of these still hold hostility and distrust toward conservationists.

d. Research and Monitoring

- A definitive monitoring program is not installed in the park. General habitat and species trends are under investigation but are not specifically targeted for monitoring.
- No definitive surveys or monitoring program established to gather socio-economic data regarding population trends, activities related to resource extraction, resource values.

2. Financial

- International/national financial mechanisms currently outlined but, for the most part, direct income flow to the park has not yet occurred.

3. Operations and Administration

- The administrative roles of FAN and SENMA need closer coordination as the two sides of the park are managed almost like two separate entities. A new formal inter-agency agreement is needed to define responsibilities over the next three years.

C. RECOMMENDATIONS

1. Technical

a. Land Protection and Biodiversity Management

- Work with the Bolivian government (SENMA) to prepare a 3-5 year management plan for the park.
- Update cartographic material (also aerial photos and satellite imagery) and work with the CDC in La Paz to identify areas of management priority.
- Provide additional training and materials to park rangers in both the northern and southern sectors to motivate their continued participation and dedication to the park over the long-term.
- Determine two additional guard posts sites in the northern sector of the park to consolidate management presence.
- Investigate the possibility of establishing a formal agreement with officials at Carrasco National Park to coordinate protection and management goals and activities.

b. Land Tenure and Compatible Human Use

- Carry out a participatory rural appraisal to understand more fully the needs, trends, and resource uses of local communities. Such thorough studies will enable park personnel to develop buffer zones, clarify land uses both within and adjacent to the park, and monitor those uses over time. It will also clarify the legal status of land title claims and create a legal mechanism to relocate squatters in more appropriate sites.

c. Public Relations, Education, and Extension

- Expand community extension and environmental education programs to the northern sector of the park.

- Investigate the feasibility of placing additional Peace Corps volunteers in key areas to supplement environmental education, agroforestry, and biological and sociological research programs.

d. Research and Monitoring

- Set up a biological monitoring and research program within the park. TNC, WCS, and other groups with expertise in these areas can provide technical and financial assistance.
- Initiate a Rapid Ecological Assessment study with the CDC - La Paz. Document data on key floral, faunal, and community elements. Purchase updated sets of satellite imagery, aerial photos, and topographical maps to outline ecological data, threats, and management priority activities.
- Set up a study to investigate the status, distribution, ecology, and cultural significance of the spectacled bear.
- Incorporate additional international/national groups in biological inventories, surveys, and monitoring. Provide thesis opportunities for B.S. and M.S. level students in the biology, forestry, and aquaculture departments at the Gabriel Rene Moreno University of Santa Cruz (GRMU).
- Initiate baseline biological inventories and monitoring programs on key biological communities and species (i.e., cracids, psittacines, large mammals, fish).
- Set up a simple, well-designed data gathering format for use by park guards to document habitat changes, species observations, etc. Provide training to personnel, as needed, perhaps through WCS and/or GRMU.

2. Financial

- Consolidate current financial agreements with GEF and others. Continue seeking international funds to set up endowment funds for park.

3. Operations and Administration

- Provide additional follow-up assistance to strengthen FAN as an institution. Suggested components would include: institutional development, fundraising, environmental education, proposal writing, and ecotourism operations.
- FAN and SENMA should clarify administrative procedures regarding the implementation of management activities within the park.

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D. GENERAL PERCEPTIONS

This is the last year of the AID/PIP financial assistance to Amboro and, with some minor exceptions and still much work to be done, the project has successfully achieved most of its goals. The PIP program has played a major role in calling the GOB's attention to the protection of biological diversity and PIP has served as a model for establishing a viable parks management program.

Measured by the standards set by the PIP Program as well as the original work plan goals, Amboro can be considered successful. Virtually all of the original goals set have been achieved and some even surpassed. However, much work lies ahead and there are a number of limitations, as outlined in the text of this report. Nevertheless, the park is much farther along than in 1991 when PIP funds were first approved.

Briefly summarizing strong and weak points of the program, the top priority of consolidating the southern border of the park has advanced substantially but the socioeconomic and cultural conditions are very complex and it is too early to tell if the integrity of the park can be preserved. Performance outputs such as staff contracts, equipment and materials purchases, construction, and training objectives were all met. A conservation presence is definitely in place and park staff are to be commended for advancing Amboro's protection component in the face of stiff opposition.

For me, the highlight of this project has been the skillful manner in which FAN/park staff have worked with local communities through conservation education, agroforestry, and extension projects. They have achieved consensus in several sites under very difficult circumstances and working with a variety of diverse groups - local campesinos who were initially vehemently opposed to conservation, persuading and fostering their relationship with Catholic church representatives, and local development NGO's with a number of different agendas (with most not related to conservation), to name a few.

Work with local communities was initiated and carried out in a creative and industrious fashion. The attitudes of targeted communities in and around the park is, for the most part, very positive now. Park staff worked in tandem with government and private groups to accomplish a variety of community programs including environmental education, agroforestry, and reforestation.

FAN has proved to be an effective player in the conservation community of Bolivia and is gaining international recognition. The staff is professional, creative, and resourceful in their efforts. They are especially good at creating financial mechanisms to supplement operations costs for themselves as an institution as well as for ensuring long-term funds for Amboro. The establishment of a financial plan with support from FONAMA by means of the GEF, J.P. Morgan debt swap, and other measures is a major accomplishment. It appears that funding for the park is guaranteed for at least another five years, probably more.

On the negative side, coordination with the government agency's work on the northern side needs attention as failure here could jeopardize conservation advances made elsewhere. Also, there is a dire need to generate biological data on the status, distribution, and utilization of local fauna and flora then follow up with a well-designed monitoring program.

Future priorities should be focused on consolidating endowment funds, preparing and implementing a management plan, extending protection to the northern sector of the park, and expanding both biological and socioeconomic studies. Community extension and environmental education programs should be extended to additional key areas.

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PERFORMANCE INDICATORS:

I. ON-SITE PROTECTION AND MANAGEMENT

A. Have the ecological values of the area been identified?

YES

The size of the park is 637,700 has.

key ecosystems and processes: Cloud forest, subtropical montane forest, and humid subtropical montane forest. The area is important in the capture and retention of atmospheric moisture, serving as the point source for a number of ecologically and economically important streams and rivers critical for habitats and human settlements in Cochabamba and Santa Cruz Departments.

Amboro protects the upper watersheds of several important rivers including the Yapacani, the Ichilo, and tributaries of the Mamore. Many rivers that provide water for the northeastern region of Santa Cruz flow from sources in the park. Consequently, protection of the park diminishes the risk of flooding in important agricultural and livestock areas, thereby avoiding or at least lessening the processes of erosion and sedimentation in the riverbeds.

Much of the water for the large Mamore River system originates within the park. A variety of fish, bird, and mammal species utilize the watersheds protected by the park as spawning, nesting, and foraging grounds.

endemic/migratory species: Not yet totally inventoried. Current studies indicate a variety of endemic plants including various species of Ficus, Guarea, and Inga, serebo (Schizolobium parahybum), an endemic cycad (Zamia boliviensis) and various species of orchids, bromeliads, and palms, among others.

Some endemic animals include cock-of-the-rock, (Rupicola peruviana saturata), red fronted macaw (Ara rubrogenys), and military macaw (Ara militaris boliviana).

Migratory species have not been inventoried.

rare and threatened species: the spectacled bear (Tremarctos ornatus), bush dog (Speothos venaticus), and crested curassow (Crax unicornus). Other species commonly found in the park include the jaguar, ocelot, margay, jaguarundi, eight different species of monkeys, giant anteater, two species of peccary, and three-toed sloth. Also, more than 430 different species of birds have been spotted in the park.

**B. Have critical threats been located on a map?
YES (partially)**

Park protection activities have been organized in the work plans to address threats in a prioritized manner.

type: Deforestation, habitat destruction, erosion, sedimentation, decreased water quality and quantity, species depletion, colonization, and specific extraction of rare ferns, orchids, and bromeliads.

source: Road construction, migrant colonists engaged in slash/burn agriculture, and illegal hunting and extraction of flora and fauna.

significance: Variable but generally serious to grave. Highest impacts located along the northern and southern borders of the park.

**C. Are critical boundaries surveyed and posted?
YES.**

150 kms on the northern border and 150 kms on the southern border have been surveyed and posted.

**D. Are rangers trained and equipped?
YES.**

There are currently 28 rangers on-site (eleven in the southern sector and 17 in the north) and each has received at least three modules of ranger training in 1993 alone. Staff members with more time on the job have received additional training as well. The training consists of multiple themes of both theory and practice in patrolling, first aid, boat operation and safety, public relations, protected areas management, conservation theory, wildlife biology, and other subjects.

A total of eight modules (six days/module average) have been given since the inception of the PIP program with a total of 45 rangers receiving training (including another PIP site, Noel Kempff Mercado National Park, as well as personnel from six other protected areas in Bolivia). Ranger response to these courses has been enthusiastic and a wide range of course suggestions by participants indicates the training need for protected areas managers in Bolivia (i.e., a sample of the variety of courses suggested include: cartography, supervision of employees and counterparts, watershed management, medicinal plants, swimming, legislation, tree nurseries, office management, captive animal reproduction, woodwork, and many others).

Field equipment including uniforms, boots, packs, medical kits and other essential materials have been provided and updated for each ranger.

**E. Do personnel have transport and communications equipment?
YES.**

Staff have been provided with one pick-up (four-wheel drive), one jeep, nine motorcycles, and three horses.

Communication has been greatly enhanced with the addition of twelve radios provided through a variety of sources (besides AID\PIP, radios also purchased by IDB, FAN, and other agencies). The radios are located in the following sites: Comarapa, Samaipata, Santa Rosa, La Yunga de Mairana, Surutu, Macuñucu, Saguayo, Yapacani, Buena Vista, San Juan de Potrero, La Siberia, and another minor camp.

A Cessna 206 single engine light airplane is used to patrol difficult access areas as well as to transport people and payloads when necessary. FAN and SENMA staff also have access to four-wheel drive vehicle in Samaipata and Santa Cruz to facilitate logistics.

**F. Have basic protection facilities been constructed on-site?
YES.**

In the south, facilities at La Yunga, Comarapa, and Santa Rosa are finished. These are solid brick buildings measuring approximately 140, 70, and 40 square meters, respectively. They have a central living area with bedrooms, kitchens, bathrooms, storage areas, and furniture. Houses financed by the Linea Roja (federal) program are being constructed in Karahuasi and Santa Rosa as well. The SENMA-IDB project is financing construction of facilities in Mataracu, Chonta, and Saguayo. These latter sites are not yet finished.

All sites are well-located in areas of quick access to patrol zones as well as for continual contact with key communities.

**G. Does the area have continuous field logistical support?
YES.**

FAN provides transport, communications, field operations expenses, field equipment for rangers, and technical support for Samaipata and all southern region field stations. FAN also furnishes both direct and indirect support to government rangers located in Buena Vista and other key northern spots. For those latter locations, the Bolivian government is also providing communications, field operations, and transportation support.

- H. Are ecological carrying capacity studies, baseline biological surveys and monitoring programs underway?**
YES.

FAN does not directly use PIP funds. However, researchers from Gabriel Rene Moreno University in Santa Cruz are conducting baseline studies (collection/distribution of selected plant species and a status/distribution study on the spectacled bear). Biological studies should be coordinated with additional work such as the FAN-CDC agreement to document current vegetation cover, habitat utilization by keystone species, and current land and resource use to monitor the intensity and rate of ecological change within and adjacent to the park.

Sociological diagnostic studies are being carried out in conjunction with the SENMA-IDB project to assess land use practices and socio-economic trends of local communities in the area. FAN participates in these studies and is compiling data to assist in setting management priorities for the park.

- I. Has a Management Plan for the area been completed?**
NO.

However, a recently completed training workshop in the preparation of protected areas management plans was completed in Santa Cruz in 8/93 for FAN staff as well as other NGO groups and government agency personnel.

Management plans for all parks have been put on hold over the last year as rapid changes are taking place in the Bolivian government bureaucracy through the creation of new agencies and institutions. FAN anticipates that once these changes are instituted (probably no later than October 1993), park management and operations plans will be put on fast track.

- J. Are Annual Operations Plans and Budgets completed?**
YES .

PERFORMANCE INDICATORS

II. COMPATIBLE RESOURCE USE

- A. **Have key social and economic values of the protected area been identified? YES (to a degree).**

Facts known regarding socioeconomic trends have been gathered mainly by regional or local development agencies or private NGO's working with campesino families. However, since the beginning of the project in 1991, FAN and park staff have worked with local communities, especially in the southern sector of the park.

The principal resource value of the park lies in the water and topsoil resources that ensure continuity of larger agro-pastoral concerns at lower elevations both inside and outside the park. The steep ridges and heavy vegetation prevalent in non-disturbed areas ensure the presence of intact habitats downstream. Many of these areas are used by local communities and large landowners for commercial agriculture and livestock raising whose products are sold on both a national and international basis.

In certain areas within the park, habitat has been altered for agricultural and livestock production. Land owners or squatters let their domestic animals roam freely while they clear plots for subsistence crops. These people also hunt wild game within the park, again for subsistence purposes. As inventories are completed the economic value of wild species of plants and animals will become better known.

Ecotourism also has high economic potential due to the outstanding species and scenic diversity. FAN has moved quickly and efficiently into providing attractive ecotourism packages for national and international visitors in Noel Kempff Mercado and the group is designing a strategy to introduce ecotourism to Amboro as well.

- B. **Have basic human needs of local communities been satisfied (i.e., health, safety, etc.)? NO.**

Basic needs for all communities have not been provided. The local communities have received very little attention from federal or regional authorities. However, PIP funds have made a difference in various sites as community extension work has focused primarily in Samaipata, San Juan de Potrero, Yungas, and Comarapa. Both the PIP Project Coordinator (now Acting Park Director) and community extension agent have worked extensively

to open dialogue with these and other communities then implement development activities that follow park objectives and bring local benefits.

Park staff have also worked with communities, regional government authorities, and local NGO development organizations to initiate and improve an agroforestry program as well as develop family agricultural plots to improve fruit production.

- C. **Is there direct community and resource user participation in resource management and allocation decisions? NO.**

No, not presently, although some communities (i.e., San Juan de Potrero, Comarapa, and Samaipata) are increasingly vocal about how land is used in and around their communities. Seminars provided by FAN/park staff have pointed out the link in importance between vegetative cover and water availability. However, such community-based lobbying has a dubious influence on resource use decisions. The general belief is that those in power make whatever land use decisions they want.

- D. **Is the land tenure in the area stable? YES.**

Land tenure in the area is partially stable, as the Linea Roja project designed to finalize park borders is almost finished and most land owners with legal titles appear to be satisfied that their land is located outside the park.

With the recent enlargement of Amoro, the borders of the southern and western sectors were extended to include more territory. This enlargement created a conflict with local populations and colonists who claimed these lands. The Linea Roja project was implemented to mark the boundaries of the park.

No agency is currently purchasing land either within or adjacent to the park.

- E. **Are there diverse agricultural and natural resource uses within the carrying capacity of the protected area buffer zone? YES.**

There are migrant farmers engaged in shifting agriculture (native vegetable/fruit crops). It is not known exactly to what extent the carrying capacity is being exceeded but in most areas with extensive and growing settlements in both the north (IDB highway) and south (both east and west from Samaipata) there is extensive and, in some cases, excessive land use.

- F. **Are local people employed by PIP project funds?**
YES.

Seven park rangers, one project coordinator, and one community extensionist, all full-time.

PERFORMANCE INDICATORS:

III. LONG-TERM FINANCIAL SECURITY

- A. **Have the long-term financial needs of the protected area been identified?**
YES.

See Appendix 1 for copy of spreadsheet outline from FAN budget analysis/projection (1992).

- B. **Are there local revenues that support the protected area?**
YES (through government match).

In addition, local sources that have asked to remain anonymous also contribute both direct and indirect support to park staff and local communities to further the conservation objectives of Amboro.

- C. **Are there national budget allocations that support the protected area?**
YES.

This is done through annual investments and expenses incurred directly for monies created for park operations - salaries and operations expenses. The total annual amount expended by the government equals \$ 42,500.00 (for 1993).

- D. **Are there international funds that support the protected area?**
YES.

International funds exist for the following: \$ 158,500.00 for salaries, equipment, construction, and operations expenses.

source: SENMA-IDB Project.

- E. **Has a financial plan been approved for the protected area?**
YES .

Categories and projected budget:

Salaries, equipment, construction, ecotourism, training.	
GEF (5 years)	\$US 837,596.00
TNC-FAN Debt Swap (4 years)	\$US 521,367.00
SENMA-IDB (1993)	\$US 158,500.00
CDF (1993)	\$US 41,500.00
PDAR (1993)	\$US 52,325.00
WWF/MacArthur Foundation	\$US 90,000.00

(2 years for community projects outside of the park boundaries)

Sources of funds:

GEF Project (World Bank and COTESU of Switzerland), and J.P. Morgan (TNC) Debt-for-nature swap.

Title and year of document:

Biological Diversity Conservation Project of Bolivia (1991).

- F. **Is a fiscally responsible administrative system in place to manage the funds?**
YES.

- G. **Are financial resources committed to operations of the area? Categories and projected budget?**
YES.

Resources are committed for staff, training, materials and equipment, maintenance, and management plan.

FONAMA \$US 225,281.00 - four years.

(also includes \$US 90,000.00 from WWF/MacArthur mentioned above in (e).

J.P. Morgan Debt Swap = \$US 266,086.00 - four years.

GEF - World Bank/COTESU = \$US 837,596.00 - five years.

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

I. ON-SITE PROTECTION AND MANAGEMENT

A. Has there been a change in the natural vegetation or land cover?

No definitive information is available although overflights and anecdotal information provided by FAN and GOB personnel indicate that there has been vegetative regeneration in some areas. However, this is difficult to appraise on a park-wide scale. The physical presence of park personnel and increased patrolling, overflights, and increased publicity and improved public relations from FAN have decreased illegal incursions in focal areas.

Park staff state that there are increased sign (spoor, scats, scrapings, etc.) of jaguar and spectacled bear and that various species of arborescent ferns are reestablishing in areas previously cut by colonists and collectors.

how was this change measured?

Information supplied by park rangers and FAN staff overflight patrols. No definitive investigations on this issue.

source: Park staff

**B. Has there been a change in the distribution, abundance, or status of key species?
YES.**

This is apparently so, but most of this data is still incomplete and not completely analyzed. Park staff and visiting scientists believe there have been negative impacts on some species of large mammals, birds, and fish by illegal hunting and fishing. In addition, there is some local disruption of populations due to the construction of roads, slash and burn agriculture, and deforestation.

how was this change measured?

Information provided by park staff, visiting scientists, and local residents. No direct studies are being conducted to determine these trends.

source: Above

**C. Has there been a change in water quantity or quality?
YES.**

The water quantity and quality has improved according to local residents as reported to park staff. However, these are anecdotal data and no rigorous scientific testing of water quality/quantity has taken place since the inception of the PIP program. The most pronounced area of change has been in the San Juan de Potrero region.

how was this change measured?

Anecdotal information provided by campesinos and direct observation by park staff. No definitive studies conducted.

source: Above

II. COMPATIBLE RESOURCE USE

A. Have there been changes in the pattern or intensity of land or natural resource use? YES.

Livestock and crops along foothills have been removed from some areas of the park along the southern border due to increased surveillance, patrols, and community education campaigns by park staff.

how were these changes measured? Direct observation.

source: Park staff.

B. Have there been changes in the social or economic conditions of local residents? YES .

C. Have there been changes in the policies or institutions? YES.

Institution of the PIP program created positive changes in the infrastructure and attitude of personnel in the park. FAN hired trained supervisory staff, set up the first ever training programs, purchased equipment, surveyed and marked borders, etc., all with PIP financing. As the government became more involved through matching funding and coordinated activities, a more cooperative relationship between FAN, Bolivian management entities, and local NGO's has developed.

Progressive training programs provided to park guards (FAN) and managers (FAN and TNC) have brought government counterparts together with FAN and other NGO staff, creating an open and productive dialogue on the management of the park.

How was this change measured?

Discussions with FAN and CERCONA staff.

III. LONG-TERM FINANCIAL SECURITY

A. Has a trust fund/endorsement been established for the protected area?

FONAMA is actively soliciting the establishment of a trust fund for the park.

Type/Principal/Annual Dividend:

\$US 4,000,000.00 principal with \$US 360,000.00 annual dividend.

B. Are there diverse sources of funds/revenues for the area?

YES .

Type/Amount/Sources:

FONAMA	\$US 255,281.00
GEF (World Bank/COTESU)	\$US 837,596.00
JP MORGAN DEBT SWAP	\$US 266,086.00

APPENDIX A

AMBORO NATIONAL PARK PROJECTED BUDGET AND FUNDING REQUIREMENTS, 1992-1996

CATEGORY	1992	1993	1994	1995	1996	TOTAL
PERSONNEL	\$46,200	\$50,000	\$40,000	\$40,000	\$40,000	\$216,200
TRAINING	\$7,200	\$6,000	\$5,000	\$5,000	\$5,000	\$28,200
EQUIPMENT/MATERIALS	\$14,000	\$2,500	\$2,500	\$2,500	\$2,500	\$24,000
VEHICLES	\$8,200	\$5,000	\$2,500	\$2,500	\$2,500	\$20,700
CONSTRUCTION	\$23,000	\$7,500	\$3,000	\$3,000	\$3,000	\$39,500
FIELD OPERATIONS	\$14,000	\$20,000	\$20,000	\$20,000	\$20,000	\$94,000
INSTITUTIONAL SUPPORT	\$12,000	\$9,000	\$7,500	\$7,500	\$7,500	\$43,500
TNC TECHNICAL ASSISTANCE	\$12,400	\$10,000	\$8,000	\$8,000	\$8,000	\$46,400
TOTAL	\$137,000	\$110,000	\$88,500	\$88,500	\$88,500	\$512,500
SOURCES OF FUNDING						
U.S.A.I.D.	\$100,000					\$100,000
PRIVATE FUNDING THROUGH TNC						
- PROGRAMMED	\$25,000	\$35,000	\$35,000	\$35,000	\$35,000	\$165,000
- NEEDED	\$12,000	\$75,000	\$53,500	\$53,500	\$53,500	\$247,500

**PARKS IN PERIL PROGRAM
1993 EVALUATION FORM**

PROTECTED AREA NAME:NOEL KEMPF MERCADO NATIONAL PARK

GENERAL INFORMATION:

Country: Bolivia

NGO Partner: Fundacion Amigos de la Naturaleza
Casilla 2241
Santa Cruz, Bolivia

PIP Proj. Officer: Adolfo Moreno

Government Agency: CORDECRUZ (Corporacion de Desarrollo de Santa Cruz) and
CERCONA (Centro de Conservacion de la Naturaleza Noel
Kempff Mercado)

Is there an NGO/GO agreement to work on this PIP site?

Yes, a copy of the agreement is on file at TNC.

Is the TNC/NGO agreement up to date?

Yes.

Is the PIP work plan and budget up to date?

Yes, and they are on file at TNC.

Names of Evaluators: Hugo Salas
In-country Technical Advisor for Bolivia
Casilla 14008
La Paz, Bolivia
Phone: (2)328798 Fax: (2)328798

Len West
Andean Protected Areas Specialist
TNC/LAD
1815 N. Lynn St.
Arlington, VA 22209
Phone: 703-247-3730 Fax: 703-841-4880

Note: Salas conducted the field evaluation from Bolivia while West translated and formatted the evaluation and provided additional background data, where needed.

I. INTRODUCTION

Noel Kempff Mercado National Park (NKM) is located in the northeastern corner of the state of Santa Cruz, bordering the Brazilian states of Rondonia and Mato Grosso. The park covers 920,000 hectares, encompassing a large part of the Caparuch mesa, which rises to approximately 1000 meters above sea level (masl) before dropping to 600 masl into surrounding plains and forests. In addition, La Bahia Biological Reserve, a lake ecosystem of 21,900 has. lying 25 km west of the park, forms a contiguous link to NKM.

The striking geological formations present together with the unique geographical location of the park have created an eclectic montage of habitats for wildlife in NKM. This diverse combination of ecosystems is framed by a ruggedly beautiful backdrop of high cliffs, spectacular waterfalls, dense tropical humid forests, and sparkling rivers.

The park is located close to the geographic center of South America where the influence of four distinct biogeographic regions converge - Amazonian elements from the north, the Chaco Boreal from the south, Brazilian cerrado from the east, and the Andean highlands in the west. Ongoing biological inventories carried out in the park and surrounding regions are revealing an amazingly rich and varied flora and fauna. For example, studies have confirmed 550 species of birds within the park. Final estimates may reach as high as 700 species, or one-fourth of the total species of birds currently known to exist in all of South America.

The principal threats facing the park include colonization, unregulated hunting and fishing, and commercial logging. Much of this pressure originates from the Brazilian side of the border although Bolivian timber concessions have also operated openly within the park for years without fear of official reproach. After a reconnaissance visit by a Parks in Peril (PIP) technical team working with local partners in October 1990, it was determined that conservation goals would be most effectively met on this particular PIP project site by consolidating primary management activities along the northern border of the Itenez River.

Noel Kempff Mercado was chosen as one of the original ten PIP sites in 1990 because of its size, location, biological diversity, ecological representativeness, comparatively low threat level, and the potential strength and commitment demonstrated by the local conservation partners. The original work plan was submitted on 20 November 1990 and approved by the U.S. Agency for International Development (AID) on 20 February 1991. Site evaluations were conducted in July 1991 and July 1992.

AID/PIP funding concludes its three years of assistance for this park in October 1993. This final evaluation serves to measure the degree of success achieved against the goals and objectives set by the original work plan.

The principal institutions participating in the implementation of the NKM-PIP project are The Nature Conservancy (TNC), Fundacion Amigos de la Naturaleza (FAN), CORDECRUZ, a local development corporation located in the city of Santa Cruz that provides a certain matching

financial support, and CERCONA, the legal entity sharing park administration duties with FAN.

The criteria used to conduct this evaluation were drawn up from the TNC matrix "Factors for Success", agreed upon by AID and TNC, then put in the form of a questionnaire. The series of questions were designed to analyze PIP program progress in three basic categories: 1) On-Site Protection and Management, 2) Compatible Resource Use, and 3) Long-Term Financial Security.

The report that follows includes the results of that questionnaire, a summary of the conservation goals outlined in the original park work plan, a summary of project achievements and limitations, and a brief final summary of recommendations for the park. An in-depth financial evaluation for Noel Kempff Mercado has been prepared and submitted by an independent consultant.

II. PROJECT SUMMARY

This is the last year of the AID/PIP financial assistance to NKM and, with some minor exceptions and still much work to be done, the project has successfully achieved most of its goals. The PIP program has played a major role in calling the GOB's attention to the protection of biological diversity and PIP has served as a model for establishing a viable parks management program in one of the most interesting and valuable protected areas of South America.

A. ACHIEVEMENTS

1. Technical

a. Land Protection and Biodiversity Management

- Hiring and training of permanent staff in Flor de Oro administration facility has increased conservation presence in the park. Their regular patrolling activities have resulted in a significant decline in illegal fishing and hunting activities along the Itenez and Pauserna River areas and their associated lagoons.
- FAN has constructed excellent administration and park ranger facilities in the Flor de Oro and Boca de Pauserna locations. They have completely renovated the Flor de Oro airstrip, which now measures 1300 meters in length, is well-drained, and cleared of ant and termite mounds. The runway was previously an interesting challenge to pilots and a never-ending source of stress to faint-hearted passengers.

The buildings are well-constructed and designed for maximum serviceability and air flow. Large covered walkways and rest areas with hammocks allow staff and visitors to work and relax in relative comfort, protected from high temperatures and bothersome insects. Future plans will include tearing down old, worn-out buildings and corrals and recycling those materials for additional buildings, as needed. The generator is to be relocated

75

farther away from the house in a depression to muffle unwanted noise.

- A series of environmental interpretation trails have been built by staff around Flor de Oro. These include a 25 km trail crossing from Bahia Caiman on the Itenez to Catarata Arco Iris, a spectacular waterfall on the Pauserna River. These will help ecotourism visitors to appreciate the natural wonders of the park and also help staff in their patrolling duties. The trails have been excellently designed to maximize scenic views and environmental contours of the park.
- Approximately 80 km along the critical northern boundary of the park have been surveyed and marked.
- Communication equipment has been installed in the park to ensure links between home stations, guard posts, and patrolling guards.
- Transportation purchases (e.g., boats, airplane) have facilitated management activities, especially the transfer of personnel and materials as well as patrolling.
- Training modules have greatly improved staff knowledge and attitudes regarding protected areas management
- The purchase of light aircraft and geographic positioning system (GPS) instrumentation have greatly assisted in the accurate marking of park boundaries as well as in ranger patrols and enforcement.
- Placing of signposts have assisted in consolidating northern and eastern borders of the park.
- Communication and coordination between FAN and CERCONA has improved 100% since 1990. CERCONA has shown a complete turn-around in their interest in protecting the integrity of the park. They hired an excellent Director (Ing. Esteban Cardona) and the two institutions cooperate in training, patrolling, and administrative activities. FAN helps CERCONA-supported rangers on a regular basis with transport, food, and training.
- The design of an ecotourism plan for NKM was initiated in April 1993. Ecological tourism has high potential in the park and although the current design intends to keep tourism at a low level to minimize potential adverse impacts, the Swiss government, through COTESU, has approved a grant for US\$ 800,000 to create a plan and follow through with implementation in 1993-94.

The plan has an evaluation and monitoring component to analyze and mitigate adverse impacts. The plan also incorporates local community participation in ecotourism. FAN has successfully sponsored two international trips to the park together with Victor Immanuel Tours of the US and all parties are optimistic that income derived from such

activities will strengthen park management operations.

- The Bolivian government and a variety of national and international NGOs are greatly interested in expanding the boundaries of the park. If formal arrangements are approved by current landholders within the area and the GOB, the park would be extended to the west to the limits of the Tarvo and Paragua Rivers. Although the exact size of the addition is unknown, if finalized and added on, the park area would be increased to around 1.5 million has.

Initial assessments conducted by FAN and TNC indicate that the area under consideration would greatly enhance the range and number of species and habitats protected by the park. Part of the area is under timber concession but there appears to be good sale potential at an economical price. No thorough biological inventories have been conducted but overflights and rapid assessments indicate a relatively rich and intact fauna and flora.

The cost/benefit ratio associated with the administration and management of the area in relation to its general appropriation costs appear good. However, much depends on formal negotiations between private and public interests.

- FAN's political influence in Santa Cruz and La Paz has increased as they have expanded their activities, professional contacts, and experience. The group has demonstrated a high degree of skill in public relations and in working with groups generally considered "enemies" of environmental groups - i.e., powerful logging and development groups in Santa Cruz. Much of this success stems from their ability to comply with the goals and objectives they set for themselves as an organization.

b. Land Tenure and Compatible Human Use

- No private land exists within the park. The park has few human communities and habitat alteration resulting from colonization, deforestation, cattle grazing, hunting, or other activities has been relatively low.
- FAN has worked with Brazilian authorities to open dialogue and pave the way for potential cooperative activities through joint border patrols and scientific studies along the northern and eastern reaches of the park.
- Some jobs have been created due to the influence of PIP funds. Approximately 10-15 local people have been employed as park guards, cooks, laborers, and boat operators in Flor de Oro over the last three years (part- and full-time). Also, the influx of ecotourists into the camp has created some seasonal positions for guides, cooks, maids, and waiters. The number of positions depends on the number of tourists visiting.

c. Public Relations, Education, and Extension

- Distinct advances have been made in public relations and communications with Brazilian officials and local communities in terms of advertising the presence, purpose, and goals of the park.

Increased and focused park staff contact with Brazilian communities surrounding the park has produced positive results. Using non-confrontational techniques with local residents, rangers relations with both Brazilian authorities and residents have improved through increased visits and informal environmental education programs (talks and slide shows on resource management, endangered species, and sustainable development practices). In 1993, FAN extended these education opportunities approximately four hours upriver to the Bolivian community of Piso Firme on the Paragua River.

- Park ranger training modules have been set up and carried out on a regular basis.
- Park guards have been included in national workshops and managers have participated in international forums and workshops.

d. Research and Monitoring

- A significant number of national and international scientists are currently conducting research on ungulate status, distribution, and ecology, botanical and zoological inventories, and fish and plant ecology and taxonomy. All studies currently underway in NKM are done in coordination with FAN and government park personnel. In addition, observation data on birds and mammals is collected from Victor Emmanuel Nature Tours groups and provided to FAN.

2. Financial

- Financial security for NKM is highly probable within the next few months as GEF funds, debt swap funds, and other international agreements with the Swiss and German governments come into play and the designed financial plan is implemented through the Biological Diversity Conservation Project.
- The long-term financial needs of the protected area were identified and local revenues are now being provided through ecotourism in the park.
- The Bolivian government has set aside budget allocations for protection of the park through annual investments and revenue collected for park operations.

3. Operations and Administration

- Six park guards and one park guard supervisor have been contracted and trained to implement protection and public relations activities along the sensitive northern border of the park.

- Relations between FAN and CERCONA have improved markedly since the implementation of PIP activities in 1990. At that time, there was virtually no official interest in complying with Bolivian protected areas laws and regulations. Official presence within the park was almost nil, illegal drug processing operations occurred within park limits, hunting and fishing pressure on the northern and eastern borders was very high, and illegal timber extraction occurred with impunity.

FAN and CERCONA now provide basic protection, maintenance and patrol activities within the park. CERCONA has contracted a new director for the park who seems to be very serious about conserving the biological and economic integrity of the park. This person works closely with FAN, attends meetings on a regular basis, takes an interest in his staff, and attends mobile training seminars run by FAN. He also participated in the FAN/TNC/AID-sponsored Protected Areas Management workshop held in Santa Cruz in August.

- In August 1993, FAN, CERCONA park authorities, and members of the Bolivian military successfully carried out surveillance and reconnaissance activities against a secret incursion by Brazilian loggers in the eastern part of the park. The FAN aerial surveillance team discovered a newly built road, logging trucks, and logging crews within the park adjacent to the Rio Verde. The Bolivian military was subsequently contacted and soldiers were sent into the area to detain and arrest perpetrators and confiscate material.

Such an operation would have been unthinkable three years ago before the infusion of PIP funds and progressive activities of FAN.

B. LIMITATIONS

1. Technical

a. Land Protection and Biodiversity Management

- A management plan has not been prepared for the park. Although management activities generally follow a system of priorities, this needs to be formally outlined in a management plan. Although the facilities constructed on-site are well-done and planned, the development of each site should have been designed beforehand with a set management pattern in mind with reference to specific threats.
- Despite gains made in cutting illegal extraction of flora and fauna inside the park, this still occurs and additional studies are needed to determine the impacts of this extraction. Extensive meetings with Brazilian officials and local people across the Itenez River have been held to increase communication and awareness about the presence of the park and the need to protect habitat and enforce regulations.

- Certain physical and vegetation maps need to be replaced and/or updated. Current aerial photos and satellite imagery would greatly facilitate management efforts.
- Although relations between FAN and CERCONA are good and still improving, there exists an administrative dichotomy regarding the duties and responsibilities of each agency. This needs to be updated and clarified through written agreement, identifying which agency has ultimate authority to design and implement management activities. CERCONA staff need a greater degree of park management and administrative training. CERCONA rangers do not have the same access to equipment and material as do rangers located at Flor de Oro and Boca de Pauserna. This inhibits their management capability.
- Park guard salaries are low and there is still not enough incentive for them to stay for the long-term. If the drop-out rate increases sufficiently, this could compromise management gains achieved.
- Timber concessions still represent a powerful political and economic force that could adversely affect the park if FAN and/or CERCONA do not maintain their presence and influence.
- The number and intensity of illegal incursions into the park have decreased according to non-scientific surveys. However, true impacts from past and present activities is not known to any great degree of confidence.
- Scientifically rigorous methods for measuring environmental change over time have not been instituted.

b. Land Tenure and Compatible Human Use

- Seven small communities are located within or contiguous to NKM. These populations were not targeted for initial participation in the PIP program due to the management focus on areas around the Itenez, Pauserna and Verde Rivers but the needs of the communities and environmental impacts of their activities need closer examination.
- Initial relations with Brazilian communities, agencies, and organizations have been positive but this is far from a "done deal" as development and expansion interests in Rondonia and Mato Grosso are persistent and influential.

c. Public Relations, Education, and Extension

- Definitive environmental education and extension programs for communities surrounding the park have not been identified.

d. Research and Monitoring

- An explicit monitoring program is not installed in the park. General habitat and species trends are under investigation but are not specifically targeted for monitoring. No precise methodology has been implemented to measure habitat changes, species status/abundance/distribution changes, nor socioeconomic trends. Therefore, it is difficult to ascertain meaningful biological or sociological trends associated with PIP project funding.
- No definitive surveys or monitoring program established to gather socio-economic data regarding population trends, activities related to resource extraction, nor resource values.

2. Financial

- International/national financial mechanisms currently outlined but, for the most part, direct income flow to the park has not yet occurred.

3. Operations and Administration

- Involvement of CERCONA staff in day-to-day park activities is much less than FAN staff. Duties and responsibilities need to be clarified to provide balanced inter-agency support and avoid duplication of effort.

C. RECOMMENDATIONS

1. Technical

a. Land Protection and Biodiversity Management

- Work with the Bolivian government (SENMA) to prepare a management plan for the park, incorporating the ecotourism plan currently being designed by FAN.
- Create a focused and formal administrative process whereby ecotourism funds are directly infused into the operational plan for the park.
- Provide additional training and materials to park rangers to motivate their continued participation and dedication to the park over the long-term.
- Build two additional guard posts, one on the Verde River and another farther south along the Brazilian border to consolidate management presence.
- Work with GOB regional and national authorities to set up formal provisions for quick and efficient backup assistance from Bolivian military when illegal incursions occur within the park. Military personnel (or a different authority with arrest and detention powers, such as Forestry Police) would greatly complement the work of FAN and

CERCONA in protecting the integrity of the park.

- Prepare a memorandum of agreement with Brazilian authorities to coordinate protection and research efforts along the Itenez River.
- Build a biological research station on the Caparuch mesa.

b. Land Tenure and Compatible Human Use

- Complete the annexation of additional land in the Bajo Paragua area to NKM.

c. Public Relations, Education, and Extension

- Contract a sociologist to design and carry out a socio-economic community survey on both the Bolivian and Brazilian side of the Itenez River as well as in key Bolivian community south of the Itenez (i.e., Piso Firme, Florida).
- Extend community extension efforts to Bolivian communities on the Pauserna River and surrounding areas.

d. Research and Monitoring

- Set up a biological monitoring and research program within the park. Headquarters will initially be located at Flor de Oro then extended to the Caparuch mesa as facilities are available. TNC, WCS, and other groups with expertise in these areas can provide technical and financial assistance.
- Initiate a Rapid Ecological Assessment study with the CDC - La Paz. Document data on key floral, faunal, and community elements. Purchase updated sets of satellite imagery, aerial photos, and topographical maps to outline ecological data, threats, and management priority activities.
- Incorporate additional international/national groups in biological inventories, surveys, and monitoring. Provide thesis opportunities for B.S. and M.S. level students in the biology, forestry, and aquaculture departments at the Gabriel Rene Moreno University of Santa Cruz (GRMU).
- Initiate baseline biological inventories and monitoring programs on key biological communities and species (i.e., fish, turtles, large mammals).
- Set up a simple, well-designed data gathering format for use by park guards to document habitat changes, species observations, etc. Provide training to personnel, as needed, perhaps through WCS and/or GRMU.

2. Financial

- Consolidate current financial agreements with GEF and others. Continue seeking international funds to set up endowment funds for park.

3. Operations and Administration

- Provide additional follow-up assistance to strengthen FAN as an institution. Suggested components would include: institutional development, fundraising, environmental education, proposal writing, and ecotourism operations.
- FAN, CERCONA, and SENMA should clarify administrative procedures regarding the implementation of management activities within the park.

D. GENERAL PERCEPTIONS

Measured by the standards set by the PIP Program as well as the original work plan goals, NKM can be considered successful. Virtually all of the original goals set have been achieved and some even surpassed. However, much work lies ahead and there are a number of limitations, as outlined in the text of this report. Nevertheless, the park is much farther along than in 1991 when PIP funds were first approved.

Briefly summarizing strong and weak points of the program, the top priority of consolidating the northern border of the park has been met. Personnel were hired, a core group has remained, and a good training program instituted to prepare them for their job. Park facilities were constructed, equipment purchased, and contact with key local communities was initiated and followed-up.

FAN has proven to be an effective player in the conservation community of Bolivia and is gaining international recognition. The staff is professional, creative, and resourceful in their efforts to ensure that NKM is properly managed. They have worked deftly with a variety of public and private groups to forward the agenda of conservation in Bolivia. They have proven especially good at creating financial mechanisms to supplement operations costs for themselves as an institution as well as for ensuring long-term funds for NKM. The establishment of a financial plan with support from FONAMA by means of the GEF, J.P. Morgan debt swap, and other measures is a major accomplishment. It appears that funding for the park is guaranteed for at least another five years with a good chance for more.

Future priorities should be focused on consolidating those funds, expanding the borders of the park, designing and implementing a management plan, and extending protection to all of the park, including the southwestern flank where logging concessions have traditionally operated. In addition, community extension and environmental education programs should be designed and established.

Finally, the ecotourism plan should be consolidated and set in motion to bring in an increasing, but controlled, number of tourists to experience the park. Funds generated and reinvested will ensure continued management of the parks resources.

PERFORMANCE INDICATORS:

I. ON-SITE PROTECTION AND MANAGEMENT

A. Have the ecological values of the area been identified?

Yes.

The size of the park is 920,000 has.

Key Ecosystems and Processes: Tropical evergreen humid forests, gallery forests, subtropical thorn scrub, cerrado, and savanna wetlands. As previously mentioned, the park is centrally located in South America where four distinct biogeographic regions converge, thus providing for an unusual dynamic mix of elements from Amazonia, the Brazilian cerrado, the Chaco, and the Andes. In addition, distinctive microclimatic and edaphic conditions set the Caparuch mesa apart in both physical appearance and biological composition from the surrounding lowland forests. This has contributed to many vegetation types and habitat niches that attract a wide range of fauna.

The clear Pauserna-Itenez-Verde river system provides outstanding nesting, roosting, and foraging habitat to numerous (and not totally inventoried) wildlife species.

Endemic/Migratory Species: From both ongoing studies conducted by the Conservation International (CI) RAP Team, Wildlife Conservation Society (WCS) of New York, Iowa State University (ISU), the National Academy of Science (NAS), and others, there is good preliminary evidence that both endemics and migrants are present but results have not yet been compiled and published.

Threatened Species: Bird inventories carried out in different areas of the park have tallied 550 different species of passerines, psittacines, raptors, and at least seven species of cracids (curassows, guans, and chachalacas).

Rare fauna found within the confines of the park include: jaguar (Felis onca), tapir (Tapirus terrestris), deer (Mazama guazoubira and M. americana), spider monkey (Ateles paniscus), and howler monkey (Alouatta caraya). The alluvial plains to the east of the park are home to the ñandu (Rhea americana), giant anteater (Myrmecophaga tridactyla), swamp deer (Blastoceros dichotomus), and maned wolf (Chrysocyon brachyurus). Tapirs and pampas deer (Ozotoceros bezoarticus) roam the higher plateau areas.

Along the Pauserna and Verde rivers one can observe giant otters (Pteronura brasiliensis) and river otters (Lutra longicaudis). Along the Itenez river and its many lagoons live freshwater dolphins (Iria geoffrensis), yacare caiman (Caiman yacare), and black caiman (Melanosuchus niger). During the dry season when the waters are low, two different species of South American river turtles use the area as nesting grounds - the taricaya (Podonemmis unifilis), and the tataruga

(Podocnemis expansa).

Fish life in the area is also abundant. Species range from small ornamental fish to the huge piraiba (Brachyplatystoma filamentosum), a type of catfish, as well as various species of pirañas and other fish of great commercial value.

B. Have critical threats been located on a map?

Yes, partially. Park protection activities have been organized in the work plans to address priority threats.

Type: Deforestation, unregulated hunting and fishing, burgeoning tourism, and colonization.

Source: Commercial logging, commercial fishing, illegal hunting and extraction of flora (i.e., heart-of-palm, orchids) and fauna (i.e., subsistence, reptile/mammal skins, live animals for pet trade, turtle eggs for consumption and sale), increasing publicity in Brazil regarding the pristine quality of habitat and resources in NKM, and movement of colonists south from disaffected areas in Londonia and Mato Grosso, Brazil.

Significance: Variable. Highest impacts localized along the Itenez River and logging concession sites on the southwestern borders of the park. Also, occasional illegal incursions by Brazilian loggers on the eastern border of the park create serious localized impacts on flora and fauna.

C. Are critical boundaries surveyed and posted?

Yes, partially. Eighty kilometers have been surveyed and posted along the Itenez River on the northern and eastern borders of the park. In addition, park rangers provide regular foot, boat, and (where necessary) aerial patrol along the Itenez and Verde Rivers from the northern border passing east then to the southern border of the park. Future work will incorporate the southwestern borders as well.

D. Are rangers trained and equipped?

Yes, there are currently six FAN and 14 CERCONA rangers on-site and each has received at least three modules of ranger training in 1993 alone. Staff members with more time on the job have received additional training as well. The training consists of multiple themes of both theory and practice in patrolling, first aid, boat operation and safety, public relations, protected areas management, conservation theory, wildlife biology, and other subjects.

A total of eight modules have been given since the inception of the PIP program with a total of 45 rangers receiving training (including another PIP site, Amoro National Park, as well as personnel from six other protected areas in Bolivia). Ranger response to these courses has been enthusiastic and a wide range of course suggestions by participants indicates the training needs for protected areas managers in Bolivia (i.e., a sample of the variety of courses suggested

include: cartography, supervision of employees and counterparts, watershed management, medicinal plants, swimming, legislation, tree nurseries, office management, captive animal reproduction, woodwork, and many others).

Field equipment including uniforms, boots, packs, medical kits and other essential materials have been provided and updated for each ranger.

E. Do personnel have transport and communications equipment?

Yes, two boats with 25hp outboard motors are used by staff to patrol the Itenez River. A Cessna 206 single engine light airplane is used to patrol difficult access areas as well as to transport people and payloads when necessary. FAN also has access to enough ground transport to facilitate logistics in Santa Cruz and take personnel by land to Piso Firme, whereupon boat traffic carry occupants downriver to Flor de Oro.

A radio network has been installed in the park and regular communication exists between park personnel on-site and staff in Santa Cruz. The radios (Yaesu or Icom) function through external antennas and solar power panels. This equipment is located in the following camps (stations): Los Fierros, Mangabalito, Pauserna, Las Torres, Flor de Oro, and Boca del Pauserna, as well as the administrative offices in Santa Cruz and San Ignacio.

F. Have basic protection facilities been constructed on-site?

Yes, the central administrative office and ranger station at Flor de Oro have been completed. Local expertise and materials have been employed in building a very habitable station complete with electricity and plumbing. The buildings are of typical regional design - brick foundation, red tile roof, wooden doors and windows, and galleries with protective screening. They are also furnished with comfortable wood furniture - beds, desks, table and chairs, oven and refrigerator (gas). Each house has three rooms along with a kitchen, dining room, office, two baths, elevated water tank, and generator. They are very attractive, neat, and well-planned.

The ranger station at Boca Pauserna is also finished and fully functional. The house is well-elevated on piles to protect against floods, with a fiber-cement paneled roof, two bedrooms, kitchen/ dining area, bath, and observation gallery.

The location of both sites is excellent in that it allows maximum vision to observe boat traffic up and down the Itenez and installed placards at the sites and other key border regions adequately advertise the presence of the park.

G. Does the area have continuous field logistical support?

Yes, FAN provides transport, communications, field operations expenses, field equipment for rangers, and technical support for Flor de Oro and Boca de Pauserna directly. FAN also furnishes both direct and indirect support to government rangers located at Los Fierros, El

Mangabalito, and other more distant areas as well. For those latter locations, the Bolivian government is providing communications, field operations, and transportation support. The cooperation between FAN and CERCONA is noticeably closer and better coordinated since the beginning of the PIP project.

H. Are ecological carrying capacity studies, baseline biological surveys and monitoring programs underway?

Yes. Independent studies to obtain baseline ecological and biological data are ongoing. Dr. Andrew Taber (WCS) is studying the behavioral ecology of tapirs, peccaries, and other ungulates both in the park and in Rios Blanco y Negro Wildlife Reserve to the west of NKM. Preliminary ornithological inventories have been conducted by CI and botanical studies by Dr. Tim Killeen (ISU) are generating baseline ecological information. FAN personnel actively work in partnership with each of these field research projects.

Outside of general observations by park personnel or habitat observations obtained from overflights, most of the biological and ecological knowledge about NKM has been obtained by independent organizations such as those mentioned above or by in-country institutions such as the University of Gabriel Rene Moreno in Santa Cruz.

PIP funds were not directly used for ecological research or monitoring projects so a well-defined and focused monitoring program is not yet in place. However, FAN staff participate directly in the above-mentioned studies. On-site park staff work with FAN collecting basic information and some specimens of birds, fish, and plants within and adjacent to the park. In addition, FAN and the Centro de Datos para la Conservacion (CDC) of La Paz signed an agreement this year to institute a monitoring program for the park. Data collected will be entered into a Geographical Information System network to map and delineate areas of high priority for inclusion into the management plan.

FAN staff also participate directly in a protection, reproduction, and reintroduction program for freshwater turtles (*Podocnemis* spp.) on the Itenez River being conducted by IBAMA, the Brazilian federal agency responsible for environmental affairs. The data generated by this study must be used to guide and prioritize management activities within the park.

The results from the independent studies mentioned above (as well as others) now need to be coordinated with additional work such as the FAN-CDC agreement to document current vegetation cover, habitat utilization by keystone species, and current land and resource use to monitor the intensity and rate of ecological change within and adjacent to the park.

I. Has a Management Plan for the area been completed?

No. An outline is in preparation, however, and a recently completed training workshop was held in Santa Cruz in August 1993 on the design of protected areas management plans. FAN

staff as well as other NGO groups and government agency personnel attended. An ecotourism plan for the park is now being prepared and this document will be incorporated in the park management plan.

Management plans for all parks have been put on hold over the last year as rapid changes are taking place in the Bolivian government bureaucracy through the creation of new agencies and institutions. How this shakes out will define how natural resources (including parks and wildlife) will be administered. FAN anticipates that once these changes are instituted (probably no later than October 1993), park management and operations plans will be put on fast track.

J. Are Annual Operations Plans and Budgets completed?

Yes.

PERFORMANCE INDICATORS

II. COMPATIBLE RESOURCE USE

A. Have key social and economic values of the protected area been identified?

Yes, to a degree. NKM enjoys a relatively low degree of human pressure. Due in large part to inaccessibility, the forests of northern Santa Cruz state are still in fairly good condition despite the presence of logging concessions in some areas. The lowland humid forests within NKM contain a wealth of mahogany, oak, and cedar species as well as numerous species of rubber, brazil nut, and palm species. Economic assessments of the actual and potential value of these resources (in situ vs. market rates) have not been conducted.

Ecotourism also has high economic potential due to the outstanding species and scenic diversity. FAN has moved quickly and efficiently into providing attractive ecotourism packages for national and international visitors to the park and the funds generated from these activities are currently assisting in the long-term management of the park.

B. Have basic human needs of local communities been satisfied (i.e., health, safety, etc.)?

No, the local community economies in the region are subsistence-based and receive very little attention from federal or regional authorities, neither in Brazil nor in Bolivia. Minimal PIP

funds have been used for community extension work in this park. However, FAN has worked extensively in an independent fashion with Brazilian authorities to open dialogue and pave the way for potential cooperative activities through joint border patrols and scientific studies along the northern and eastern reaches of the park. It is hoped that this will also create opportunities for expanded community extension initiatives in both Bolivia and Brazil.

Although the effect on the overall local economy is probably negligible, it must also be pointed out that a small number of jobs have been created due to the influence of PIP funds. For example, 10-15 local people have been employed on either a part- or full-time basis as park guards, cooks, laborers, and boat operators in Flor de Oro. In addition, the influx of ecotourists into the camp should continue to create positions for guides, cooks, maids, and waiters. FAN staff are very culturally sensitive and seek to contract local people both to improve the well-being of contratees and their families as well as promote the conservation goals of the park.

C. Is there direct community and resource user participation in resource management and allocation decisions?

No, not presently. For obvious political reasons, the Brazilians do not participate (at least overtly) in Bolivian resource management questions. However, since the inception of the PIP program, officials on both sides of the border have developed an increasingly open and friendly relationship. This is largely due to the astute and imaginative efforts of FAN-NKM staff.

On the Bolivian side, only seven tiny communities are located within or contiguous to NKM. These populations were not targeted for initial participation in the PIP program due to the management focus on areas around the Itenez, Pauserna and Verde Rivers. Certainly, the needs of the communities and environmental impacts of their activities will need closer examination as the final management plan is designed and put into motion.

D. Is the land tenure in the area stable?

Yes. There is no private land within the park.

E. Are there diverse agricultural and natural resource uses within the carrying capacity of the protected area buffer zone?

No.

F. Are local people employed by PIP project funds?

Yes. Six park rangers and one ranger supervisor, all full-time.

PERFORMANCE INDICATORS:

III. LONG-TERM FINANCIAL SECURITY

A. Have the long-term financial needs of the protected area been identified?

Yes. See Appendix 1 for copy of spreadsheet outline. See also independent consultant report for a full analysis of financial mechanisms.

B. Are there local revenues that support the protected area?

Yes, through ecotourism revenues. No exact figures are available right now but we do know that a portion of the revenues realized from FAN-organized ecotourism trips have been and continue being applied to operations costs at Flor de Oro.

C. Are there national budget allocations that support the protected area?

Yes, through annual investments and expenses incurred directly for monies created for park operations. The total annual amount expended to date by the government equals approximately \$204,718.00.

D. Are there international funds that support the protected area?

Yes, for the following:

Global Environmental Facility	= \$706,633.00
J. P. Morgan Bank Debt-for-Nature Swap	= \$229,044.00

E. Has a financial plan been approved for the protected area?

Yes.

Categories and projected budget:

Salaries, equipment, construction, ecotourism, training.
\$US 2,390,395.00.

Sources of funds:

GEF Project (World Bank and COTESU of Switzerland), J.P. Morgan (TNC) Debt-for-nature swap, Government of Switzerland, and KFW (Germany).

Title and year of document:

Biological Diversity Conservation Project of Bolivia (1991) and FAN/COTESU Ecotourism Project (1993).

F. Is a fiscally responsible administrative system in place to manage the funds?

Yes.

G. Are financial resources committed to operations of the area? Categories and projected budget?

Yes, for staff, training, materials and equipment, maintenance, and management plan.

FONAMA = US\$ 204,718.00 - four years.

J.P. Morgan Debt Swap = US\$ 229,044.00 - four years.

GEF - World Bank/COTESU = US\$ 706,633.00 - five years.

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

I. ON-SITE PROTECTION AND MANAGEMENT

A. Has there been a change in the natural vegetation or land cover?

Information provided by FAN and GOB personnel indicate that there have been subtle changes in the vegetation but there has been no rigorous form of measurement on a park-wide scale. Since 1985, the impacts of logging can be seen in a patchy and localized fashion. Local staff indicate that there is less habitat alteration today than in 1990 when the PIP program began, due primarily to the physical presence of management personnel, increased patrolling, overflights, increased publicity and improved public relations.

In addition, the area around Flor de Oro previously occupied by livestock is quickly recuperating its vegetative cover. This region was previously covered by patches of bare soil and low shrubs. Visual comparisons between old (pre-1991) and current photographs now reveal a higher vegetative biomass. As for fauna, park staff now regularly see jaguar, puma, giant anteater, various species of armadillos, white-lipped peccary, capybara, and numerous birds (or their sign). Before mid-1991, staff rarely if ever spotted any of these animals within the Flor de Oro area.

Furthermore, since the arrival of a permanent conservation presence, there have likely been notable (albeit unmeasured) changes on the Caparuch mesa. Previously, narcotics traffickers operated openly within the park and it's common knowledge that they hunted frequently for both subsistence purposes and sport. In addition, Brazilian hunters and fishermen entered the park with impunity, extracting whatever species they liked in whatever quantity they pleased. General observations by staff and seasoned residents living on the borders of the park indicate that the

fauna, in general, is much more visible and less skittish than before.

How was this change measured?

No direct measurements have been made and on a park-wide basis, these observed changes may be insignificant or incorrect. Information supplied by park rangers, hunters, residents, Peace Corps volunteers, and FAN staff overflight patrols.

Source: Park staff (anecdotal)

B. Has there been a change in the distribution, abundance, or status of key species?

Yes, apparently so, but most of this data is still incomplete and not completely analyzed. Park staff and visiting scientists believe there have been negative impacts on some species of large mammals, birds, caiman, and fish by illegal hunting and fishing. In addition, there is some local disruption of populations from the construction of logging roads and wood extraction activities.

How was this change measured?

Information provided by park staff, visiting scientists, and local residents.

Source: Above (anecdotal)

C. Has there been a change in water quantity or quality?

No, according to park staff. However, no scientific precise testing methods for water quality/quantity has taken place since the inception of the PIP program.

How was this change measured?

Anecdotal information. Direct observation by park staff.

Source: Above

II. COMPATIBLE RESOURCE USE

A. Have there been changes in the pattern or intensity of land or natural resource use?

No. There is no private land within NKM.

How were these changes measured? N/A

Source: N/A

B. Have there been changes in the social or economic conditions of local residents?

Because of the scarcity of human communities and the low human density in areas surrounding the park, this issue was not contemplated in the original work plan for NKM. Therefore, only anecdotal information is available. Over the past three years, the management presence of the park has been greatly consolidated and the word has spread widely in both Bolivia and Brazil that a park with on-site staff exists. Temporary fishing and hunting camps within the park have been disbanded, fishing nets removed, and regular ranger patrols installed.

The success of these efforts have likely adversely impacted the subsistence income of those taking advantage of the parks resources, although it is unknown how many people derived their principal income through hunting and fishing activities within the park. On the other hand, FAN has augmented employment opportunities by consolidating the park and advertising for hired help as guards, guides, construction workers, cooks, laborers, etc. As the ecotourism plan is finished and implemented, income derived from sustainable activities could conceivably benefit a wider range of local people.

Park staff believe that illicit timber extraction within the park has also decreased with some operators having cut back operations partly or completely as the ecological importance and long-term economic potential of the park has become increasingly publicized both locally and nationally. Some sources suggest that certain logging operations adjacent to the park have withdrawn for the simple reason that the companies have removed most prime mahogany and cedar stock and it's time to move on in search of more profitable areas.

C. Have there been changes in the policies or institutions?

Yes, progressive changes administered in the infrastructure of the park have created a more professional attitude within park staff. FAN hired trained supervisor staff, set up the first ever training programs, purchased equipment, surveyed and marked borders, etc., all with PIP financing. As the government became more involved through matching funding and coordination activities, a more cooperative relationship between interested Bolivian management entities has evolved.

A new park director has been hired by CERCONA and he is very active in the management of the park. Training programs provided to park guards (FAN) and managers (FAN and TNC) have brought government counterparts together with FAN and other NGO staff, creating an open and productive dialogue on the management of the park.

How were these changes measured?

Discussions with FAN and CERCONA staff.

III. LONG-TERM FINANCIAL SECURITY

Also reference R. Halperin financial report.

A. Has a trust fund/endowment been established for the protected area?

FONAMA is actively soliciting the establishment of a trust fund for the park.

Type/Principal/Annual Dividend:

\$US 4,000,000.00 principal with \$US 360,000.00 annual dividend.

B. Are there diverse sources of funds/revenues for the area?

Yes.

Type/Amount/Sources:

GEF - \$US 706,633.00 over five years.

J.P. Morgan Debt Swap - \$US 433,762.00 over four years.

Government of Switzerland - \$US 800,000.00 over three years.

KFW (Germany)- \$US 450,000.00 over two years.

APPENDIX A

NOEL KEMPF NATIONAL PARK PROJECTED BUDGET AND FUNDING REQUIREMENTS, 1992-1996

CATEGORY	1992	1993	1994	1995	1996	TOTAL
PERSONNEL	\$48,800	\$48,000	\$40,000	\$40,000	\$40,000	\$216,800
TRAINING	\$5,300	\$6,000	\$6,800	\$6,800	\$6,800	\$31,700
EQUIPMENT/MATERIALS	\$11,000	\$3,000	\$2,000	\$2,000	\$2,000	\$20,000
VEHICLES	\$7,500	\$5,500	\$2,000	\$2,000	\$2,000	\$19,000
CONSTRUCTION	\$27,000	\$8,000	\$2,000	\$2,000	\$2,000	\$41,000
FIELD OPERATIONS	\$15,000	\$20,000	\$20,000	\$20,000	\$20,000	\$95,000
INSTITUTIONAL SUPPORT	\$12,000	\$9,000	\$7,500	\$7,500	\$7,500	\$43,500
TNC TECHNICAL ASSISTANCE	\$12,600	\$10,000	\$8,000	\$8,000	\$8,000	\$46,600
TOTAL	\$139,200	\$109,500	\$88,300	\$88,300	\$88,300	\$515,600
SOURCES OF FUNDING						
U.S.A.I.D.	\$100,000					\$100,000
PRIVATE FUNDING THROUGH TNC						
- PROGRAMMED	\$25,000	\$35,000	\$35,000	\$35,000	\$35,000	\$165,000
- NEEDED	\$14,200	\$74,500	\$53,300	\$53,300	\$53,300	\$248,600

Parks in Peril : FY 1993 Evaluation

	Amboro	Noel Kempff	Total Bolivia
ON-SITE PROTECTION & MANAGEMENT			
# Hectares in protected areas:	637,700	920,000	1,557,700
Management plan completed:			
Yes	0	0	0
No	1	1	2
Operations plan completed:			
Yes	1	1	2
No	0	0	0
Ecological values determined:			
Yes	1	1	2
No	0	0	0
Critical threats/areas located:			
Yes	1	1	2
No	0	0	0
Studies/monitoring underway:			
Yes	1	1	2
No	0	0	0
Radio equip. installed:			
Yes	1	1	2
No	0	0	0
# Radios on-site:	12	8	20
# Personnel:	33	20	53
# Rangers:	28	15	43
# Ranger training events:	3	3	6
# Km demarcated:	300	80	380
# Ranger centers:	6	7	13
Basic transportation:			
Yes	1	1	2
No	0	0	0
Continuous field supervision:			
Yes	1	1	2
No	0	0	0
COMPATIBLE USE/ECONOMIC DEVELOPMENT			
Socioeconomic values identified:			
Yes	1	1	2
No	0	0	0
Basic human needs met:			
Yes	0	0	0
No	1	1	2
Local participation in resource mgmt:			
Yes	0	0	0
No	1	1	2
Land tenure stabilized:			
Yes	1	1	2
No	0	0	0
# Local people employed with PIP funds:	9	7	16
LONG-TERM FINANCIAL SECURITY			
Long-term financial needs identified:			
Yes	1	1	2
No	0	0	0
Funding from external sources:			
Yes	1	1	2
No	0	0	0
Amount	\$158,500	\$935,677	1,094,177
Funding from Federal/State sources:			
Yes	1	1	2
No	0	0	0
Amount	\$42,500	\$204,718	247,218
Funding from local sources:			
Yes	1	1	2
No	0	0	0
Amount			0
Financial plan approved:			
Yes	1	1	2
No	0	0	0

Parks in Peril

1993 Evaluation

Colombia

Cahuinari National Park

Chingaza National Park

La Paya National Park

**Sierra Nevada de Santa Marta
National Park**

**PARKS IN PERIL PROGRAM
1993 EVALUATION FORM**

PROTECTED AREA NAME: CAHUINARI NATIONAL PARK

GENERAL INFORMATION:

Country: Colombia
NGO Partner: Fundacion Natura
Address: Avenida 13 No. 87-43, Bogotá, Colombia
PIP project officer: Claudia Romero
Government agency: INDERENA
Address: Carrera 10 No. 20-30, Bogotá, Colombia
PIP project officer: Marcela Cano

Conservation objectives of protected area:

- Conserve the biological processes and wealth that exists within Cahuinari National Park.
- Transform the park's surrounding area into an extensive buffer zone for the park.
- Stimulate active community participation for the management of the contiguous Indian Reserves and the Park.
- Rescue the Park as a central and fundamental element to development in the Amazon region.

Is there an NGO/GO agreement to work on this PIP site?

Yes, on file at TNC

Is the TNC/NGO agreement up to date?

Yes, on file at TNC

Is the PIP Work Plan and Budget up to date?

Yes, on file at TNC

Name of evaluator: Dilver Octavio Pintor Peralta
Address: Cra. 10 No. 20-30, Bogota, Colombia
Phone: (57 1) 283 0711
Fax: (57 1) 283 3458

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INTRODUCTION

Cahuinari National Park was created in 1987 and lies in the western region of the Amazon Basin with the Caqueta River forming the east to west park border. Covering 575,000 hectares (1,575,000 acres), this region of lowland tropical rain forest is characterized by an incredible degree of biological diversity represented by a varied aquatic and terrestrial flora and fauna with numerous white, clear, and black water rivers. Oxbow lakes, flooded forests, and alluvial plains serve as prime habitat to a number of endemic fauna from upper and lower Amazonas that continue to survive in the park.

The Caqueta River flows from a source in the Andes Mountains and is classified as a white water river with high sediment and nutrient content and low light penetration. There are other smaller tributaries that flow from a source in low lying areas on the tropical plateau or in the rocky areas. More commonly found are the dark water rivers that maintain the same characteristics year round, along with the less common clear water rivers that lack sediments and nutrients and have a high degree of light penetration.

Although the area of study is geographically located between zones of extreme weather conditions, it enjoys a stable climate characterized by warm weather and 3,500 mm of annual rainfall. The amount of rainfall varies from month to month creating seasonal differences. The flora and fauna respond to these changes, naturally generating a high biodiversity. The level of biodiversity within the park is further enhanced by the climatic history of the region and its biological processes.

Two indigenous reserves, the Predio Putumayo (5,230,553 hectares) and the Miriti Parana (1,162,500 hectares), partially overlap Cahuinari National Park. Four ethnic communities live within and around these reserves (Bora, Miraña, Yacuna and Matapí). The Bora and Miraña tribes actually have "traditional" territories within the Park. Of all of Colombia's parks in the Amazonian region, Cahuinari National Park is one of the three which does not have any non-indigenous inhabitants.

The cultural traditions and beliefs of these indigenous communities are extremely important to effective conservation in the area. For example, certain areas such as the "salados" (salt marshes), the hills, and gullies have special sacred significance to the tribes and are subject to special protection and management practices by them. Whether they hunt or protect an animal is determined by their beliefs and the attributes they assign each animal. Some animals are "owners" of the jungle and must be revered. The shaman is extremely important within these tribes because he maintains harmony between all the elements in the jungle and the world. The communities do practice subsistence hunting, fishing, gathering of crops and agriculture within Park boundaries.

The existence of these indigenous communities, and the traditions they maintain, are realities that must be incorporated into an effective management strategy. Communication, and the establishment of a rapport between park management and the local inhabitants, has been one

of the key issues for the Park since its inception. These communities are confronting an identity crisis as they come into contact with "western" ways, limiting their capabilities to assume the new challenging situations raised by development and conservation activities in the region.

Cahuinari National Park will be entering its third year in the PIP program and underwent an evaluation to measure the success to date against the objectives outlined in the original workplan and to provide recommendations for the FY94 workplan.. Dilver Pintor, INDERENA employee and former PIP liaison, and Dr. Cristina García Kirkbride, Colombia and Venezuela Country Program Director, carried out the evaluation for Cahuinari National Park.

A site visit was carried out from July 7 - 15, 1993 by: Claudia Romero, Marcela Cano, and Cristina García Kirkbride (CGK). Their visit formed the basis for this evaluation. At the park, the team met and traveled with Aureliano Sanint, Park director, Humberto Trujillo, and, Gentil Mendez, a Miraña indian. Together, the group traveled along the Río Caqueta, Río San Bernardo and Río Cahuinari. Several meetings were held with the indigenous groups along these rivers. Dilver Pintor had visited the area on several occasions in the past three years, and because of time constraints, did not join the group on this trip.

SUMMARY OF ACHIEVEMENTS AND RECOMMENDATIONS:

I. TECHNICAL

A. Achievements

Personnel

Aureliano Sanint began working as the Cahuinari Park director in May, 1993. Previous to that, Humberto Trujillo, a technician paid under PIP has been the acting director. Gentil Mendez, a Miraña indian is now working full-time as an assistant in the field. This small work group has established a permanent presence in the Park and a relationship with the communities.

The next step is to hire four community people to work as park-guards. This issue was discussed at a meeting held at Puerto Remanso (July 9, 1993) where the indigenous people suggested hiring them on a rotating basis. In other words, having a different person from the community fill the position every two or three months. This will provide training to a larger number of people in the community. Salaries will be covered by PIP. The concern here is that there will be no continuity and this should be considered by PIP.

Salary for Claudia Romero, PIP Coordinator, was paid out of the Cahuinari budget this year.

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Equipment and Infrastructure

The refurbishment of the cabin at the mouth of the Cahuinari River, along with the hiring of staff and the purchase of basic equipment (gear, radio, boats) to operate the cabin has taken place.

The construction of the Tres Islas Cabin (Caqueta River) has been postponed until an agreement with the communities is finalized because part of the Park falls within the Indigenous Reserve (Predio Putumayo). Some concern was expressed by the indigenous communities because they had heard that the contract for the construction of the cabin had been given to someone from Araracuara (outside of their community) and they wanted to know why they were not consulted and were not invited to sit in on the decision-making process.

Community outreach

Establishing a relationship with the local communities is a long on-going process and FPR has provided the foundations for this interaction. Some indigenous groups are more receptive than others to discussions of park issues. For example, the Mirití Indigenous Reserve inhabitants are much more open-minded to environmental education efforts than the María Manteca inhabitants. This positive attitude is also a result of the close work and open communication that Park personnel have established over the last several months with the communities.

The relationship is gradually improving because of continuous visits to the communities. The objective is to solicit community participation in the park's planning process in order to create a park management plan. It is important to note that Fundación Puerto Rastrojo's efforts over the last ten years have begun to pay off. The local indigenous community have participated in the zoning process of their reserve. They now understand this process is important for protecting their land.

Furthermore, the local community has forbidden the capture of Arawana (Osteoglossum bicirrhosum), an ornamental fish species within the Park. Arawana fishermen exacerbate the problem because in order to catch the baby fish (which are sold commercially) they must kill the adults.

An agreement between INDERENA and the communities was established (July, 1993) to regulate hunting activities in the area. It was clearly stated that hunting could only be allowed with an authorization or permission of the Indian Captain and the Park Director. This document is still in draft form and can not be circulated as it is yet.

Training

Training for the park guards and the park director has not been possible because of the lack of permanent staff in the area. However, they will attend a course for PIP parkguards at the Fauna and Flora Sanctuary of Iguaque (Boyacá) in September.

A workshop to inform the indigenous communities of current and future park management activities at Cahuinari National Park will take place in October.

Management

Fundación Puerto Rastrojo (FPR) has been working in the Amazon for fifteen years. Their staff have carried out numerous biological studies and community outreach projects. In order to take advantage of their expertise, an agreement between FPR and Fundación Natura (FN) to create an executive advisory group was put into effect. This arrangement has facilitated operational procedures as they relate to PIP. FPR staff participated in the Santo Domingo Conservation Training week (May 1993).

One of the research projects FPR has conducted in this area is the ecological study of the charapa turtle (Podocnemis expansa). This information provides the basis for the protection and management of the species. In addition, two documents FPR has written that are having an impact on decision-making in the area are:

- * "Cahuinari National Park: Constitution, Description and Management Foundations" where zoning for the Park is proposed and limits for management are given.
- * "Evaluation of the Fishing Activity in the lower Caquetá between Araracuara and La Pedrera- Amazon- Colombia"

B. Limitations

Frequent changes of INDERENA's employees and the lack of a permanent director for several months have been factors that have made it difficult to consolidate the park's work team. The park director is the only INDERENA employee who has "policing powers" (confiscations) for patrolling purposes. Although hiring personnel through FN has been an effective solution to INDERENA's financial crisis, it does present problems for the future. The INDERENA PIP liaison does not have the necessary time to efficiently coordinate the program due to other institutional obligations. At present, Marcela Cano and Germán Corzo are sharing that responsibility.

Most of the parks' area is also an Indigenous Reserve. Legal and policy issues related the management and use of natural resources is not clear and creates confusion and conflicts among the inhabitants. Institutional functions and roles are not clear either. There is not

enough clarity as to the rights and jurisdiction of INDERENA and other groups working and living in the area due to the existence of the Indian Reserves and the implications of the recent National Constitution upon the creation of Territorial Entities. Occasionally, this situation makes INDERENA's staff feel like intruders in the region. The same situation is found in other parts of the country.

The lack of understanding and information about the construction of the cabin to be built at Tres Islas (attainment of materials, labor, location), has caused a delay in the initiation of the work. This is a problem on top of the fact that the communities are awaiting a final agreement to be signed with INDERENA.

Work in the area is also influenced by regional pressures which means that solid results cannot be obtained over the short term.

The most significant threat for the Park is the presence of the freezer or "cold room" located outside the park at María Manteca area (Caqueta River). This freezer is used for keeping the fish collected here and carried to La Pedrera for commercial sale. There is an agreement between the owner of the freezer, Mr. Oscar Romero, and the indigenous community for its operation. This agreement expires in August of 1993. Unfortunately, it appears that this agreement will be renewed.

The existence of this freezer causes: occasional illegal use of the fishing resources in the Caqueta River, hunting pressures in the Park and some conflicts among the indigenous communities. This "cold room" may be moved to La Pedrera and may be replaced by two vessels that will use the Caqueta River as a means of transportation.

During FN's last visit to the Park, they became aware that Arawana commercial fishing activities are taking place within the Park.

There is a rumor that the south zone of the Park will be affected by loggers and hunters which are using the Putumayo River as a means of transportation.

Another event that could affect the Park is the reactivation of the drug traffic in this zone of the Amazon. Leftist guerrilla groups also pass through the park on occasion.

C. Recommendations

- Communities should participate in the planning process to formulate the management plan.
- Carry out a study of the limits of the Park and finish the design of the signs so that these can be posted along the boundaries.
- Work on the interpretative trail at the zone bordering the headwaters of the Cahuinari Rivers.
- Finalize the agreement with the indigenous communities as soon as possible in order to begin the construction of the cabin. Jurisdiction of the different groups must be clear in such an Agreement (Park, Reserves, communities). Reaching a consensus with the local communities is indeed a high priority.
- Construction of an overpass (from INDERENA's cabin, at Bocas de Cahuinari to the river), and a Kiosk (in front of the cabin) will be built by local inhabitants within the next six months. This is the construction of an area about 15 meters in diameter for meetings and workshops with members of the native communities and their leaders. The Bogotá headquarters of INDERENA approved these two constructions, and the local people have to organize themselves and decide who will do the work and how much they will charge for the job. PIP's budget will cover these expenses.
- Once the basic infrastructure of the Park is completed, a Control and Vigilance Plan should be formulated. It is important that the communities themselves take part in these efforts.
- The Indigenous Reserves should operate as buffer zones for the Park, though they are not legally established as such. Local community participation in the management process is essential to achieving conservation goals, and therefore, it is important to conduct workshops, experience exchanges and promotion campaigns with them. Also, TNC should work to stimulate INDERENA and other groups to address community health needs, where possible. Our participation in sustainable use activities must also be determined since support of these would strengthen community relations with park authorities. There is an opportunity to support a commercial

fisheries project which the community itself has pushed for. The materials needed are relatively few: large bags, tools, fishing nets, and a fish tank. Species that could be used: capitanes, arawana, babilla, and charapa (turtles). Specific actions needed to start the project are the following: First, select two representatives from the communities to visit the facilities at Araracuara and then go there with the park director. The purpose of this trip would be three-fold. First, to see Araracuara's operations and to ask questions about successes and failures. Second, to ask for their collaboration in providing technical assistance. Third, to find out who is working on similar projects. Then, the same team will visit Leticia where there are fish tanks that have been operating for at least 15 years. Finally, one or two pilot projects could be started before going full scale.

- The investigations that have been carried out on the Charapa turtle must be synthesized in order to formulate management activities and transfer this knowledge to the communities.

- A research program must be directed towards the following: covering the possible gaps in the studies of the Charapa turtle, studying the fish used for consumption in the communities, improving the description of the forests, studying the traditional use of vegetable species, palm species, demand of fauna, and the biology of the giant otter (Pteronura brasiliensis), black alligator (Melanosuchus niger) and the terecay turtle populations (Podocnemis unifilis). With the existing information on the charapa turtle it is possible to begin formulating a control and vigilance plan which integrates all the nesting sites on the Caqueta River. This research program should carefully consider all the information which Fundacion Puerto Rastrojo already has about the area. Coordination of research information exchange is essential between FN and FPR.

II. FINANCIAL

A. Achievements

Budget

The National Government assigned Cahuinari National Park a budget of ten thousand pesos, or \$13,333 dollars per year (\$1 US = \$750 pesos) under a category of "General Expenses". By June of 1993, expenditures total \$1,656 Us (\$1,242,477 pesos) or 12% of the budget. Of the balance, \$1,333 dollars (or \$1,000,000 pesos) has been ear-marked as carryover funding for 1994 for buying equipment. Nonetheless, expenditure rate has been minimal. This budget is managed by INDERENA's Amazon Region whose headquarters is in Leticia and Cahuinari is under this administrative jurisdiction. This office has respected the budget assigned to Cahuinari and the budget has not been use for other purposes.

Financial plans

There are several opportunities over the medium to long-term for Cahuinari to receive funding from other sources both directly and indirectly due to its location in the Amazon region. Possible sources are listed below:

- Cahuinari National Park has been targeted as a pilot protected area project. As part of this project, FPR proposed the creation of an "Intercultural Ecological Center of Cahuinari (CEICA): a strategy for the consolidation of the indigenous territories. " The Ford Foundation already contributed \$100,000 for the implementation of the first module of the project. The second module, "Agroforestry studies" will receive approximately \$300,000 from ITTO (approved July 1993).
- The "Planning and Management of Protected Areas in the Amazonian Region" project falls within the framework for Special Commission of the Environment (CEMAA) as part of the Amazonian Cooperation Treaty (TCA). Cahuinari NP is within the protected areas that this project will cover. It has the financial resources of the European Economic Community (EEC). Last year, the EEC approved 6.2 million dollars to be used for four components: training, institutional reinforcement, establishment of model areas and pilot areas.

B. Limitations

There are several reasons why the expenditure rate has not been carried out in an efficient manner both at INDERENA and FN. First, there were problems with the design of the Tres

Islas cabin and there were circumstances which delayed the decision about: (a) the place where materials should be acquired and (b) how they should transported to the park. Secondly, for several months the Amazon Regional Office of INDERENA was a provisional one, which delayed the institutional process and delayed implementation of activities. Finally, it was not until May of 1993 that a new Park Director was hired for Cahuinari. The Park had been without a Director for the five previous months.

USAID fiscal year ends September 31, and Colombians go by the calendar year. This unfamiliarity caused some initial confusion. The first disbursement for the park was not made until June 1992. So although the park is entering its 3rd year in the PIP program, the park has only had a year and one trimester to implement 2 years worth of workplans. This has caused setbacks in the anticipated expenditures.

There has been no external audit of Fundación Natura since 1990 and this is a requirement under the PIP agreement.

C. Recommendations

- Ensure that Fundación Natura sends its financial and narrative reports in on time so that any problems with carrying out conservation activities can be addressed as they arise.
- The entrance to the park is by plane from La Pedrera or by river, creating higher administrative and operational costs relative to other PIP sites. With this in mind, the percentage of administrative costs in relation to the total budget should reflect this need.
- Maintain constant communication with Fundación Natura about expenditures in the field so that a optimum expenditure rate can be achieved.
- Ensure that Fundación Natura has an external audit completed for FY91 and 92 which include an A133 audit as required by USAID.

III. ADMINISTRATION

A. Achievements

The administrative processes of Fundación Natura have been efficient in carrying out the management of funds, purchases, operation of "petty cash", logistical support, and in the daily functions for the smooth operation of the program. However, both narrative and financial reports have been submitted late over the entire FY93.

FN has hired an accountant, Oscar Guevara, on August 1, 1993, to take care of all of the accounts at FN.

The relationship between the coordinators of FN and INDERENA have been amiable and there has been constant communication and coordination. However, this good will has been affected to some degree by some misunderstandings and lack of clarity in different PIP matters on which INDERENA and FN work together.

B. Limitations

The lack of a Park Director for five months has partly caused delays in the implementation of workplan objectives. The Park has also been affected in some measure by the absence of an effective management effort on the part of INDERENA in the sectors of La Pedrera and Araracuara (Caqueta River).

C. Recommendations

- Update the workplan objectives for FY94 since the initial objectives were set for only two years.
- Work to increase INDERENA's commitment to Cahuinari National Park. To achieve this, we recommend a site visit by executive staff from both FN and INDERENA in order to increase their awareness of the management issues and needs in the park and buffer zone area.

IV. FINAL COMMENTARIES AND SUMMARY RECOMMENDATIONS

In general, there has been a very low expenditure rate at Cahuinari and slow implementation of park management activities. Cahuinari is now entering its 3rd year as a PIP site and should update its objectives to reflect the current realities of the park. Some of the conservation objectives outlined in the initial workplan have been attained. Since this workplan submitted objectives for a two year period and Cahuinari has only received funding for less than a year and a half, there should be considerable progress toward achieving the remaining objectives by the end of FY94.

The main objectives of the PIP Program should be taken into account when reprogramming park management activities for the coming year. Parkguards still need to be trained, boundaries still need to be identified and posted and construction of infrastructure must be completed. Significant inroads have been made with the communities and they have been very receptive to becoming more involved with park management activities. There are a significant number of community issues which need to be addressed in order to achieve PIP objectives. These issues fall outside of the scope of PIP guidelines but collaboration with other NGO's and GO in these issues must be sought as they are pivotal to the success of conservation in the area.

Also, there is a significant amount of research that has been conducted by Fundacion Puerto Rastrojo in the area. There should be an emphasis on coordination between FPR and FN to take advantage of the information that FPR has already collected over the last twelve years.

PERFORMANCE INDICATORS:

I. ON-SITE PROTECTION AND MANAGEMENT

A. Have the ecological values of the area been identified? YES.

- size (hectares): 575,000 hectares
- key ecosystems: lowland forest in poor drainage area; well developed highland forest (90% of the Park); lowland flooded forests; homogeneous alluvial forests
- key processes: Floristic diversity, some perturbed areas due to temporary cultivations, and some timber exploitation
- endemic species: Have not been identified
- threatened species: Jaguar (Leo Onca), Puma (Felis concolor), River otter (Lutra longicaudis), Giant otter (Pteronura brasiliensis), Charapa turtle (Podoenemis expansa) Tapir (Tapirus terrestris), Black caiman (Melanosuchus niger).
- migratory species: Not available. Bird species in the area include: Nocturnal curassow (Nothocrax urumutum), Wattled curassow (Crax globulosa), Gray-winged trumpeter (Psophia crepitans napensis), Parakeet (Pyrrhura melanura), Scarlet macaw (Ara macao) and Yellow and blue macaw (Ara ararauna)

B. Have critical threats been located on a map? YES.

- type: indigenous land use practices, timber exploitation, Charapa turtle exploitation, ornamental and commercial fishing, drugtrafficking
- source: Interviews with staff from FPR who have been working in the area for over 10 years
- significance: The existing pressures on the park are not considered critical.

- C. Are critical boundaries surveyed and posted?
NO.

of kilometers demarcated: N/A

- D. Are rangers trained and equipped?
NO.

Guards have only the minimum equipment necessary for operations.

of rangers on-site: 2

type of training received:

In October 93, they will receive training in a workshop in Iquaque (Boyacá) which has been organized by Fundación Natura-INDERENA and will be financed by PIP funds. Guards have not been trained to date primarily because they were recently hired.

- E. Do the personnel have transport and communications equipment?
YES.

and type:

1 radiotelephone, 2 base radios, 1 speedboat, 1 canoe, 3 motors

- F. Have basic protection facilities been constructed on-site?
YES.

location:

One cabin at the mouth of the Cahuinari River.

type and M² size of facilities:

It is a wood cabin, one level, built on top of supports, 150 M²

- G. Does the area have continuous field logistical support?
YES.

type of NGO support:

financial support in the field, provisions, "petty cash"

type of GO support:

travel costs and per diem expenses, provisions, maintenance, materials and supplies.

- H. Are ecological carrying capacity studies, baselines and monitoring underway?
YES.

type of study:

Baseline studies of the sustainable use of plants in the Amazonian region (including Cahuinari) are being carried out by Fundacion Puerto Rastrojo (FPR). Also, turtle studies have been carried out by FPR and two scientists from University of Ohio have been conducting a research project within the park on the ecology and ethology of the Charapa turtle. Arawana(local fish species) and Tapirus studies are under consideration at the moment.

- I. Has a Management Plan been completed for the area?
YES.

year of publication:

FPR has completed the Management Plan titled "P.N.N Cahuinari-Constitución, descripción y bases para el manejo" in September 92.

- J. Are Annual Operations Plans and Budgets completed?
YES.

II. COMPATIBLE RESOURCE USE:

- A. Have key social and economic values of the protected area been identified?
YES.

key values:

The Bora and Miraña native communities include a group of eighty people dedicated to traditional practices of subsistence hunting, fishing, gathering of plants, and agriculture who live on the Southern banks of the Caqueta River and inside park boundaries. Two indigenous reservations, Predio Putumayo (5,230,553 hectares) and Miriti Parana (1.162,500 hectares) are partially within the park boundaries. A total of 1500 indigenous people live in the immediate area of the park and derive a portion of their livelihood from it.

Puerto Rastrojo Foundation has conducted many projects with the community in the area since 1982. Three previous projects undertaken in the area with the indigenous people include: "Indigenous people's participation in the development of the Amazon", "Cultural flowering and conservation of the lower Caquetá river region", and "Consolidation of the Amazon Region." Each of these has targeted to some extent the social values within the protected area.

The economic values within the park include: source of fish for subsistence and commercial purposes, timber products, giant river turtle and other bird and animal species for hunting.

- B. **Have basic human needs of local communities been satisfied? (ie., health, safety, welfare, etc.)?**
NO.

key issues:

Health and sustainable use issues are of greatest importance

- C. **Is there direct community and resource user participation in resource management and allocation decisions?**
NO.

key formal mechanisms:

The indigenous people have control over the use of the natural resources within their Reserves, which overlap the park area. FPR is responsible for promoting the CEICA project which has as one of its main objectives to stimulate community participation in managing their resources. This project has received funding from the Ford Foundation and ITTO.

- D. **Is the land tenure in the area stable?**
YES.

land tenure system:

Two Indigenous Reserves overlap the Park. However, colonization is not a problem since INDERENA, with the help of FPR, relocated the colonists living within the park several years ago.

- Is local partner protecting land through acquisition?
NO.

The two existing landholdings were purchased by INDERENA

size and location (core/buffer):

The buffer zone consists of the two Indian Reserves which overlap and border on the Park.

- E. **Are there diverse agricultural and natural resource uses within the carrying capacity of the protected area buffer zone?**
YES.

principal land/resource uses:

farming, use of non-timber products from the forest, fishing and subsistence hunting

F. Are local people employed by PIP project funds?

YES.

of men 2

types of positions: Driver and field assistant

of women 0

4 parkguards from the local indigenous community will be hired within the next fiscal year.

III. LONG-TERM FINANCIAL SECURITY

A. Have the long-term financial needs of the protected area been identified?

NO.

There has been no planning to identify these needs..

B. Are there local revenues that support the protected area?

NO.

C. Are there national budget allocations that support the protected area?

YES.

type of support and estimated annual US\$ dollar amount:

US\$11,764.70 (exchange rate \$US 1 = 850 pesos) has been allocated to the area from INDERENA

D. Are there international funds that support the protected area?

YES.

type of support and estimated annual US\$ dollar amount:

Cahuinari National Park has been targeted as a pilot protected area project. As part of this project, FPR proposed the creation of an "Intercultural Ecological Center of Cahuinari (CEICA): a strategy for the consolidation of the indigenous territories. " The Ford Foundation already contributed \$100,000 for the implementation of the first module of the project. The second module, "Agroforestry studies" will receive approximately \$300,000 from ITTO (approved July 1993).

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The "Planning and Management of Protected Areas in the Amazonian Region" project falls within the framework for Special Commission of the Environment (CEMAA) as part of the Amazonian Cooperation Treaty (TCA). Cahuinari NP is within the protected areas that this project will cover. It has the financial resources of the European Economic Community (EEC). Last year, the EEC approved 6.2 million dollars to be used for four components: training, institutional reinforcement, establishment of model areas and pilot areas.

E. Has a Financial Plan been approved for the protected area?
NO.

F. Is an fiscally responsible administrative system in place to manage the funds?
YES.

Internal controls at INDERENA and Fundación Natura
external audit at TNC? No

G. Are financial resource committed to operations of the area?
YES.

categories and projected budget:

INDERENA and PIP budgets. In FY93 the following amounts were budgeted for the park: \$11,764 from INDERENA and \$110,003 from PIP. Projected budget figures are not available at this time.

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

I. ON-SITE PROTECTION AND MANAGEMENT:

A. Has there been a change in the natural vegetation or land cover?
No information.

how was this change measured?

There is no information to determine any change in the land cover. The only information that exists is the local opinion or perception of such a change.

B. Has there been a change in the distribution, abundance or status of key species?
No information.

C. Has there been a change in water quantity or quality?
No information.

11/6

There is a need to define the parameters that can be measured in order to quantify any of these type of changes.

While FPR has conducted many basic research studies in the area over the last ten years, none of these address the measurement of "change". Basic biological studies of the vegetation, taxonomy, use of species and resources by the community have been carried out.

II. COMPATIBLE RESOURCE USE:

- A. Have there been changes in the pattern or intensity of land or natural resource use? No information.

how were these changes measured?

There have not been formal studies to measure the changes but FPR has been working in this region for over 10 years. During this time, they have worked to instill sustainable use practices of natural resources, specifically the Charapa turtle and the Arawana fish species, by the local communities. To date, the opinion of the local inhabitants is that the numbers of these species have risen so that implementing a commercial fishery might be a possibility.

- B. Have there been changes in the social or economic conditions of local residents? No information

No socio-economic studies have been carried out within the area to determine these changes

- C. Have there been changes in the policies or institutions?
YES.

cite source(s):

With the new Constitution, it is government policy to favor the Indigineous Reserves and permit the sustainable use of the resources of the inhabitants who depend on them both within the Park and within the Reserves.

III. LONG-TERM FINANCIAL SECURITY:

A. Has a trust fund or endowment been established for the protected area?
NO.

B. Are there diverse sources of funds/revenues for the area?
YES.

type and amount:

\$100,000 - for implementation of first module of the CEICA project.

\$300,000 - for implementation of the second module of the CEICA project

\$6.2 million - for training, institutional reinforcement,
establishment of model areas and pilot areas (only some portion
of this may benefit Cahuinari NP)

sources:

European Economic Community

ITTO and Ford Foundation

**PARKS IN PERIL PROGRAM
1993 EVALUATION FORM**

PROTECTED AREA NAME: CHINGAZA NATIONAL PARK

GENERAL INFORMATION:

Country: Colombia

NGO Partner: Fundación Natura
Address: Avenida 13 No. 87-43, Bogotá - Colombia

PIP project officer: Claudia Romero

Gov. Agency: Instituto Nacional de los Recursos Renovables y del Ambiente,
INDERENA
Address: Cra. 10, No. 20-30, Bogotá, Colombia

PIP project officer: Germán Corzo

Conservation objectives of protected area:

- Conserve a representative area of páramo and Andean forest ecosystems in the Western Cordillera
- Protect local fauna and flora endemics
- Assure the perpetuity of the landscape in order to provide recreation and environmental education opportunities.
- Assure the conservation of natural ecosystems for research purposes.
- Develop an outline for the conservation plan and management of the eastern sector of Chingaza National Park.

Is there a NGO/GO agreement to work on this PIP site?

Yes, on file at TNC

Is there a TNC/NGO agreement up to date?

Yes, on file at TNC

Is the PIP Work Plan and Budget up to date?

Yes, on file at TNC

Name of evaluator:	Manuel Benjamín Vivas	Cristina Garcia Kirkbride
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INTRODUCTION

Created in 1977, Chingaza National Park covers 50,374 hectares and is located to the northeast of Bogotá. The park includes flat lands with rolling hills as well as steep mountainous areas and deep ravines. Altitudinal gradients range from 800 to 4,000 meters with a large percentage of the land lying above 2,300 meters. The presence of numerous remnant glacial lakes initially formed during the Pleistocene period and heavy rainfall to the east of the park makes Chingaza National Park an important source of water.

The park protects the upper watershed regions of the Negro, Guatiquía, Guavio and Siecha Rivers. These are important water sources for the Orinoco river basin as well as several major cities, including Bogotá with more than 6 million inhabitants.

The average median temperature ranges from 4.5 to 21.4° centigrade and the average yearly rainfall is 3,322 mm. The area does not usually receive more than 3.5 hours of sunlight, and sometimes as little as 2.5 hours due to an almost constant cloud cover and frequent fog in some sectors.

There are four types of natural biological communities represented here: hygrophytic forests with warm soil and a canopy of 25 meters that occupies about 40% of the mountainous area, hygrophytic forests with cold soil and a canopy of 12 meters occurring mostly at altitudes between 3,000 and 4,000 and a wide variety of epiphytes, subpáramo, and páramo vegetation.

Most of Colombia's Andean forests including this park and the buffer zones have been subject to great pressure from colonists. Land tenure is a problem in this park. Privately owned land within the park is still unresolved as to who the real owners are and also about reallocation of dwellers to other places outside the park due to the government's budgetary constraints and legal costs. The economic activities carried out by owners have done a great deal of harm to the park's natural resources, primarily through cattle grazing and fires in certain areas of the páramo for agriculture purposes.

Bogotá receives most of its water supply from Chingaza National Park. In addition, the water utilities company (EAAB) owns 35.6% of the Park's total area. Therefore, management of Chingaza National Park is carried out in conjunction with INDERENA (Instituto Nacional de los Recursos Naturales Renovables y del Ambiente) and EAAB. In 1991, Fundación Natura with support from The Nature Conservancy's (TNC) Parks in Peril Program (PIP) joined in helping management of the east sector because it contains forest resources and the watersheds important for the maintenance of the ecosystems that provide water for the entire city of Bogotá. The enlargement of the park area in its eastern sector to protect an important forest area known as Farallones de Medina was defined by INDERENA and Fundación Natura (FN) as the main objective of the program.

As part of the Parks in Peril Program, an on-site evaluation of Chingaza National Park, Colombia was conducted by independent contractor Manuei Benjamín Vivas, biologist and former Project Coordinator of FN, from July 19 - 27, 1993, and by Dr. Cristina Garcia Kirkbride (CGK), TNC staff.

The evaluation is based on an interview guide that was prepared by PIP staff at TNC and served as a framework to elicit desired information. The interview guide will quantify Chingaza Park conservation activities while a final section on achievements and recommendations will provide extensive detail regarding these activities. Please refer to this section for greater specificity about the accomplishments and current realities of the Park.

To complete the evaluation, all relevant project documentation was analyzed. This included: Approved Fiscal Year 1993 PIP Work Plan, Memorandum of Agreement or convenios, PiP Quarterly Reports, and correspondence.

This evaluation was carried out to measure the success to date against the objectives outlined in the original workplan and to provide recommendations for the FY94 workplan. Chingaza National Park is entering its 3rd year as a Parks in Peril site and received its first USAID funding in April of 1992. As a result, the first year of the project was very short and progress was limited.

SUMMARY OF ACHIEVEMENTS AND RECOMMENDATIONS

I. TECHNICAL

Achievements

Three local people were hired as park-guards in June, 1993. A fourth park-guard was hired August 1st. They receive full work benefits as required by the Colombian work laws. Edgardo Gutierrez was hired as Park Director in June, 1993, and his salary is paid by INDERENA.

A jeep, a motorcycle and two mules were purchased to supplement transportation equipment in the Park because the roads are narrow and have no pavement. Communication equipment was also improved with the acquisition of three radios, a 40m radio and two 2m handies.

The proposal to redefine and enlarge the boundaries of Chingaza National Park was completed in January 1993, and is currently being studied by INDERENA. The enlargement of the park in its eastern sector will include two areas with important Andean forest formations. The first area, known as Farallones de Medina, is a mountainous formation of critical hydrological importance to the Orinoco Basin in the eastern region of Colombia, and is a vital natural resource for the development and maintenance of important social, economic and cultural processes. The second area is located in the slopes of the Serranía de los

Organos. The total proposed area to be included is 44,435 hectares in size which would increase the park's size to 98,390 hectares.

A land tenure study of the buffer zone, and the area proposed for enlargement was also completed for the proposal. Private properties, public lands, and government private lands (EAAB) were identified. In addition, two maps were created. One is a vegetation map covering the area under study, the other is a land tenure map (Final report under preparation at FN). Secondary biological information (through interviews, bibliographic reviews, and on-site general observations) was partially obtained for the area, and sampling for an on-site biological and physical preliminary study were made.

Six critical areas were identified in the proposal:

- Road La Punta- San Juanito Road. This is under construction and may represent a serious threat to the Park in the southern sector.
- Río Humea watershed. This area presents problems of deforestation.
- Río Guacavía watershed. This area is subject to deforestation due to colonization processes.
- Eastern sector of Farallones de Medina. Oil exploration activities are being carried out.
- Lagunetas de Pozo Azul. This is an important ecological small lake system that is in the process of desiccation.
- Mina de Palacio. This is located in Chingaza's Western Sector where lime extraction has been taking place before Chingaza was created as a national park. Soil erosion is quite intense in this area.

Publication of "Carpanta: Selva Nublada y Paramo" in January of 1993. This book presents all of the biological information collected in the area over the last eight years by different researchers. It also includes a chapter summarizing how this information can be applied to management strategies.

Limitations

Due to the presence of guerrilla groups in Chingaza's eastern sector, field work has been limited in this area. The recognition of the park's boundaries and the gathering of secondary biological information has been partially completed.

The consolidation of conservation efforts in Chingaza's eastern sector cannot be totally achieved until the proposal for the parks's enlargement is approved by the Colombian

government. Although INDERENA is very interested in its approval, it may take some time before the president signs the decree.

There has been little progress in carrying out basic and applied research in the park. Although some research is currently being done in the park, these projects are not part of a structured research plan.

There have been construction delays, particularly in the case of the Monterredondo Sector where problems related to property rights between INDERENA and EAAB exist. This situation may cause future problems for the execution of park activities.

Recommendations

- The identification of other critical areas in Chingaza's western sector is important for implementing management strategies. Critical areas for protection were identified in the proposal for enlargement of Chingaza's eastern sector. The identification of other critical areas in the western sector will provide an integrated view to address conservation needs necessary for the creation of a comprehensive long term working plan (Chingaza's Management Plan).
- Steps towards establishing agreements with universities should be taken in order to move ahead with basic and applied research in this Andean region. A research strategy, as part of an overall management plan, should be developed with participation of these universities and with EAAB's support. A Committee should be created to define research guidelines, and to supervise and evaluate research activities.
- Improvements in the relationship between INDERENA and EAAB, as well as a clearer definition of the participation of the latter in the program, are needed to achieve conservation goals and implement future park management activities.
- Steps towards defining Chingaza's Management Plan should be taken. This activity should be considered as the main goal for the next three years of the program.

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II. FINANCIAL

Achievements

a. Current budget

The total budget FY'93 is \$254,686 including \$121,923 committed from USAID, and \$11,333 from TNC. Total funds disbursed to FN were \$59,414.65 (\$14,414.65 of this was reprogrammed from FY'92). Expenditures through June 30 totaled \$57,729 (43.3% of total funds USAID/TNC).

INDERENA's budget for Chingaza National Park in 1993 totaled \$40,000 (US \$1 = Col \$750). No other local funds are available aside from these.

b. Existing and possible external sources of funding

The proposal for the creation for the Ministry of the Environment is currently being studied by the Colombian Congress. It is very possible that it will be created before the next presidential election in 1994. The National Park System will function under the Department of Special Management Areas, and the proposed National Parks Fund (NPF) could be created to secure funding for the National Park System. Funds for the NPF could be obtained through taxes on the use of non-renewable resources.

FN and Universidad Javeriana through the Institute for Environmental Studies and Development (IDEADE) presented the project "Planificación para la Conservación y el Uso Sustentable en los Ecosistemas Andinos del Macizo de Chingaza" to the German Agency for Technical Cooperation and Development (GTZ). The first step of the proposal consists of creating a work team that will develop the final proposal. The total budget for this first action is US\$ 38,500.00.

The project "Manejo de Recursos Naturales en la Cuenca Alta y Media del Río Guatiquía, Departamento del Meta" is included in the Tropical Forestry Action Plan for Colombia (PAFC). (Proposed by the Corporación Forestal de Villavicencio and the Gobernación del Meta with funds from the GTZ, it is an important effort for the conservation of the Guatiquía River watershed which supplies the Villavicencio aqueduct). Villavicencio is the capital city of El Departamento del Meta and has more than 160,000 inhabitants. Since the Guatiquía River drains East from the Chingaza massif and an important area of the watershed is included in the proposal for the enlargement of Chingaza National Park, the implementation of this project could benefit PIP's efforts at Chingaza. The total budget of the project is \$2,400,960.

In April 1993, TNC and the Inter-American Foundation (IAF) signed a Memorandum of Agreement to enhance In-Country capabilities and to better conserve natural resources. Because a number of the objectives of the PIP program are to conserve protected areas, and

to identify and social and economic development projects inside and outside the park, the collaboration MOU helps between Fundación Natura and EVALUAR (a partner of IAF in Colombia) helps in the implementation of programmed activities and, thus, conservation goals could be achieved. To respond to this agreement, FN and EVALUAR are working to define a strategy to support local initiatives for the social and economic development of inhabitants of the buffer zones of PIP's conservation areas in Colombia. The parties are proposing to create a fund (Community Environmental Projects Fund-CEPF) to support these initiatives. The first step is to consolidate the interinstitutional relationships (FN, EVALUAR and INDERENA).

ECOFONDO is another possible source of funding. By presenting projects the NGOs could receive funding from this ECOFONDO. This entity is legally incorporated and has funds from USAID, Americas Enterprise Initiative, and the Canadian government. This support to NGOs could be an important funding source for PIP activities over the next three years.

The construction of the Visitors Center in the park will enable INDERENA to start an ecotourism program through which important economic resources for the park could be obtained. This program is part of the initiative to develop the Strategy for the Conservation and Development of the Colombian National Park System.

The El Guavio Hydroelectric Power Plant started operating in December 1992. An Environmental Action Plan ("Plan de Manejo y Ordenamiento Socio-economico y Ambiental de la Cuenca del Río Guavio para la operación del Proyecto Hidroeléctrico en su Área de Influencia") was developed to identify and evaluate the social and environmental impact of the El Guavio Hydroelectric Project. The Forest Reserves of La Bolsa, Chorreras y Concepción, El Predio La Rusia, and Carpanta Biological Reserve, all of which belong to Chingaza's buffer zone in the northeastern sector, are located in the area affected by the project. INDERENA has taken the first steps to work with the EAAB to develop a strategy for land acquisition and protection of this area by hiring park-guards. This initiative can represent important resources for the protection and conservation of Chingaza's northeastern buffer zone.

Limitations

As mentioned before, the construction of infrastructure in the Monterredondo Sector was not possible. Construction of a cabin in the northern sector (Siecha cabin) was postponed. These delays have contributed to the low expenditure rate. Although the final construction plans of these cabins have been approved by INDERENA, their construction cannot start until property conflicts with EAAB are solved. INDERENA is working actively to solve these problems.

Interinstitutional conflicts between INDERENA and EAAB have limited PIP-Chingaza's activities and caused low expenditure rates.

The presence of guerrilla groups in the eastern sector of Chingaza has limited activities in the park. The presence of the guerrilla groups stems from presence of opium poppy crops in the region, from which these groups obtain their revenue.

Changes in INDERENA's personnel (National Parks Chief Division, PIP Coordinator, and Park Director) have also delayed expenditure of budget resources. Consolidation of a new working team takes time, particularly when a government institution is involved.

Recommendations

- Local funds in the budget for FY'93 total \$121,430. Cross-entries by the local NGO and INDERENA are not specified. This must be clarified by FN.
- There is a great potential for funding for management activities at Chingaza National Park. FN should closely follow the outcome of projects to identify future availability of funds that could be used to complement PIP-Chingaza management activities.

III. ADMINISTRATION

Achievements

FN hired an accountant, Oscar Guevara on a full a time basis. This, theoretically, will enable FN to improve it's record-keeping. Interpersonal relations between INDERENA and FN were problematic during the program's first year. These relationships have improved significantly to the benefit of the program. The new Park Director is enthusiastic about the program and is working very closely with FN's staff.

INDERENA finished the construction of it's Administrative Center for the park. It also includes a laboratory, a Conference Center, and a Visitors Center. These excellent facilities are of great importance in the development of educational, recreational and research programs.

Limitations

Although FN has been successful in the administration of the program, an external audit has not been done since 1990.

Although FN hired an accountant on a full time basis, PIP quarterly reports have not been completed on time. Administrative personnel changes have also cause delays in sending the financial reports.

There are interinstitutional managerial differences between INDERENA and EAAB that have caused a delay in the work plan schedule. The presence of the EAAB in Chingaza has been ignored by INDERENA and their participation in the program has been almost non-existent.

Recommendations

- An external audit for FN is necessary to evaluate their record-keeping. It is also necessary to assess the administrative personnel performance and capabilities for programs and budget expenditures. FN is contacting different agencies for this purpose.
- PIP quarterly reports need to be submitted on time to avoid delays in financial processing and follow up of the program.
- Additional support to equip the laboratory and conference center is necessary. Appropriate equipment and furniture is required for the implementation of research and educational activities.
- The participation of EAAB staff in the program is important. Workshops to inform EAAB personnel (office and field) about PIP-Chingaza's objectives and activities should be done with the participation of INDERENA.
- INDERENA staff suggested that there is the need to hire a person that will serve exclusively as PIP Coordinator-INDERENA in Bogotá.

FINAL COMMENTARIES AND SUMMARY RECOMMENDATIONS

Chingaza National Park will be entering its third year in the PIP program. It received its first funding in April of 1992 which is one of the reasons that expenditure rate has not been optimum. There has only been a year and a half to spend two years of funding. Despite this, the expenditure rate at Chingaza is very close to being on target, despite construction delays.

Overall, Chingaza has accomplished a great deal of the objectives listed in the original workplan. A solid conservation presence has been created in the area by the consolidation of a work team consisting of eleven parkguards and a Park Director. Contact and informal discussions and workshops have been carried out with the local communities who are now aware of the Park's existence and its boundaries. Construction of some of the Park's infrastructure has been completed, especially in the eastern sector of the Park.

There has been a good deal of research conducted within and around the park, particularly within the Carpanta Reserve which serves as a buffer zone to Chingaza National Park. Now that research exists, it is important to use it for management activities and formulate a research plan for the area. This is especially important for monitoring, of which there is none.

The top priority for the coming year should be to finish construction of the infrastructure of the park which has been delayed this year because of conflicts with EAAB. These inter-institutional conflicts need to be resolved as part of this goal. Also, community outreach should continue to be an important part of the park's management activities. The newly built administrative center in the eastern zone of the Park needs to be equipped.

While there has been a lot of activity in the eastern zone of the park, Fundación Natura has not been very involved with activities in the western sector where INDERENA and EAAB work more intensely. There should be greater coordination between these different entities to achieve the consolidation of the park as one management unit. Fundación Natura should strive to consolidate its efforts in the eastern sector even though the enlargement has yet to be approved.

Since expenditure rates for this park are on target, and are the highest of all of the Colombian sites, this should be an important consideration as the workplan for the following fiscal year is developed. Chingaza NP has the potential to become a model conservation area through the establishment of an inter-institutional and multidisciplinary working team.

PERFORMANCE INDICATORS:

I. ON-SITE PROTECTION AND MANAGEMENT

- A. Have the ecological values of the area been identified?
YES.**

size (hectares):
50,374

key ecosystems:
Páramo, Sub-páramo, High Andean Forest, Sub-Andean Forest

key processes:
Maintenance and production of water for the city of Bogotá

endemic species:
Squirrel (Sciurus granatensis griseimembris); Antpitta (Grallaria sp. nov.),
Mountain parakeet (Pyrrhura calliptera), hermit hummingbird (Phaethornis
syrmatophorus); field mouse (Akodon sp.); emerald hummingbird (Metallura
sp.)

threatened species:
spectacled bear (Tremarctos ornatus); Colored deer (Mazama rufina); Paramo
duck (Avias flavirostris) etc.

migratory species:
There are 156 bird species in the buffer zone. Some examples include:
Nothocercus julius or gallineta; Grallaricula nana or correlona; and Pyrrhura
calliptera or periquillo.

- B. Have critical threats been located on a map?
YES.**

type: Burns, extensive cattle, hunting
source: Fundación Natura - Proposal for the enlargement of Chingaza NP (the
map detailing these threats is being finished)

- C. Are critical boundaries surveyed and posted?
YES.
Boundaries have been surveyed but not posted.**

of kilometers demarcated: 0

- D. Are rangers trained and equipped?**
YES.

of rangers on-site:

Five paid by PIP. They are: Victor Ramos, Eriberto Raigaso, Henry Forero, Germán Rozo, and Eva Maria Rodriguez. In addition, there are six parkguards under INDERENA's payroll. It is important to know that Eva is the first woman working as a parkguard under PIP. However she is not from the area but from the city.

type of training received:

General information about the park and management functions. Training for park guards and the director has not been possible because of the frequent changes in personnel. However, they will attend a course for PIP parkguards at the Fauna and Flora Sanctuary of Iguaque (Boyacá) in October.

- E. Does the personnel have transport and communications equipment?**
YES.

and type: 1 Camper, 1 motorcycle, 2 mules, radios

- F. Have basic protection facilities been constructed on-site?**

The Monterredondo facilities at the northeast side of the park were completed using INDERENA's funds.

type and size of facilities:

Visitors center, office, laboratory, park guard house, and camping facilities

- G. Does the area have continuous field logistical support?**
YES.

type of NGO support: Logistical, technical and administrative

type of GO support: Logistical, technical and administrative

- H. Are ecological carrying capacity studies, baseline and monitoring underway?**
Carrying capacity studies have not been done for this park.

type of study:

Cartographic and biological inventories have been done. A map was produced indicating the existing political and administrative units. Also, it shows the size of properties within the park.

I. **Has a Management Plan been completed for the area?**

NO.

The initial stages are underway.

year of publication: N/A

J. **Are Annual Operations Plans and Budgets completed?**

YES.

II. **COMPATIBLE RESOURCE USE:**

A. **Have key social and economic values of the protected area been identified?**

YES.

key values:

Extensive cattle ranching, subsistence agriculture practices, and deforestation.
These activities are carried out by the local farmers for the most part.

B. **Have basic human needs of local communities been satisfied?**

(ie., health, safety, welfare, etc.)

NO.

C. **Is there direct community and resource user participation in resource management and allocation decisions?**

NO.

However, there have been informal discussions with community leaders about park management issues in order to begin to stimulate their involvement.

key formal mechanisms:

Workshop for the local municipal mayors

D. **Is the land tenure in the area stable?**

NO.

land tenure system:

Private land titles, uncultivated common land, National Park

Is local partner protecting land through acquisition?

YES.

size and location (core/buffer):

1,200 hectares (Carpanta Reserve) located in the western sector of Chingaza NP in the buffer zone.

- E. Are there diverse agricultural and natural resource uses within the carrying capacity of the protected area buffer zone?

YES.

Even though these uses have not been quantified, they can be established with some certainty.

principal land/resource uses:

Extensive cattle ranching, subsistence agriculture, timber extraction

- F. Are local people employed by PIP project funds?

YES.

of men: 4

Eriberto Raigaso, Victor Ramos, Henry Forero, and Germán Rozo.

types of positions: parkguards

of women: 1

No local women are employed as parkguards, but Eva Maria Rodriguez from the interior is working as such.

III. LONG-TERM FINANCIAL SECURITY

- A. Have the long-term financial needs of the protected area been identified?

NO.

Under the proposed Ministry of the Environment, consideration is being given to a tax on water consumption. Theoretically 1% of this budget will go for conservation projects at Chingaza NP.

title and year of document:

"Ministerio del Medio Ambiente - Ultima Oportunidad" by Senator Claudia Blum, June, 1993.

- B. Are there local revenues that support the protected area?

NO.

- C. Are there national budget allocations that support the protected area?

YES.

type of support and estimated annual US\$ dollar amount:

INDERENA budget for 1993 = \$40,000 for Chingaza, which includes support from EAAB

- D. Are there international funds that support the protected area?
YES.

type of support and estimated annual US\$ dollar amount:

For 1993, USAID = \$121,923, TNC = \$11,330

- E. Has a Financial Plan been approved for the protected area?
NO.

- F. Is an fiscally responsible administrative system in place to manage the funds?
YES.

external audit at TNC? NO.

- G. Are financial resource committed to operations of the area?
NO.

Not at present. Resources may be available from the proposed Ministry of the Environment and from ECOFONDO.

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STRATEGIC INDICATORS:

I. ON-SITE PROTECTION AND MANAGEMENT:

- A. Has there been a change in the natural vegetation or land cover?**
NO.

At present it is difficult to measure whether there has been noticeable changes. Changes are evident to people who know the area quite well. They maintain that there has been a change in the land cover in the northeast side of the Park over the last ten years. This information is base on people's perceptions rather than real data.

- B. Has there been a change in the distribution, abundance or status of key species?**
YES.

Distribution of condor species has increased. This study was not funded by PIP. There are no baseline studies for comparison for other species.

- C. Has there been a change in water quantity or quality?**
No information available.

EAAB has done studies of water volume and quality control for water consumption. Information is available only for EAAB use.

II. COMPATIBLE RESOURCE USE:

- A. Have there been changes in the pattern or intensity of land or natural resource use?**
No information.

- B. Have there been changes in the social or economic conditions of local residents?**
No information.

Although Fundación Natura conducted a socio-economic survey, this study only shows the number of inhabitants and details their agro-forestry practices. There is no previous study that could be used for comparison. EAAB, INDERENA, and FN staff all concur that education levels have indeed increase in the area, and that economic conditions for the region are better now than they were ten years ago. But, one can not categorically say that this is the result of PIP activities.

C. Have there been changes in the policies or institutions?

No radical changes. Changes are possible in the very near future if a Ministry of the Environment is created and with the creation of ECOFONDO.

III. LONG-TERM FINANCIAL SECURITY:

A. Has a trust fund or endowment been established for the protected area?

NO.

B. Are there diverse sources of funds/revenues for the area?

NO.

**PARKS IN PERIL PROGRAM
1993 EVALUATION FORM**

PROTECTED AREA NAME: LA PAYA NATIONAL PARK

GENERAL INFORMATION:

Country: Colombia

NGO Partner: Fundación Natura
Address: Avenida 13 No. 87-43, Bogota - Colombia

PIP project officer: Claudia Romero

Gov. Agency: INDERENA (Instituto Nacional de los Recursos Renovables y del Ambiente)
Address: Cra. 10, No. 20-30, Bogotá, Colombia

PIP project officer: Germán Corzo

Conservation objectives of protected area:

- Conserve a representative area of humid tropical forest in the Colombian Amazon
- Protect endemic flora and fauna
- Ensure the perpetuity of the landscape in order to provide future recreation and environmental education opportunities.
- Ensure the conservation of natural ecosystems for research purposes.
- Evaluate the relationship between the indigenous populations and the natural resources in the National Parks and indian reserves.

Is there a NGO/GO agreement to work on this PIP site?
Yes, on file at TNC

Is there a TNC/NGO agreement up to date?
Yes, on file at TNC

Is the PIP Work Plan and Budget up to date?
Yes, on file at TNC

Name of evaluator: Manuel Benjamín Vivas
Address: Calle 98A No. 56A-81
Bogotá Colombia
Phone: (57 1) 253-7314

Cristina García Kirkbride
1815 N. Lynn St.
Arlington, VA 22209
(703) 247-3764

INTRODUCTION:

La Paya National Park, a lowland Amazonian site in Colombia, is currently finishing its third year in the Parks in Peril program. As part of its involvement in this program, an evaluation was carried out to measure the success to date against the objectives outlined in the original workplans and to provide recommendations for the FY94 workplan.

Benjamin Vivas, an independent contractor and biologist, as well as a former Project Coordinator for FN, and Cristina Kirkbride, TNC, carried out the evaluation for La Paya National Park from July 19 - 27 1993.

As the Park enters its fourth year in the PIP program, it raises questions about graduation, implementation of conservation activities and the possibilities of long term financial sustainability. This evaluation attempts to address some of these issues within the context of the Parks in Peril program.

Biological Importance

La Paya National Park is located in the south-western region of the Departamento del Putumayo in the jurisdiction of the Puerto Leguízamo municipality between the Caquetá and Putumayo rivers. La Paya National Park was declared a national park in April of 1984, and is 442,000 hectares in size. The average yearly temperature is 25 degrees centigrade, and the annual rainfall is 2,600 millimeters.

Three large rivers surround the park: the Putumayo, Caquetá and Mecaya. The Putumayo and Caquetá are named white rivers because they contain a large amount of sediments and are highly productive. The Mecaya River's water is dark and is not very productive. This river serves as the northern border of the Park, which is 70 kilometers long. Humid and dense forests are dominant ecosystems in the park and provide habitat to a wide variety of animal and plant species.

La Paya is considered to be faunistically one of the richest in the country. Some of the most important mammal species are the manati, tapir, giant river otter, anteater, jaguar, deer, woolly monkey, red howler monkey and pygmy marmoset. No detailed faunistic surveys have yet been undertaken in La Paya, but of the estimated hundreds of tropical bird species, parrots, macaws, guans, toucans, hummingbirds, and hawks are still found in large numbers. Aquatic species such as turtles, caiman, and river fish, are abundant, and some are extremely important to the local and regional economy.

Socio-Economic Importance

There are various indigenous communities that have lived in the region for centuries, as well as colonizers (colonos) who have been moving to the area since the late 1950s. Currently,

the indigenous groups belong to the following ethnic groups: Inga, Huitoto and Siona. They are scattered along the Caquetá, Putumayo and Caucajá rivers, and their total population is about 445 people. There is no census on how many colonists are living within the park or around it, although it was estimated that approximately 55 families live in the Caucajá River Watershed. The main economic activities of the region include: extensive cattle raising, timber extraction, illegal coca cultivation, fishing, and slash and burn agriculture.

Threats

Aquatic fauna, especially fish, are the main source of protein for the community and are also used for commercial purposes. The fish population has decreased dramatically to a level where harvesting in some areas is almost non-existent.

Colonization in combination with slash and burn agriculture is the major threat to the park's ecological integrity. Overexploitation of riverine resources, particularly fish and turtles, is also a significant problem and oil exploration is now looming as a future land use conflict.

Deforestation is quite intense in this area according to the local people, since quantifiable data to measure the deforestation rate do not yet exist. Although wood cutting has been reduced in the last two years, people continue doing it even though the CAP (Corporación Autónoma del Putumayo) does not give permits to do so.

Growing coca has been a source of income for several families. Military actions that destroy coca cultivation have also affected basic staple crops, confusing local people as to their goals.

SUMMARY OF ACHIEVEMENTS AND RECOMMENDATIONS:

I. TECHNICAL ASPECTS:

Achievements

Carlos Rodriguez, one of the park-guards hired by PIP retired and was replaced in January. Mr. Rodriguez was rehired in August. There are a total of 4 park-guards that have been hired by PIP. They all receive full work benefits and uniforms, a requirement by Colombian law.

A new Park Director (anthropologist) was hired by INDERENA in late July. He will be working with Adriana Lagos, also an anthropologist. She will be in charge of continuing the community extension work in the Caucajá River watershed.

The Socioeconomic Diagnosis of the Caucajá River Watershed was completed in January 1993. A qualitative analysis of educational facilities, family composition, social structure, economic activities, and interaction with the environment of indigenous communities and

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colonos in the Cauacayá River Watershed was completed. This diagnosis provides important elements for the definition of working strategies for the conservation of La Paya National Park. The final report of the diagnosis will be available in September 1993.

An undergraduate economics thesis titled "Una Aproximación a la Sostenibilidad de los Sistemas de Producción de la Cuenca del Río Cauacayá-Parque Nacional Natural La Paya, Putumayo", carried out by a student from La Universidad de los Andes, was completed. This work was a compliment to the socioeconomic diagnosis of the Cauacaya River Watershed, and is an important contribution to the identification of the socioeconomic elements needed for the development of sustainable programs in La Paya.

Meetings were held by PIP Coordinators Claudia Romero (FN) and Dilver Pintor (INDERENA) with local authorities, institutions, and community leaders during their trips to the park. They discussed issues such as the development of legal guidelines for timber exploitation, the need to define policies for the proper management of Indian Reserves, the need to develop environmental education programs, and land tenure problems.

Other activities supported by PIP-La Paya included: the celebration of the Water Day, a frontier encounter that gathered representatives from Ecuador, Perú and Colombia, and a parade to honor the tree with the participation of the Corporación Autónoma del Putumayo (CAP). These have been important educational activities carried out in the park's buffer zone.

Archaeological surveys were carried out by Angelica Rojas, an archaeology student from the University of Los Andes. In Vivianococha, Ceciliacocha and Amaron, preliminary information on indigenous settlement patterns in La Paya was obtained.

Biological information on the genetic structures of freshwater dolphin populations was obtained as part of a comparative research study of dolphin populations in La Paya National Park, Amacayacu National Park (Colombian Amazon) and the Llanos of Arauca on the Colombia-Venezuelan border. This work is part of an undergraduate thesis by Eulalia Bariguera from the University del Valle. The final copy of the thesis is in preparation.

A cartographer was hired in February to develop the cartographic work of the landscape units of La Paya National Park based on satellite images and aerial photographs. An on-site recognition of La Paya will be made to confirm and adjust cartographic details.

Limitations

Construction of infrastructure (La Paya cabin, located in the Laguna de la Paya) has not been possible due to coordination problems with INDERENA's architect, who has been unable to travel to the park to make an on-site recognition of the construction area, although final designs have been approved by INDERENA (Appendix III).

A monitoring program to evaluate economic and ecological aspects of the extraction of Arawana (Osteoglossum bicirrhosum) was planned for this year. Funds from INDERENA (Fauna Division) were expected, but personnel changes in INDERENA delayed the disbursements and the Arawana season was over before any decision was made. Funds from INDERENA will be available for 1994's season.

Although measures have been taken toward informing local communities about the park's importance and the need to protect its natural resources, strong human dependence on the park's resources remains. Deforestation, illegal timber trade, coca cultivation, and illegal hunting and fishing continue to be critical conservation issues in La Paya.

Constant Park Director changes have delayed the execution of activities. Every additional Park Director change has an impact on the team, requiring new energy and effort to restore morale and team productivity. Until now, there has not been a qualified Park Director.

Cartographic work to identify vegetation cover, colonization patterns, land tenure, and critical conservation areas was scheduled as a main activity for this year. However, little progress has been made toward achieving this objective. The person hired for this work, Hector Villarreal, was hired on February 1st and has obtained some preliminary information about the area (LANDSAT images, aerial photography, basic cartography). He has also been supporting other Colombian national park system initiatives. FN's Executive Director guarantees that the cartographic work will be completed by the end of November, at which time Mr. Villarreal's contract expires.

Recommendations

INDERENA should make arrangements so that their architect can travel as soon as possible to La Paya for the on-site recognition of the cabin's construction site. This will prevent further delays in the cabin's construction.

Although important archaeological and biological research studies have been conducted, they must be part of an integral research plan structured according to the conservation needs of La Paya National Park. This plan should be developed by INDERENA and FN.

A professional with scientific and community extension experience is required for the Park Director position. Although the new Park Director has working experience in La Paya, he needs to be trained in conservation and administrative issues, and in PIP's goals and objectives.

Permanent Park activities should include: informing local community members, community leaders, institutions, and local authorities about the importance of La Paya National Park and about the environmental laws and regulations; developing participatory community conservation strategies. These can be achieved with the help of the new Park Director.

Cartographic information should be developed as soon as possible since it constitutes a very important working tool for planning and decision-making. Critical conservation areas should be identified through this work.

II. FINANCIAL ASPECTS:

Achievements

a. Current budget

The total budget FY'93 budget was \$138,503 which included \$68,806 from USAID, and \$40,387 from TNC. Total funds disbursed to FN total \$49,161.74 (\$24,161.74 reprogrammed from FY'92). Expenditures through June 30 total \$24,513.84 (18% of total funds USAID/TNC)

INDERENA's budget for La Paya National Park for 1993 totals \$29,310. No other local funds are available.

b. Existing and possible external sources of funding

Tratado de Cooperación Amazónico. This important Agreement, which was signed by the eight presidents of the Amazon basin in 1986, defined a set of working groups according to thematic priorities. Preservation of the environment and conservation of natural resources in Amazonia are among these priorities. The Special Commission for the Environment (CEMA) was created in 1989 to address these priorities. It is responsible for the definition of environmental program and project guidelines within the Tratado de Cooperacion Amazonico.

CEMA defined the establishment of binational parks as one of its major objectives. A working team with members from Ecuador, Perú and Colombia, as well as three Canadian advisors produced a series of documents which analyze the feasibility of establishing international conservation areas. This initiative will have a positive impact on La Paya National Park. Both the advisors and the working groups have kept in contact with PIP's Coordinators, and future activities, such as project definition, will be prepared to be presented to the CEMA.

As part of the CEMA initiative, FN contacted a Peruvian NGO, the Fundación Peruana para la Conservación (FPCN), and agreed to develop workshops in Iquitos and Puerto Leguizamo to exchange information. FN-INDERENA could provide social and economic research information, while FPCN could provide information on biological monitoring. The main goal of these workshops is to define a project to be presented to CEMA jointly by FN-INDERENA and FPCN. TNC is interested in sponsoring these workshops and a final

proposal will be written by Claudia Romero, PIP coordinator. The total budget for the initiative is \$15,000.

In April 1993, TNC and the InterAmerican Foundation (IAF), signed an Agreement designed to improve living conditions in Latin America and better conserve natural resources. One of the objectives of the PIP program in its efforts to conserve protected areas, is to identify and fund social and economic development projects in the parks buffer zone. Under this agreement, FN and EVALUAR (a partner of IAF in Colombia) are actively working to establish a joint venture in order to support local initiatives for social and economic development. This would directly benefit the inhabitants of buffer zones of PIP's conservation areas in Colombia. Through the establishment of a Fund, economic resources will be provided to support these initiatives. To establish the Community Environmental Project's Fund, a first stage for consolidating different interinstitutional relationships (FN, EVALUAR and INDERENA) is needed.

The consolidation of ECOFONDO to promote the conservation of natural resources and sustainable development in Colombia through economic support to NGOs, appears as an important source for funding activities within the PIP program over the next three years. \$493,200 has been approved for the initial consolidation stage of ECOFONDO. This consists of \$405,000 from USAID, \$5,200 from TNC and \$3,000 from WWF. Steps have been taken between Colombia, Canada and the United States in order to negotiate aspects of the bilateral debt that will constitute important economic resources for environmental projects in Colombia. 40 million has been obtained for this effort from the Enterprise for the Americas Initiative.

The Arawana monitoring program is scheduled for 1994. INDERENA-Fauna Division has promised \$6,000 to start this activity.

The proposal for the creation of the Ministry of the Environment is currently being studied by the Colombian Congress. It is very probable it will be created before the next presidential election in 1994. The National Park System will function under the Department of Special Areas Management. The creation of a national park fund is a possibility. This may represent important future financial sources for La Paya.

Limitations

Changes in INDERENA's personnel (National Parks Chief Division, PIP Coordinator, and Park Director) have delayed budget expenditures. Consolidation of a new working team takes time particularly when a governmental institution is involved. During the last year, the Park Director has been changed three times limiting the execution of activities and accomplishment of objectives.

\$20,000 was approved by TNC for land acquisition in FY'93. Due to the complex dynamics of land tenure in La Paya, this money will contribute very little towards solving these problems. According to FN's criteria, the money should not be used for this purpose since the effect of acquiring a very small percentage of the land will be negative. This money is not enough to buy all the land required. It will only contribute to create concerns among those whose land was not bought.

Recommendations

A long term financial plan is required. It should be defined with INDERENA as part of the National Parks Conservation and Development Strategy which is a main objective of the current National Park System administration.

Negotiations with INDERENA's Fauna Division should continue in order to secure funds for the Arawana monitoring program in 1994. This program is an important step for defining the sustainable use of fish in La Paya.

The money approved by TNC for land acquisition should be reprogrammed. This money should be used to start the socioeconomic diagnosis of other critical conservation areas in the park such as the Sencaya and Mecaya Rivers Watershed.

Land acquisition in La Paya should not start until a detailed land tenure study is carried out. The cartographic work scheduled to be completed in November should provide help in this area. The socioeconomic diagnosis of the Mecaya, Sencaya, Putumayo rivers will also help in this matter. Until all land tenure information is available, a land acquisition strategy should not be developed.

III. ADMINISTRATION:

Achievements

FN hired an accountant, Mr. Oscar Guevara on a full-time basis. This, theoretically, will enable FN to improve its record-keeping.

Problematic interpersonal relations between INDERENA and FN were present during the first year of the program. This relationship has improved significantly. The new Park Director is enthusiastic about the program and is working very closely with FN staff.

Limitations

Although FN has been successful in the administration of the program, an external audit has not been done since 1990.

Although FN hired an accountant on a full-time basis, PIP quarterly reports have not been turned in on time. Administrative personnel changes have delayed the preparation of financial reports.

Recommendations

The external audit for FN is necessary to evaluate its record-keeping. It is also necessary to evaluate the administrative personnel performance and capabilities for programs and budget execution.

PIP quarterly reports should be turned in on time to avoid delays in financial processing and follow up of the program.

FINAL COMMENTARIES AND SUMMARY RECOMMENDATIONS:

La Paya National Park has finished its third year in the PIP program. This is an important consideration because the Park's original workplan objectives were for a three year period. However, the Park only began receiving PIP funding the last quarter of FY91, which means the Park has in reality only been funded through PIP for a little over two years. This does, in some measure, explain why all objectives have not been accomplished and provides an important justification for providing an additional year of funding in this Park so that the original objectives can be accomplished in full.

While the Park has had some serious setbacks resulting in an expenditure rate of only 61%, recent accomplishments have addressed these issues. The hiring of a permanent Park Director has been instrumental in beginning to consolidate a working team in the area. The recently completed socio-economic diagnosis provides an important tool for planning community outreach activities.

In terms of the PIP sites that TNC is currently involved with in Colombia, La Paya National Park represents the greatest conservation challenge because of its location, land tenure problems, guerrilla group activity. In reality, many of the original workplan objectives have been addressed and met to some degree. These objectives need to be re-examined and critical analysis of the top priorities for this coming fiscal year needs to be carried out. Park guards still need additional training, especially as it relates to their work with the local communities; a study of the land tenure within the Park is extremely necessary; park borders need to be marked and posted so that it is clear to the local inhabitants where the park begins; and construction of the cabins need to be completed.

It is the conclusion of this evaluation that funding should be provided for this area for an additional year in light of the fact that funding has only been available for approximately two years and the objectives were to be carried out over a three year period.

PERFORMANCE INDICATORS:

I. ON-SITE PROTECTION AND MANAGEMENT

- A. Have the ecological values of the area been identified?
YES.**

size (hectares): 422,000

key ecosystems:

Tropical Humid Forest: alluvial forest with different degrees of flooding, dense forests with terraces and surface erosion, Laguna La Paya

key processes:

Communities living in the area; colonization; deforestation for commercial timber; an intensive commercial fishing.

endemic species:

threatened species:

Amazonian manatee (Trichechus inunguis), Giant otter (Pteronura brasiliensis), Black caiman (Melanosuchus niger). This information is currently being updated.

migratory species:

There is no information on migratory species at this moment. However, some of the interesting bird species at La Paya include: Great potoo (Nyctibius grandis), Wattled jacana (Jacana jacana), Scarlet macaw (Ara macao), Crested eagle (Morphnus guianensis), and Hoatzin (Opisthocomus hoatzin)

- B. Have critical threats been located on a map?
YES .**

Sociological studies were conducted by Fundación Natura along the Caucaya River and a preliminary report shows how inhabitants use natural resources, i.e. fishing practices and type of fish species used as a source of protein. It also includes information about wood trading in the area.

Preliminary cartographic inventories are underway.

All of this data provides the basis for determining proper management plans and shows where gaps are for further research and programmatic areas.

C. Are critical boundaries surveyed and posted?

Boundaries have been surveyed for some sectors of the of the park. The northern area has not been surveyed because of the guerilla activities in this zone. Along the Mecaya River, there was intensive illegal coca cultivation. This action has been drastically reduced, although not completed eliminated.

Signs have not been posted along park boundaries. FN is working on this at present, and signs will be posted in some key zones within the next six months.

D. Are rangers trained and equipped?

YES.

Rangers have received training on two occasions. Once in June of 1992 when they came to Bogotá to participate in the PIP evaluation conducted at that time. The second training session was just recently conducted in September in Iguaque. FN brought together all of the parkguards working at all the various sites where FN is working.

All rangers have uniforms according to the Colombian laws. They do not have basic equipment such as machetes or knives.

of rangers on-site: 4

They are: Edgar Rocha, Carlos Rodriguez, Luis Alberto Lozano, and Hernán Cortez. Their salaries are covered by PIP.

E. Does the personnel have transport and communications equipment?

YES.

and type:

1 Boat, 3 Canoes, 3 Outboard motors, 40m radio, 2m radio.

F. Have basic protection facilities been constructed on-site?

Improvements to the Vivianococha cabin such as changing the roof and internal remodeling were completed last year. Size is 140 sq.m.

Construction of the Laguna La Paya Cabin is underway, and the size is 120 sq.m. Delays in starting this construction were due to (a) lack of commitment on INDERENA's part to send the architect to La Paya and sign the papers approving the construction, and (b) guerrilla activities during 1991.

- G. Does the area have continuous field logistical support?
YES.

type of NGO support: Logistical, technical and administrative

type of GO support: Logistical, technical and administrative

- H. Are ecological carrying capacity studies, baseline and monitoring underway?

Basic sociological studies were conducted by FN with PIP funds along the Caucaya River. No carrying capacity studies have been conducted for this zone. Basically there are only sporadic fauna and flora inventories. There is a need to increase this type of research.

Cartographic studies are now underway.

- I. Has a Management Plan been completed for the area?
YES.

year of publication: December, 1988 (Jorge Tadeo Lozano University)

- J. Are Annual Operations Plans and Budgets completed?
YES.

II. COMPATIBLE RESOURCE USE:

- A. Have key social and economic values of the protected area been identified?
YES.

key values:

These have only been partially identified. There are 3 Indian Reserves, colonists, extensive cattle ranching, fishing, timber extraction and coca cultivation.

- B. Have basic human needs of local communities been satisfied?
(ie., health, safety, welfare, etc.)
NO .

This is an area PIP is not supporting.

- C. Is there direct community and resource user participation in resource management and allocation decisions? NO.

However, there have been several workshops in which the local municipal mayor participated, and the community has attended a number of meetings when issues related to the park's management and environmental education were discussed.

- D. **Is the land tenure in the area stable?**
NO.

land tenure system:

Private land titles, uncultivated common land, National Park

Is local partner protecting land through acquisition?

NO.

size and location (core/buffer): Not known because there is no clear definition as to what constitutes the buffer zone.

- E. **Are there diverse agricultural and natural resource uses within the carrying capacity of the protected area buffer zone?**
YES.

principal land/resource uses:

Extensive cattle ranching, subsistence agriculture, timber extraction, fishing, coca cultivation

- F. **Are local people employed by PIP project funds?**
YES.

of men: 4

types of positions: parkguards, drivers

of women: 0

III. **LONG-TERM FINANCIAL SECURITY**

- A. **Have the long-term financial needs of the protected area been identified?**
NO.

The Ministry of the Environment and ECOFONDO could be excellent sources of future funding for management of this park.

- B. **Are there local revenues that support the protected area?** NO.

- C. Are there national budget allocations that support the protected area?
YES.

type of support and estimated annual US\$ dollar amount: Government budget for 1993 was \$29,310 dollars

- D. Are there international funds that support the protected area?
YES.

type of support and estimated annual US\$ dollar amount:

In fiscal year 93, international funds to this area were:

USAID = \$68,806

TNC = \$40,387

- E. Has a Financial Plan been approved for the protected area?
NO.

- F. Is a fiscally responsible administrative system in place to manage the funds?
YES.

external audit at TNC? NO

- G. Are financial resources committed to operations of the area?
NO.

STRATEGIC INDICATORS:

I. ON-SITE PROTECTION AND MANAGEMENT:

- A. Has there been a change in the natural vegetation or land cover?

At present there have been no studies conducted to do intensive research or monitoring. Therefore, there is no information.

- B. Has there been a change in the distribution, abundance or status of key species?
No information

- C. Has there been a change in water quantity or quality?

According to local people the amounts of water in the rivers have decreased in the last ten years or so. They also said water is more polluted probably because of the erosion caused by deforestation and the intense fishing activities. There is no scientific data to support these statements.

II. COMPATIBLE RESOURCE USE:

A. **Have there been changes in the pattern or intensity of land or natural resource use?**

Deforestation is quite intense, especially in the north side of the park. The sociological studies done by FN highlight some trends in land use along the Caucaya River, but this is not the same pattern occurring in other parts of the park. More data is necessary to provide this information.

B. **Have there been changes in the social or economic conditions of local residents?**

Information to measure changes was not available but the socioeconomic diagnosis carried out this past year along the Caucaya river will provide a basis to measure changes in the future.

C. **Have there been changes in the policies or institutions?**

Colombia has a new constitution which has affected the laws about how indigenous people use their land. Government policy favors the sustainable use of natural resources by local inhabitants. This is an important fact since there are Indigenous Reserves that overlap the Park. Also, the creation of a Ministry of the Environment and the ECOFONDO could influence changes in policies and institutions.

III. LONG-TERM FINANCIAL SECURITY:

A. **Has a trust fund or endowment been established for the protected area?**
NO.

However there is a good possibility of obtaining funds from ECOFONDO.

B. **Are there diverse sources of funds/revenues for the area?**

None apart from those already mentioned.

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**PARKS IN PERIL PROGRAM
1993 EVALUATION FORM**

PROTECTED AREA NAME: SIERRA NEVADA DE SANTA MARTA

GENERAL INFORMATION:

Country: Colombia

NGO Partner: Fundación Pro-Sierra Nevada de Santa Marta
Address: Calle 74 #2-86

PIP project officer: Carlos Eduardo Angel Villegas

Government agency: INDERENA (Instituto Nacional de los Recursos
Renovables y del Medio Ambiente)
Address: Carrera 10 #20-30
Bogotá, Colombia

PIP project officer: Marcela Cano

Conservation objectives of protected area:

- Collaborate with the national government to protect biodiversity in the Sierra Nevada de Santa Marta
- Plan and implement sustainable development activities with the local communities
- Carry out biological research to provide the scientific basis for the conservation plan of Sierra Nevada de Santa Marta
- Promote community outreach activities to increase community awareness about the park's management, and to incorporate them as active participants in the process

Is there an NGO/GO agreement to work on this PIP site?

Yes, on file at TNC

Is the TNC/NGO agreement up to date?

Yes, on file at TNC

Is the PIP Work Plan and Budget up to date?

Yes, on file at TNC

Name of evaluator:	Cristina Garcia Kirkbride	Carlos Eduardo Angel
Address:	1815 N. Lynn St. 8th Floor Arlington, VA 22209	Calle 74 #2-86 Bogota, Colombia
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INTRODUCTION

Sierra Nevada de Santa Marta National Park, encompassing 946,010 hectares, is a unique geological formation separated both geographically and biologically from the Andean Cordillera. The park has been designated as a Man and Biosphere Reserve (MAB) and is located in northern Colombia at 10°03 and 11°20 northern latitude and 72°03 and 74°15 western longitude.

This mountain massif rises out of the Caribbean and within 42 kilometers of the coast reaches an altitude of 5,775 meters above sea level. This unique characteristic makes the Sierra Nevada the highest mountain in the world with such proximity to the sea. With more than 16 snow-covered peaks reaching an altitude of 5,000 meters or more, this isolated land mass covers an area of 12,300 square kilometers. The Sierra has snow-covered mountain tops, páramo (high-altitude grasslands), tropical rainforest, and desert, with coastal rainforest at its base. This rich variety of habitats supports rare plant and animal species, such as the frailejon plant, margays, jaguars and the endangered Andean Condor. Numerous mammals are found within the park including tapir, brocket deer, squirrel, and mountain lion. Sierra Nevada is also a key area for endemic reptile species found in the highland areas of the park. Conservation in the Sierra Nevada is critical to sustaining the 1.2 million people who rely on its watersheds for survival. Dozens of rivers originate in the Sierra, and it is the watershed for farms raising cattle, cotton, grain and bananas--Colombia's main export crops.

The Sierra Nevada de Santa Marta National Park is home to two indigenous communities, the Kogui-Malayo and the Arhuaco. Totalling about 30,000 people, they are the last descendants of the Tairona peoples, perhaps the best goldsmiths of pre-Columbian South America. Archaeologists have unearthed more than 300 ancient villages, and a "Lost City" built by the Tairona in the fifth century is twenty times the size of Peru's famous Machu Picchu.

Serious damage to the biological and cultural wealth of the Sierra Nevada has occurred in the last few decades. Drug traffickers are clearing land to grow marijuana and coca. Peasants move into the forests and Indian reserves in their flight from rural violence. Environmental degradation has displaced the Indian tribes, leading to a breakdown of their traditional lifestyles.

In addition to its negative effects on wildlife populations, deforestation has generated serious erosion problems in the park and a significant reduction of the volume of water generated by the 35 water basins that make up the entire hydrological system of Sierra Nevada. Due to a loss of vegetation cover, the slopes that make up much of the landscape of Sierra Nevada are being washed away by heavy rains. The increased sediment into waterways is devastating both agricultural and natural vegetation systems within and outside of Sierra Nevada. There is no doubt that the situation will worsen without adequate protection of the watershed.

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This evaluation was carried out to measure the success to date against the objectives outlined in the original workplan and to provide recommendations for the FY94 workplan. Sierra Nevada de Santa Marta National Park is entering its 3rd year as a Parks in Peril site and received its first AID funding in February of 1992. As a result, the first year of the project was very short and progress was limited (please refer to Year One evaluation).

SUMMARY OF ACHIEVEMENTS AND RECOMMENDATIONS:

I. TECHNICAL

A. Achievements

Gaining the communities' trust and confidence is a slow process and FSNSM has done an outstanding job in this respect. FSNSM has done some work with the Koguis and the colonist community to gain some initial information about their socio-economic status and their use of natural resources. Active participation by the community is essential in order to achieve the sustainable use of natural resources and effective biodiversity conservation in the region.

FSNSM is in the process formulating and implementing a strategic conservation management plan. It includes the six following programmatic areas: (1) Administration, including self-sufficiency; (2) Social, including education and community outreach programs; (3) Biodiversity, including Agroecology Programs; (4) Systems Division including GIS, cartography and photography; (5) Special Programs where the "Estrategia de Conservación" is included; and (6) Legal, which deals with policy/human rights. Funding for the implementation of this plan is expected to come from a \$1,000,000 grant that has been approved by the GTZ. It is unclear what time period this grant will cover. The first disbursement of these funds was made in June.

Part of the educational program includes a Communication Campaign. This campaign has been allotted \$250,000 from the FSNSM annual budget and will cover the costs for monthly reports on activities in the Park by a journalist from El Tiempo.

The Executive Director will be delegating fund-raising activities to other staff, thereby, freeing his time up to oversee the entire program.

PIP is under the Biodiversity Program of FSNSM. Although PIP support to the Fundación is now (after the GTZ grant) 5% of its total budget, it has been a continuous support and has been instrumental in obtaining other grants.

Five professional biologists and eight support staff at the two sites are contracted under PIP. They get full work benefits according to the Colombian law.

Construction of the Alto de Mira laboratory was completed.

Sierra Nevada is now a "Unidad Especial de Manejo" (Territorial Unit), outside the ordinary interests of politics and public administration. Management of the Sierra's resources is now under one administrative unit, strengthening the base for conservation in the region. Previously, the Park was divided into three separate administrative regions because geographically it falls into three different "states."

About fifteen years ago, INDERENA carried out a re-allocation program along the Guachaca watershed. Regeneration is evident in the areas where colonists moved out and native communities moved in. FSNSM's presence in the area has been instrumental in keeping these areas clear of encroaching colonists.

B. Limitations

Deforestation is quite intense in this area, and there is no quantifiable data on the actual deforestation rate. Any information about deforestation rates is based solely on the local people's recollections and perceptions of what existed and what is now left.

Staff working at sites feel very isolated for the following reasons:

- There is no radio or any other means of communication. Although everyone understands there is some risk involved in having radio communication (because of guerrilla and drug traffic) they prefer to have it for emergencies.
- Site facilities are poor. "Malocas" (huts) do not have book cases, books or basic references, tables or chairs for doing work.
- There is no electricity.
- Distance of the site from other areas of residence. The only means of transportation is by horse.
- Professional salaries are low.
- Communication between management and field personnel is very poor.

Although there are some studies, the biological information about flora or fauna for the park is relatively poor.

Support field staff have not received training and the park's limits are not well defined.

C. Recommendations

- Buy basic equipment for the laboratory so that it can become operational.
- Implement a better communication system between the field staff and the rest of the Fundación.
- An increase in staff salaries and improvement of site facilities should be considered by FSNSM.
- It is essential to have basic equipment, such as radios, light, lamps, maps, materials for making park signs, and proper basic furniture at the two sites.
- Work with INCORA (Instituto Colombiano de la Reforma Agraria), INDERENA, PNR (Plan Nacional de Rehabilitación), and NGO's on the land tenure issues of the park inhabitants.
- Develop community programs to encourage sustainable use of natural resources. Preliminary sustainable use studies of Tagua (Dictyocarpus schultzei) could be a first step for these.
- Hire a local Indian to be part of the field staff, and to have more community participation in the planning and program development.
- Research: Continue with the biological and regeneration studies. They should provide the basis for determining land management zones, conservation needs, and sustainable uses. An ecological field guide can be produced as a result of these studies. Carry out a taxonomic study of the Alto de Buritaca (Alto de Mira) watershed's forest. Continue preliminary aquaculture studies of Atya, a river shrimp. Use the laboratory as a base to attract other institutions to assist with research.
- Study the rodent Agouti paca in order to raise them in a sustainable manner since this is a popular meal with the local residents and a source of protein.
- Work on defining park limits.
- Work on improving the dirt road leading from La Tagua to Filo Cartagena and to Alto de Mira to provide access for tourists up to the sites.
- Train field staff in ecology and management of natural resources, public relations and community education. It is recommended that funds specifically for the use of constant and continuous training be made available. Staff working in the field should

have more opportunities for training within the country as well as abroad. The training should be done at two levels:

Support Staff: field assistants, who informally are responsible for guarding the park and;

Management: department director, his assistant and the field directors.

II. FINANCIAL

A. Achievements

FSNSM is perhaps the most successful conservation NGO in the country in terms of fund-raising. In addition to PI? funds, other overseas funds include: \$1 million over the next five years from GTZ, German Government; \$200,000 for the El Congo site from the InterAmerican Foundation, and additional funds from an Italian corporation, which are still under negotiation. Within the country possible sources under consideration are: Certificados de Deposito a Termino Fijo (CDT), and Mutual FES Funds for conservation.

Short and Long-term financing

The financial necessities of the area over the long term have not been identified. Local income corresponds specifically to the amounts provided by INDERENA and other national entities to the foundation. The protected area is indirectly supported by institutional support funds from international organizations such as CEBEMO (Catholic Organization for Cooperation and Development of Holland); GTZ; and IAF (Interamerican Foundation), with which the foundation has specific agreements. In addition, the ECOSIERRA project whose operations are being carried out in the northern sector of the Massif with the help of the states and municipalities and the Italian Government, is indirectly supporting FSNSM's work. In general, the financial plans are prepared every year according to the projected needs for the following year. In any case, Fundación Pro-Sierra Nevada de Santa Marta has contracts with specialized auditing companies in order to oversee its budgets. One of these auditing reports was sent to TNC last June. The foundation has a short term trust fund for SNSM that cover's current budget expenditure needs.

Ministry of the Environment

Colombia is undergoing rapid social and economic changes that are affecting its natural ecosystems. Deforestation has caused a significant loss of habitats, plants and animals, and has caused serious environmental problems. To respond to these pressures, the government is proposing to create a Ministry of the Environment and a Fondo Nacional del Medio Ambiente. The first round of congress at the June (1993) session approved the creation of the Ministry. However, there is still a debate underway before final approval is given. The

main concern upon the creation of a Ministry is how to define the role of the "Corporaciones Regionales." Once this is determined the President will have to sign the decree. It will probably be done before President Gaviria's term ends next year. This could have a significant impact on SNSM and all the national parks in Colombia.

ECOFONDO

ECOFONDO is now legally incorporated and registered with the public records office and FES (Fundación para la Educación Superior, Cali) is helping with the management of funds.

USAID is helping the Colombian government with funds for various development projects. \$500,000 dollars of these USAID funds were pledged for ECOFONDO. The Canadian government pledged about 18 million dollars for ECOFONDO. The Enterprise for the Americas Initiative approved (July 9) \$40 million over the next ten years for ECOFONDO. Funds can be used beginning in February of 1994. SNSM may benefit from these funds depending on proposals submitted for specific management projects. The amount each NGO can apply for has yet to be determined.

External funding

PIP-TNC was the first external source of funding for the national park infrastructure through its collaboration with Colombian NGOs.

BID is working on a loan of approximately US \$9 million to be used for the biological conservation of the Atlantic area (Sierra Nevada de Santa Marta, and Salamanca) and the coffee region of Los Nevados.

B. Limitations

Expenditure rate is not as high as hoped for the following reason:

Low capacity to implement programmed activities due to lack of personnel, lack of a PIP coordinator from January until May when the position was filled, and lack of planning to reflect many of the changes occurring in the area.

C. Recommendations

- Reports and budgets need to include expenses by GO and NGO.
- More funding is needed for (a) programs for sustainable use of natural resources, (b) reforestation, and (c) biological monitoring.

III. PROGRAM ADMINISTRATION

A. Achievements

Quarterly reports, financial and narrative, have been sent on time by Fundación Pro-Sierra.

A full-time accountant was hired in May.

B. Limitations

Although the relationship between INDERENA and FSNSM is cordial, there is no communication from and to staff from both organizations about their programmed activities at the mid management level.

A general comment about the reports is that they are presenting general discussions of work activities rather than reflecting the accomplishments of the workplan objectives. A sample of specific issues needing clarification are: (1) The purchase of equipment needs to be justified within the budget and show a clear link to park management and infrastructure needs. (2) Names and job descriptions of project participants are usually not complete. (3) Although the orchid collection is important, there is no explanation of its purpose and its relation to park management issues. (4) The role of research and its relation to community development is very important and needs to be stated very clearly considering that this is a very strong component of FSNSM.

There is no written memorandum of agreement between INDERENA and FSNSM for management of the area, according to FSNSM.

C. Recommendations

- Increase the administrative capacity of the foundation. As one component of this, the biodiversity department should hire an assistant who would be in charge of coordinating operations, arranging purchases and providing solutions for logistical problems (in Santa Marta). This would create less of a burden on the director, thereby allowing him to focus his energies on budget control, preparation and oversight of projects, and future planning.
- FSNSM should make an effort toward increasing its communication at the mid-management level with INDERENA about programmed activities. One suggestion is to have a regular quarterly meetings. A formal written memorandum of agreement between the two organizations should be drafted or updated if one exists.

- Work on improving the quarterly narrative reports so they accurately describe the achievements and shortcomings in the Park as regards PIP objectives.
- Promote and carry out agreements with universities and organizations as part of the Fundación's biodiversity program. Although basic research exists, additional research should focus on matters that have a real effect on the park's population and that have a positive impact on the community in general.

IV. FINAL COMMENTARIES AND SUMMARY RECOMMENDATIONS

In general, conservation activities carried out at Sierra Nevada have followed workplan goals over the last year, and strong progress has been made in achieving many of them, as noted in the text above. Sierra Nevada is now entering its 3rd year as a PIP site. However, PIP funds were only disbursed halfway through the first year, delaying implementation of park management activities. It is expected that the remaining objectives will be achieved by the end of FY94.

A strong conservation presence has been achieved by FSNSM at Alto de Mira and Filo Cartagena, the two sites targeted by PIP at Sierra Nevada. The infrastructure at these sites is being maintained. A total of 13 staff members work at the two sites, achieving the objective of establishing a team at each location. Also, the construction of the laboratory at Alto de Mira has been completed and now needs to be equipped. Work with the local communities has been one of FSNSM's strong points and a lot of headway has been made in these relationships.

There has, however, been a relatively low expenditure rate at Sierra Nevada and slow implementation of park management activities. Some of the conservation objectives outlined in the initial workplan have been attained but objectives need to be updated to reflect the current realities of the park. Upon reprogramming activities for the coming year, it is important to rethink the objectives outlined in the original workplan to reflect the conservation priorities for the area, especially in light of the new strategic conservation management plan which FSNSM is currently formulating for Sierra Nevada. Also, since conserving the biodiversity of the park is the main focus of the PIP program, this should be the primary guideline in programming activities for the Sierra Nevada's last year in the PIP program.

Basic protection efforts such as a control and vigilance program, parkguard training and boundary demarcation have not been implemented and are not currently reflected in the workplan objectives. Consideration to incorporating these activities with the assistance from the local and national government (especially INDERENA) should be made in light of political changes in the region over the last year.

PERFORMANCE INDICATORS:

I. ON-SITE PROTECTION AND MANAGEMENT

A. Have the ecological values of the area been identified? YES.

- size: 946,010 acres
- key ecosystems: Primary forest
Secondary vegetation
- key processes: Large scale regeneration in the Guachaca watershed: more than 4,000 hectares are 5 years or older
- endemic species: There is no recorded information but it is known that there is high endemism at altitudes above 1,500 meters above sea level.
- threatened species: There is no information
- migratory species: There is a study that was carried out by students at Universidad de Los Andes and there are some preliminary observations carried out by Carlos Saenz. This information was difficult to obtain at the time of the evaluation. Juan Rubiano, Director at Alto de Mira, and Carlos Saenz, a biologist, are preparing a proposal to work on birds.

B. Have critical threats been located on a map? YES.

- type: Colonization areas, tourism zones
- source: From primary information recorded by researchers.
- significance: Tourism is growing and could become a strong threat. There are also several management concerns because of the reactivation of the marihuana crop which could cause deforestation of both secondary and mature forests.
- Guerrilla activities are still a threat in the area.

C. Are critical boundaries surveyed and posted?
NO.

D. Are rangers trained and equipped?
YES.

The site assistants, who function as parkguards, have had limited training. Training has not been available to everyone. Two people from the Sierra Nevada were able to receive training with PIP funding through Conservation Training Week in Santo Domingo, Dominican Republic.

of rangers on-site: 4 site assistants

type of training received:

They are receiving training in writing and reading. Additionally, they frequently assist the biologists with their projects and learn some basic concepts about biology this way.

E. Does the personnel have transport and communications equipment?
YES.

and type:

1 Toyota 4x4 financed by PIP. FSNSM is considering purchasing radios to be able to communicate between sites and with Santa Marta. In the past this had been a problem because of guerilla and army activity in the area. At present, there is no means of communication.

F. Have basic protection facilities been constructed on-site?
YES.

location: Alto de Mira, Filo de Cartagena

type and size of facilities:

At both sites, there are "malocas", the local huts. There is also a laboratory at Alto de Mira, and construction on a visitors center at Filo de Cartagena was recently completed.

- G. Does the area have continuous field logistical support?
YES.

type of NGO support:

Permanent personnel who are in charge of maintaining the site, receiving visitors and carrying out research.

type of GO support:

There is very little presence by INDERENA in the area. There is an agreement which allows FSNSM to work in the site.

- H. Are ecological carrying capacity studies, baselines and monitoring underway? YES.

type of study:

There are baseline and systematic studies of the ecology of the vegetation at Guachaca and Buritaca. Also, regeneration studies are being carried out at Guachaca.

- I. Has a Management Plan been completed for the area?
NO.

- J. Are Annual Operations Plans and Budgets completed?
YES.

II. COMPATIBLE RESOURCE USE:

- A. Have key social and economic values of the protected area been identified?
NO.

Information is not available to date. FPSNSM is currently carrying out a preliminary socio-economic assessment.

- B. Have basic human needs of local communities been satisfied?
(ie., health, safety, welfare, etc.)
NO.

key issues:

Health, education, recreation

Some health and education workshops have been conducted in the area.

- C. Is there direct community and resource user participation in resource management and allocation decisions?

NO.

key formal mechanisms:

FSNSM is trying to stimulate participation by the farming communities in the highlands. The indigenous communities make their own decisions about how to manage resources. There is interest in cooperating and carrying out joint programs with both communities.

- D. **Is the land tenure in the area stable?**
YES.

Is local partner protecting land through acquisition?

NO.

- E. **Are there diverse agricultural and natural resource uses within the carrying capacity of the protected area buffer zone?**
YES.

principal land/resource uses:

Small scale cattle ranching, small commercial crops.

- F. **Are local people employed by PIP project funds?**
YES.

of men: 8

types of positions: 6 workers and 2 biologist assistants

of women: 2

types of positions: Cooks

III. LONG-TERM FINANCIAL SECURITY

- A. **Have the long-term financial needs of the protected area been identified?**
NO.

No study of this type has been carried out.

- B. **Are there local revenues that support the protected area?**
NO.

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- C. Are there national budget allocations that support the protected area?
YES.

type of support and estimated annual US\$ dollar amount:

Local income corresponds specifically to the amounts provided by INDERENA which has amounted to \$127,066 over the life of the project.

- D. Are there international funds that support the protected area?
YES.

type of support and estimated annual US\$ dollar amount:

The protected area is indirectly supported by institutional support funds from international organizations such as CEBEMO (Catholic Organization for Cooperation and Development of Holland); GTZ; and IAF (Interamerican Foundation), with which the foundation has specific agreements. In addition, the ECOSIERRA project whose operations are being carried out in the northern sector of the Massif with the help of the states and municipalities and the Italian Government, is indirectly supporting FPSNSM's work.

GTZ - \$1 million dollars over the next three years

CEBEMO - Currently under discussion

IAF - N/A

ECOSIERRA N/A (Exact figures from this project have not been discussed with FPSNSM)

- E. Has a Financial Plan been approved for the protected area?
NO.

- F. Is an fiscally responsible administrative system in place to manage the funds?
NO.

external audit at TNC? YES.

- G. Are financial resources committed to operations of the area?
YES.

categories and projected budget:

There are financial resources committed from PIP, Inter-American Foundation and FPSNSM has a trust fund for small expenditure needs. The budgetary information for each of these is not available at this time.

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

I. ON-SITE PROTECTION AND MANAGEMENT:

- A. Has there been a change in the natural vegetation or land cover?
NO.

how was this change measured?

Over the last two years, there have been no visible changes to the land cover. There are only a few small areas of cultivation which have not been quantified.

- B. Has there been a change in the distribution, abundance or status of key species?
No information.

- C. Has there been a change in water quantity or quality?
No information.

II. COMPATIBLE RESOURCE USE:

- A. Have there been changes in the pattern or intensity of land or natural resource use? No information.

- B. Have there been changes in the social or economic conditions of local residents? No information.

- C. Have there been changes in the policies or institutions?
YES.

how were these changes measured?

The Anthropology Institute changed their management policies on tourism. For the first time, there have been joint actions with the Director of the Lost City. There are tourists entering the Tagua zone where the two PIP sites are and where activities are being carried out to make an ecological trail.

III. LONG-TERM FINANCIAL SECURITY:

- A. Has a trust fund or endowment been established for the protected area?**
NO.

Negotiations are underway to establish these mechanisms through a CDT or a mutual FES fund

- B. Are there diverse sources of funds/revenues for the area?**
YES.

type and amount:

GTZ - \$1 million dollars over the next three years

CEBEMO - Currently under discussion

IAF - N/A

ECOSIERRA N/A (Exact figures from this project have not been discussed with FPSNSM)

sources:

The protected area is indirectly supported by institutional support funds from international organizations such as CEBEMO (Catholic Organization for Cooperation and Development of Holland); GTZ; and IAF (Interamerican Foundation), with which the foundation has specific agreements. In addition, the ECOSIERRA project whose operations are being carried out in the northern sector of the Massif with the help of the states and municipalities and the Italian Government, is indirectly supporting FPSNSM's work.

Parks in Peril : FY 1993 Evaluation

	La Paya	Cahuinari	Chingaza	Sta. Marta	Total Colombia
ON-SITE PROTECTION & MANAGEMENT					
# Hectares in protected areas:	442,000	575,000	50,374	383,000	1,450,374
Management plan completed:					
Yes	1	1	0	0	2
No	0	0	1	1	2
Operations plan completed:					
Yes	1	1	1	1	4
No	0	0	0	0	0
Ecological values determined:					
Yes	1	1	1	1	4
No	0	0	0	0	0
Critical threats/areas located:					
Yes	1	1	1	1	4
No	0	0	0	0	0
Studies/monitoring underway:					
Yes	1	1	0	1	3
No	0	0	1	0	1
Radio equip. installed:					
Yes	1	1	1	0	3
No	0	0	0	1	1
# Radios on-site:	2	3		0	5
# Personnel:	4	2	11	8	25
# Rangers:	4	2	11	4	21
# Ranger training events:	2	0	1	0	3
# Km demarcated:				0	0
# Ranger centers:	2	1	2	2	7
Basic transportation:					
Yes	1	1	1	1	4
No	0	0	0	0	0
Continuous field supervision:					
Yes	1	1	1	1	4
No	0	0	0	0	0
COMPATIBLE USE/ECONOMIC DEVELOPMENT					
Socioeconomic values identified:					
Yes	1	1	1	0	3
No	0	0	0	1	1
Basic human needs met:					
Yes	0	0	0	0	0
No	1	1	1	1	4
Local participation in resource mgmt:					
Yes	0	0	0	0	0
No	1	1	1	1	4
Land tenure stabilized:					
Yes	0	1	0	1	2
No	1	0	1	0	2
# Local people employed with PIP funds:	4	2	5	8	19
LONG-TERM FINANCIAL SECURITY					
Long-term financial needs identified:					
Yes	0	0	0	0	0
No	1	1	1	1	4
Funding from external sources:					
Yes	1	1	1	1	4
No	0	0	0	0	0
Amount	\$109,913	\$400,000	\$133,253	\$1,000,000	1,643,166
Funding from Federal/State sources:					
Yes	1	1	1	1	4
No	0	0	0	0	0
Amount	29310	\$11,764	\$40,000	\$127,066	208,140
Funding from local sources:					
Yes	0	0	0	0	0
No	1	1	1	1	4
Amount	0	\$0	\$0	\$0	0
Financial plan approved:					
Yes	0	0	0	0	0
No	1	1	1	1	4

Parks in Peril

1993 Evaluation

Costa Rica

Corcovado National Park

**PARKS IN PERIL PROGRAM
1993 EVALUATION FORM**

PROTECTED AREA NAME: **CORCOVADO NATIONAL PARK**
(part of the Osa or ACOSA Conservation Area)

GENERAL INFORMATION:

Country: Costa Rica

NGO Partner: Fundación Neotrópica
Address: Apdo. 236-1002, San José, Costa Rica

PIP project officer: Walter Rodríguez

Government agency: Servicio Parques Nacionales, MIRENEM
Address: Puerto Jimenez, Península de Osa

PIP project officer: Orlando Montero, Corcovado Park Director

Conservation objectives of protected area:

- Protect the marine and land biological diversity of the area.
- Only allow development that is sustainable and does not degrade the natural resource base.
- Integrate the park and the surrounding human communities.
- Establish the basic infrastructure, and human and financial resources needed to properly manage the area.
- Strengthen the administrative systems which are fundamental to the operation of the area.

Is there an NGO/GO agreement to work on this PIP site?
Yes, on file at TNC.

Is the TNC/NGO agreement up to date?
No, revision is awaiting signature of NGO.

Is the PIP Work Plan and Budget up to date?
Yes, on file at TNC.

Name of Evaluator: Laurie Hunter

Address: The Nature Conservancy
1815 N. Lynn St.
Arlington, Va. 22209

INTRODUCTION

Corcovado National Park is part of the Area de Conservación Osa (ACOSA) on the Osa Peninsula of Costa Rica. The other units comprising ACOSA include: Golfo Dulce Forest Reserve, Guaymi Indian Reserve, Sierpe-Terraba Mangrove Reserve, Golfito National Park, and Esquinas National Park (map attached). ACOSA in its entirety consists of 146,698 hectares.

Corcovado National Park, together with the other conservation units of ACOSA, represents one of the most important wilderness areas to be protected in Costa Rica. The Osa Peninsula contains the largest remaining lowland rain forest on the Pacific coast of Central America. Many endemic species occur in the protected area. In general, about 10% of the plant material collected within Corcovado National Park turns out to be undescribed or new records for Costa Rica.

Major habitats on the peninsula include: 1) montane forest, which covers half of Corcovado National Park and most of the Golfo Dulce Forest Reserve, and is the habitat with the greatest variety of plant and animal life; 2) alluvial floodplain forest, which contains swamp forest and "yolillo" forest (predominantly *Raphia taedigera* palm); 3) freshwater herbaceous swamp, found in the Corcovado lagoon and upper parts of the Sierpe watershed; 4) mangrove swamp; and, 5) cloud forest, which grows in the southeast corner of Corcovado National Park and includes endemic oaks and a rich variety of ferns.

EVALUATION

The Parks in Peril 1993 evaluation team consisted of Laurie Hunter from The Nature Conservancy's Latin America Division, Eric Halperin from The Nature Conservancy's Finance Division, and Isaac Perez and Renee Castro from the Instituto Centroamericano de Administración de Empresas (INCAE) of Costa Rica. Laurie Hunter evaluated the protection and management activities while the remainder of the team worked on the long-term financial sustainability of the site.

This report refers only to the results of the protection and management section of the evaluation. The financial results will be submitted separately.

Interviews were held with the following people to obtain the information used for the evaluation:

Luis Barquero, Subdirector, ACOSA, MIRENEM
Valentín Jiménez, Director BOSCOSA San José office, Fundación Neotrópica
Ricardo Soto, Research Director, Neotrópica/University of Costa Rica
Leslie Simmons, Assistant to the Director, Neotrópica
Thelsy Arias, Accounting, Neotrópica

The Ministry of Natural Resources, Energy and Mines (MIRENEM) is the government partner for PIP in Costa Rica and the Fundación Neotrópica is the non-government partner. The Osa Peninsula Forest Conservation and Management (BOSCOSA) is Neotrópica's program in the buffer zone of the Osa Peninsula for the promotion of sustainable development and alternative sources of income for local residents.

Anne Lewandowski, AID contact for the PIP project in Costa Rica, was on annual leave and was unavailable for an interview. Walter Rodríguez, PIP project coordinator for Corcovado, was attending a course in Colorado and was also unavailable for an interview.

Achievements

The activities that have been financed by Parks in Peril for this fiscal year are summarized below:

- purchased equipment and construction materials to improve park infrastructure
- established permanent plots for monitoring studies of terrestrial plant communities, insects and birds, and marine environments; began data collection
- initiated compilation of baseline climate information to monitor changes in climate
- carried out a south-south exchange with park rangers from Darien Park in Panama
- visited the Area de Conservación Tempisque in Costa Rica to learn about the ecotourism project in Barra Honda
- three representatives from each local community group working on ecotourism visited each one of the tourism projects in the area to facilitate information exchange and coordination among the groups; members of the Costa Rican Tourism Institute (ICT) were also brought on a (separate) reconnaissance visit to all the local tourism projects

These achievements, taken together with those of the previous two years (reviewed in the evaluations for FY 91 and FY 92; both are on file), demonstrate an impressive, comprehensive program for the conservation of Corcovado National Park. The first three years of the program focused primarily on basic park protection activities, such as vehicle purchase and maintenance, park infrastructure construction and improvements, park ranger training, park administration and management.

With a firm protection base established, the fourth year of PIP funding is being directed toward improving the connection between local residents and the park by promoting ecotourism as an alternative source of income. In conjunction with other programs fostering

agroforestry, handicrafts, improvement of land tenure issues (both MIRENEM and BOSCOA are working on these topics), this work should greatly improve local social conditions and change attitudes toward the park.

MIRENEM and BOSCOA personnel have already observed a positive change in the local residents. Several communities that previously depended upon extracting gold from within ACOSA have switched to tourism as a source of income. They now view the park as an essential part of their life rather than a hindrance. Specifically, residents of the villages of Rancho Quemado and Agua Buena speak of the park as a benefit, whereas before it was an obstacle. MIRENEM has begun a socio-economic program to document these changes and monitor conditions in the surrounding communities.

Tourism has increased dramatically in the past ten years. If uncontrolled, tourism could quickly become the greatest threat to the ecological well-being of Corcovado Park. Through advance planning, intimate involvement of local residents, and careful monitoring of the effects of tourism, the Corcovado ecotourism program hopes to prevent disasters from occurring.

The fourth year PIP funding is also being used to help support Neotrópica's biological monitoring program on the Osa Peninsula. The program will monitor changes in climate, and in plant and animal communities. Baseline data have already been provided by the first Rapid Ecological Assessment (REA) which was conducted in 1992 and financed by the World Wildlife Fund. As a follow-up to the REA, the monitoring program involves repeating sampling from permanent transects and study plots, which will provide data for analysis of change detection. The program focuses on both marine and terrestrial environments. The information generated from these data will serve as an invaluable guide to the land managers of the area. A detailed description of these monitoring activities is provided in the annex to the REA report, on file in the Mexico/Central America stewardship office.

Fundación Neotrópica has done an excellent job handling the administration of the Parks in Peril project. Financial and technical quarterly reports are well prepared and sent in on time. Information regarding budget expenditures is accurate and updated continuously. Neotrópica's financial administration is efficient and up-to-date financial analyses can be provided on the day requested. The previous problem regarding payment of taxes has been resolved and procurements have proceeded smoothly this year. A global audit of Neotrópica was conducted for the last fiscal year and a copy is on file with The Nature Conservancy.

Limitations

One of the main limitations noted in the previous two evaluations was the lack of good coordination and communication between the government and non-government partners in the project. This evaluation saw a vast improvement in communication. The appointment of

Walter Rodríguez as PIP project coordinator was the key step in this process. Walter serves as tourism coordinator for both ACOSA and BOSCOA and is the ideal person to improve communication between the two PIP partners.

The second-year evaluation also identified uncontrolled tourism and the lack of a biological monitoring program as two important limitations. However, this year an ecotourism and monitoring program are both currently underway, thanks to the addition of a fourth year of PIP funding.

The major limitation uncovered during this evaluation is the lack of strategic planning for the entire conservation area, including Corcovado. The 1988 Management Plan is no longer in use and there is no updated management plan that serves to guide activities in the region. Actions are based on yearly operating plans without long-range management objectives clearly delineated. It is critical to first decide the overall vision and goals for the area and then design the yearly operational plans to achieve this mission.

The OSA 2000 management plan, spearheaded by the former BOSCOA director Richard Donovan, addresses the long-range management of the Osa Peninsula. This document is still not officially approved, although there is repeated talk of securing government endorsement. It would be an excellent idea to renew the dialogue concerning this plan, make the necessary revisions, seek official approval, and then implement the plan as soon as possible.

Recommendations

- Clearly define the long-range goals of the conservation area and outline a strategy to achieve them.
- Update and put into effect the 1988 Management Plan.
- Re-activate the process to approve and implement the OSA 2000 management plan.
- Continue providing support for the ecotourism and biological monitoring programs.

Documentation

The following documents were used in the preparation of this report and are on file with The Nature Conservancy:

Corcovado National Park, "Plan General de Manejo y Desarrollo", MIRENEM 1988

"Evaluación Ecológica Rápida Península de Osa," Costa Rica, BOSCOA 1992

Maps of the ACOSA political boundaries, forest cover, natural communities, soil type, rivers and watersheds, topography, geology, human settlements, and transportation systems, BOSCOSA 1992.

OSA 2000, an unofficial management plan for the Osa Peninsula, BOSCOSA1991

PIP Corcovado Action Plan 1991-1993; 1994 (extension)

PIP Corcovado Quarterly Reports, 1991-1993

PIP Evaluations for Corcovado 1991, 1992

"Fundación Neotrópica Estados Financieros", Peat Marwick 1992

PERFORMANCE INDICATORS:

I. ON-SITE PROTECTION AND MANAGEMENT

- A. Have the ecological values of the area been identified?**
YES.

size (hectares): Corcovado is 41,788 ha. and all of ACOSA is 146,698 ha.

key ecosystems: tropical lowland rainforest, mangrove forest, wetlands, marine

endemic species: *Habia atrimaxilans*, *Zamia fairchildiana*, *Osa pulcra*

threatened species: *Felis onca*, *Harpia harpia*, *Tapir baurdiu*, *Ara macao*

migratory species: *Chelonia mydas*, *Delphinus delphis*, *Megaptera novaeangliae*

- B. Have critical threats been located on a map?**
NO.

- C. Are critical boundaries surveyed and posted?**
YES.

of kilometers demarcated: 30 kilometers are demarcated with physical markers, the remainder of the boundaries have natural demarcations such as river courses and ocean beaches.

- D. Are rangers trained and equipped?**
YES.

of rangers on-site: 36 rangers are assigned to the protection of Corcovado; the entire protection area (ACOSA) has 80 rangers.

type of training received: park operation and management; protected areas legislation

- E. Do the personnel have transport and communications equipment?**
YES.

and type: The rangers have 10 radios (2 financed by PIP), 6 vehicles (2 from PIP) and 1 boat (not PIP).

- F. Have basic protection facilities been constructed on-site?**
YES.

location: 10 areas in the park have protection facilities, all at least partially financed by PIP.

type and square meters size of facilities: ranger stations, approximately 800m²

- G. Does the area have continuous field logistical support?
YES.

type of NGO support: general technical assistance and an ecotourism program (Neotrópica); scientific studies and evaluations (University of Costa Rica); legal assistance (CEDARENA).

type of GO support: general park administration and management; transport; field operations; park personnel management and training.

- H. Are ecological carrying capacity studies, baselines and monitoring underway?
YES.

type of studies: 1) Rapid Ecological Assessment (REA) done by Neotrópica and the University of Costa Rica, and 2) a land tenure study by CEDARENA.

As a follow-up to the RFA, a monitoring plan has been developed for the area and is being carried out by Neotrópica in conjunction with the University of Costa Rica.

- I. Has a Management Plan been completed for the area?
YES.

year of publication: 1988*

*Please note: this plan is no longer in effect for the area and there is no management plan that is currently in use.

- J. Are Annual Operations Plans and Budgets completed?
YES.

Each one of nine programs has its own annual operation plan and budget.

PERFORMANCE INDICATORS:

II. COMPATIBLE RESOURCE USE:

- A. Have key social and economic values of the protected area been identified?
YES.**

key values: community production of handicrafts, tourism, agroforestry

- B. Have basic human needs of local communities been satisfied
(ie.,health,safety,welfare,etc.)?
NO**

key issues: there is an urgent need to develop economic alternatives, resolve land tenure issues and to improve the poor health conditions of local people.

- C. Is there direct community and resource user participation in resource management and allocation decisions?
YES.**

key formal mechanisms: there is a regional committee comprised of local people, and the Comité FIPROSA (Fie de Comiso para Pequeño y Mediano Productores de la Península de la Osa).

- D. Is the land tenure in the area stable?
NO.**

land tenure system: approximately 80-90% of the local people do not own title to their land.

**Is local partner protecting land through acquisition?
NO.**

The PIP partner, Neotrópica, is not buying land but other entities are buying land outside of the PIP project.

size and location (core/buffer): In the buffer zone CERRO BRUJO has purchased 200 ha., ADESCAB has purchased 232 ha., and Chocuaco has purchased 135 ha.

In order to secure the protection of Corcovado and the entire ACOSA, it is vitally important to purchase land. A total of 25,000 ha. needs to be purchased throughout ACOSA. The estimated cost of this purchase is \$3,000,000.

- E. Are there diverse agricultural and natural resource uses within the carrying capacity of the protected area or buffer zone?

YES.

principal land/resource uses: the buffer zone has been divided into different categories depending upon use, such as forestry, agroforestry, and agro-animal production.

- F. Are local people employed by PIP project funds?

NO.

Park rangers and other park staff are all financed by the Costa Rican government.

PERFORMANCE INDICATORS:

III. LONG-TERM FINANCIAL SECURITY

- A. Have the long-term financial needs of the protected area been identified?

YES.

- B. Are there local revenues that support the protected area?

YES.

- C. Are there national budget allocations that support the protected area?

YES.

- D. Are there international funds that support the protected area?

YES.

- E. Has a Financial Plan been approved for the protected area?

NO.

- F. Is an fiscally responsible administrative system in place to manage the funds?

YES.

external audit from NGO at TNC? YES.

- G. Are financial resources committed to operations of the area?

YES.

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

I. ON-SITE PROTECTION AND MANAGEMENT

- A. Has there been a change in the natural vegetation or land cover?
NO INFORMATION.
- B. Has there been a change in the distribution, abundance or status of key species?
NO INFORMATION.
- C. Has there been a change in water quantity or quality?
NO INFORMATION.

To date, only the initial REA has been conducted. Another REA is scheduled for 1995 and this will enable the first change detection analysis. As a follow-up to the first REA, a series of studies are being conducted which includes the establishment of permanent transects to measure vegetation and animal populations. A series of study plots to monitor bird populations have been set-up in disturbed and non-disturbed forest habitats. Ricardo Soto of Neotrópica is conducting these studies with students from the University of Costa Rica. A detailed description of these monitoring activities is provided in the annex to the REA report, on file in the Mexico/Central America stewardship office.

The first REA was funded, in part, by World Wildlife Fund. The follow-up studies are partially funded by Parks in Peril.

In addition, MIRENEM personnel are beginning to gather information to aid in monitoring. This year they are measuring water quality. They are also comparing aerial photos from 1989 and 1992 to determine changes in land use in the area (see next page).

II. COMPATIBLE RESOURCE USE:

- A. Have there been changes in the pattern or intensity of land or natural resource use?
YES.

how were these changes measured? Aerial photos from 1989 and 1992 were used to map land use in the region. Preliminary analysis of the changes demonstrated by these maps indicates that there is now more agriculture and less primary forest in the region. Gold mining remains at the same level as before. One of the most dramatic changes has been the increase in tourism to the area.

cite source(s): Plan de Manejo Reserva Forestal Golfo Dulce - for land use changes
Instituto Costarricense de Turismo (ICT) - for the numbers of tourists

- B. **Have there been changes in the social or economic conditions of local residents?**
NO INFORMATION.

MIRENEM has just added a socio-economic component to its programs for ACOSA. This year, staff will begin to gather information regarding social and economic conditions of the local residents.

- C. **Have there been changes in the policies or institutions?**
YES.

how were these changes measured? Several entities within the ACOSA protected area have been redesignated and now receive a higher level of protection. A new section was added last year, Esquinas Park, which previously was not protected. Golfito was formerly a wildlife reserve, and now has been declared a park.

An important policy change that has benefited the conservation of ACOSA is the change in the forestry decree of 1990. This decree allowed each farmer to take out 10 trees per farm per year. Due to a lack of oversight and regulation, the decree was widely abused and rapid deforestation occurred. In 1992, the decree was outlawed and farmers are no longer allowed to remove trees from their farms without a special logging concession.

III. LONG-TERM FINANCIAL SECURITY:

- A. **Has a trust fund or endowment been established for the protected area?**
YES.

type: Swedish Government Grant

- B. **Are there diverse sources of funds/revenues for the area?**
YES.

Parks in Peril : FY 1993 Evaluation

	<u>Corcovado</u>	<u>Total Costa Rica</u>
ON-SITE PROTECTION & MANAGEMENT		
# Hectares in protected areas:	41,788	41,788
Management plan completed:		
Yes	1	1
No	0	0
Operations plan completed:		
Yes	1	1
No	0	0
Ecological values determined:		
Yes	1	1
No	0	0
Critical threats/areas located:		
Yes	0	0
No	1	1
Studies/monitoring underway:		
Yes	1	1
No	0	0
Radio equip. installed:		
Yes	1	1
No	0	0
# Radios on-site:	10	10
# Personnel:	36	36
# Rangers:	36	36
# Ranger training events:	2	2
# Km demarcated:	30	30
# Ranger centers:	10	10
Basic transportation:		
Yes	1	1
No	0	0
Continuous field supervision:		
Yes	1	1
No	0	0
COMPATIBLE USE/ECONOMIC DEVELOPMENT		
Socioeconomic values identified:		
Yes	1	1
No	0	0
Basic human needs met:		
Yes	0	0
No	1	1
Local participation in resource mgmt:		
Yes	1	1
No	0	0
Land tenure stabilized:		
Yes	0	0
No	1	1
# Local people employed with PIP funds:	0	0
LONG-TERM FINANCIAL SECURITY		
Long-term financial needs identified:		
Yes	1	1
No	0	0
Funding from external sources:		
Yes	1	1
No	0	0
Amount		
Funding from Federal/State sources:		
Yes	1	1
No	0	0
Amount		
Funding from local sources:		
Yes	1	1
No	0	0
Amount		
Financial plan approved:		
Yes	0	0
No	1	1

Parks in Peril

1993 Evaluation

Dominican Republic

Jaragua National Park

**PARKS IN PERIL PROGRAM
1993 EVALUATION FORM**

PROTECTED AREA NAME: JARAGUA NATIONAL PARK

GENERAL INFORMATION:

Country: Dominican Republic

NGO Partner(s): Pronatura
Apartado 21714,
Sant^r Domingo
Republica Dominicana

Grupo Jaragua, Inc.
El Vergel 33, El Vergel
Santo Domingo
Republica Dominicana

PIP Project Officer(s): Pronatura - Jose Miguel Guridy
Grupo Jaragua - Sixto J. Inchaustegui

Government Agency: Direccion Nacional de Parques
Apartado 2487
Santo Domingo
Republica Dominicana

Conservation objectives of the protected area:

- Survey and post park boundaries
- Eradicate feral animals in main portion of the park and on offshore islands and establish a control program
- Hire 7 new park guards
- Construct guard stations
- Acquire communication equipment
- Acquire a patrol vehicle
- Hire a community outreach officer
- Develop community support programs
- Acquire baseline data acquisition on 1) land use patterns, 2) key animal populations, and 3) socio-economic parameters
- Hiring of a local project supervisor and an accountant for Grupo Jaragua
- Establish a strong working relationship between Grupo Jaragua and the Direccion Nacional de Parques

Is there an NGO/GO agreement to work on this PIP site?

-Yes, and it is on file at The Nature Conservancy (TNC).

Is the TNC/NGO agreement up to date?

Yes.

Is the PIP Work Plan and Budget up to date?

After the second year evaluation (August, 1992) was completed, a revised and detailed budget was submitted and approved for Fiscal Year 1993 (FY'93). This budget, accompanied with detailed footnotes, became the operational plan for FY'93. Work plans have been completed and documented on a quarterly basis. These documents are on file at TNC.

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INTRODUCTION

Jaragua National Park is located in the extreme southwest of the Dominican Republic. It is characterized by dry forest and scrub land on the southern slopes of the Bahoruco Mountains. The park boundaries include terrestrial, coastal, and marine environments as well as two continental islands (Beata and Alto Velo islands). From sea-level the land within the park rises to 334 meters. The marine area extends out to sea more than 14 kilometers beyond Beata Island to a point approximately two kilometers beyond Alto Velo Island. The terrestrial area of the park is 46,900 hectares and the marine portion covers an additional 90,500 hectares. At 137,400 hectares, Jaragua National Park is the largest protected area in the Dominican Republic and in the insular Caribbean.

This marine and terrestrial park has an extremely rich population of fauna, including 36 endemic reptiles, 130 species of birds, and four species of marine turtles. Forest clearing for agriculture and charcoal production, cattle ranching, overfishing, and feral animals have threatened the biological diversity of this area. Additionally, with its beautiful beaches and the construction of new roads to the park and a new airport, the arrival of tourism is on the horizon and due to the lack of park infrastructure, presents more of a threat to the park than a benefit. As part of the USAID/TNC sponsored Parks in Peril program, Jaragua National Park was chosen to receive basic strengthening to protect its biological riches for the future. This strengthening included (but was not limited to) the marking of park boundaries, hiring of park guards, community education and outreach, and feral animal control.

In October 1993 (the beginning of FY '94) Jaragua National Park will begin its 28th month as a Parks in Peril site. As a result, this evaluation was carried out to measure the success to date against the goals that were presented in the original workplan, as well as to determine if stated 3-year outputs would be accomplished by June 1994.

Jaragua National Park's original work plan was submitted to USAID in October 1990, but was not approved as an official PIP site until July 1991. As a result, the first year of the project was very short and progress was limited. This was mentioned in the first year evaluation that was conducted in September 1991. A second year evaluation was conducted in September 1992. So, although this is technically the third year evaluation and was planned to occur at 34 months into the life of the project, it is occurring after only 25 months.

The main participating members in the Parks in Peril program at Jaragua National Park are The Nature Conservancy, Pronatura, Grupo Jaragua Inc., and the National Park Service of the Dominican Republic. The framework used to conduct this evaluation was a series of questions agreed upon by USAID and TNC that were drawn from a table entitled "Factors for Success". These "Factors" were first presented in a TNC Parks in Peril proposal to USAID/Washington and fall into three categories: 1-On-site Protection and Management, 2-Compatible Resource Use, and 3-Long-Term Financial Security.

The following pages include a list of the persons interviewed for the evaluation, the completed questionnaire, the program goals from the original workplan and the overall evaluation listing the programs achievements, limitations. Recommendations for future activities are given at the end of the document.

Target Institutions and Individuals

The Nature Conservancy - Domingo Marte, Dominican Republic Country Program Director

Pronatura - Jose Martinez Guridy, Executive Director

Grupo Jaragua - Sixto J. Inchaustegui, President
Pericles Mercedes, Local Program Coordinator
Olga Vidal, Local Program Administrator
Amarilis Camacho, Secretary
Roman Feliz Medina, Asistente de Campo
Martires Peres, Asistente de Campo
Radamas Mercedes, Asistente de Campo
Altagracia Guerrero, Social Worker

Direccion Nacional de Parques - Gabriel Valdez Sierra, Encargado Depto. Parques Nacionales
Jose Maria Cuevas, Parkguard
Ricard Monte de Oscar de la Cruz, Parkguard
Bienvenido Perez Turbi, Parkguard

Sociedad Ecologica de Oviedo - Altagracia Molina, President
Miguel Antonio Sepulveda
Luz Dalia Molina
Joaquin Dionesio Perez

U.S. Peace Corps - Edward Miller

The following conservation goals and workplan are taken from the October 1990 workplan that was approved by USAID/Washington in July 1991:

The Conservancy and its partner organization will implement a management strategy designed to provide long term protection for the natural resources within the park. The Jaragua National Park Management and Conservation Plan completed in 1985 by the DNP is the basis for this Parks in Peril workplan.

Land protection and Biodiversity Management

Goal 1: Survey and Post Boundary

Based on GJI's experience with the local communities surrounding the park, the top priority for the 1991-1992 fiscal year will be to survey and post critical boundaries. The initial activities will be to acquire the necessary staff and technical personnel and equipment necessary to carry out the protection of the valuable resources.

Goal 2: Control Feral Dogs and Cats

Within the park boundaries, feral dogs and cats roam and destroy endemic animals and birds. GJI together with DNP and with technical assistance from the Conservancy plan to completely eradicate these feral animals on both islands and to establish a feral animal control program.

Goal 3: Increase Park Guard Staff and Equipment

Currently there are insufficient numbers of guards and equipment even for the most basic protection of Jaragua National Park. The DNP currently employs for Jaragua National Park eight park guards, one park guard supervisor, and one park administrator. There is one park guard house (caseta) which presently serves as an office. A marine turtle guard station is being constructed which will serve to protect the turtles, eggs, and their hatchlings. The park has informal trails used for patrolling, and there are two mules, one motor cycle, two boats and one engine which are used for transportation.

This project will provide for the hiring of an additional seven park guards to protect the park. In addition, two park guard stations will be constructed to provide for the housing of guards and equipment. Basic communication equipment will be provided. Fund from the project will purchase the first vehicle available to the park guards for patrolling.

Public relations, education, and extension

Goal 4: Hire Community Outreach Officer (Extensionist)

GJI will expand the work it is doing with Oviedo and Juancho communities to teach and educate the local people about the natural resources of the park. The majority of GJI activities to date have been carried out by a voluntary community outreach officer. GJI will hire a community outreach officer full time and expand his activities to include: environmental education work in the key communities around the park.

Goal 5: Develop Community Support Programs

The community outreach officer will work with the park administrator and GJI officials to develop a strategy to strengthen community support and increase understanding of the benefits of the park. Women from the local communities have attended environmental programs sponsored by DNP and GJI, and GJI intends to incorporate the needs of the local women in their work plan. For example, GJI is looking at alternative energy techniques to improve their cooking methods and to offer basic training courses in tourism and arts and crafts.

Applied Research and Monitoring

Goal 6: Complete Set of Baseline Data for Monitoring Project Success and Provide Critical Trend Data

GJI, working with DNP and other agencies, will conduct aerial and land surveys that will establish baseline data on key animal populations. These studies will include inventories of flamingos, iguanas, terns, and marine turtles. In addition, an aerial survey of the northern boundary of the park will be made to provide baseline data on the current intrusions and land uses. This data will again be collected in the third year of the project to provide an assessment of the success of the conservation actions and important trend information. This information will guide future management actions.

Scientists have been carrying out additional flora and fauna studies through the auspices of GJI and these studies have been incorporated into the management plan for Jaragua National Park. GJI will continue to gather biological baseline data and conduct additional in-depth research on the flora and fauna.

In addition, GJI will seek resources to support a socio-economic baseline data project to determine if the park is providing economic and social benefits to the local communities.

Organization and Administration

Goal 7: Strengthen the Administrative Capacity of Grupo Jaragua

Funds will be provided to hire a local project supervisor for Grupo Jaragua and support staff. The local project supervisor will use the Oviedo home recently purchased by GJI as his office. An accountant will be hired by GJI and training and technical assistance will be provided through PRONATURA to develop GJI's capacity to provide financial administration for this project and future projects. Finally, support will be given to the GJI director to manage the project, provide the necessary reports, and administrative oversight.

Goal 8: Promote A Strong Cooperative Relationship Between DNP and GJI in the Implementation of the Project

The Nature Conservancy is the recipient of USAID Parks in Peril funds, and will subcontract with GJI to implement the proposed activities in Jaragua National Park. The DNP and GJI will establish mechanisms to work with local communities that surround the park to ensure that they will be continually involved in the implementation of the project, decision making process, and activities that affect the lands and resources on which they depend. In addition, DNP and GJI will establish mechanisms to coordinate efforts with other public and private agencies working in the area. A monthly review and programming meeting between GJI and DNP has been scheduled as part of a coordinating working agreement signed between these two key institutions.

V. Implementation Plan and Estimated Budget (one year)

Time Frame Implementation Schedule (1 year in Quarters)

<u>Action</u>	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>	
Contract personnel (administrative) (park guards)	X	X	X	X	
Purchase transport	X	X			
Boundary marking & sign posting		X	X	X	
Construction guard post			X	X	
Construction of Head Quarters			X	X	
Purchase equipment/ materials	X	X	X	X	
Ranger training			X	X	Continue 3 years
Bird Studies	X	X	X	X	Continue 3 years
Monitor/Evaluation	X	X	X	X	Continue 3 years
Operations/Administrative Costs	X	X	X	X	Continue 3 years
Community education		X	X	X	Continue 3 years
Public Relations	X	X	X	X	Continue 3 years

VI. Project Outputs Year 3

Actions:

- Rangers hired and trained
- Project Director and Coordinator hired and trained
- Park boundaries marked
- Guard houses constructed and outfitted
- Communication system installed
- Head Quarters constructed and outfitted
- Animal Population Studies completed
- Baseline information established and monitored
- GJI and DNP coordinating mechanisms established

Results:

- Improved park boundary protection
- Ecological communities and individual species protected
- Local communities informed and educated about the park's purpose and the location of the boundaries
- Grupo Jaragua strengthened as an institution capable of implementing conservation projects

PERFORMANCE INDICATORS:

I. ON-SITE PROTECTION AND MANAGEMENT

A. Have the ecological values of the area been identified?

Yes.

Size (hectares): 46,900 terrestrial and 90,500 marine

Key ecosystems: Dry forest and scrub lands on the southern slopes of the Sierra de Baoruco; coastal hypersaline lagoons, mangrove forests and beach systems; offshore islands with dry forest and scrub cover that act as centers of marine upwelling; shallow coastal marine systems of seagrasses and scattered patch coral reefs.

Endemic species: Fifty-four taxa of reptiles and amphibians have been identified, including 36 endemic to the islands of Hispaniola and 26 endemic to the immediate region of the park and its surrounding area. Four reptiles are endemic to the island of Beata and three to Alto Velo. There are ten endemic bird species. Haitella ekmani is a palm endemic to the area. A complete species list is included in the Jaragua National Park Management Plan published in 1984.

Threatened species: The white-crowned pigeon, the Hispaniolan parrot, the blue-footed booby, and three species of marine turtles that nest on the Park's beaches (green, hawksbill and leatherback). Certain marine invertebrate and vertebrate species are heavily exploited by coastal fishermen.

Migratory species: Sea turtles and various bird species. There are some undocumented reports of whales and manatees being seen within the park.

B. Have critical threats been located on a map? Yes

Type:

Forest clearing for charcoal production.

Forest clearing and burning for small-scale agriculture or to make pasture for cattle.

Cattle and goat ranching and its primary effect of habitat destruction and secondary effect of dog predation on native fauna.

Habitat destruction from bauxite mining.

Egg collection for human consumption from nesting colonies of birds and marine turtles.

Hunting and collecting of native birds and reptiles for human consumption and for use as pets.

Overharvesting of marine shallow water species for human consumption using nets and traps and no respect for regulations that establish minimum mesh sizes for the nets and minimum sizes for species harvested.

Predation on native species by feral animals (dogs, cats and rats).

C. Are critical boundaries surveyed and posted?

Yes.

Seventy kilometers have been marked along the park's northern boundary. The remaining boundaries of the park are made by the coastal waters surrounding the peninsula.

D. Are rangers trained and equipped?

Yes. Although it is clear from conversations with all DNP personnel that the situation in Parque Nacional Jaragua has much improved as a result of the PIP project, some basic field equipment is still lacking. Most notable are the shortage of sturdy boots, backpacks, hats, canteens, firearms (12-gauge shotguns) and mosquito netting.

The number of rangers on-site?

There are 19 rangers on-site (16 permanent with 3 extras) but this is a dynamic number as there has been a high degree of desertion due to the low monthly wages received (((\$840.00 (RD) = \$68.00 (US))). Eight of these guard positions have been filled with PIP funds.

The type of training the guards have received?

Grupo Jaragua and the Direccion Nacional de Parques have to date conducted three courses for the parkguards. The topics covered were 1) General Parkguard Training (i.e. guard responsibilities, nacional park administration, simple conservation measures), 2) Biological Monitoring of Important Species, and 3) Legislation. A fourth course covering The Characteristics of a Managed Area was conducted with funds provided by The World Wide Fund For Nature (WWF).

Three more courses are planned by GJ/DNP. These will cover Natural Resources, First Aid, and Instruction in the Use of the Communication Equipment.

E. Do the personnel have transport and communication equipment?

Parkguards are transported among the park stations on their regular six day rotation by the project pick-up truck maintained by GJ. Aside from the pick-up truck no other transportation equipment is available. Parkguards say that the acquisition of two mules to use for transport between the Fondo Paradi and Trudille stations would be very helpful (a 3 hour walk over terrain not suitable for motor vehicles). The acquisition of a motorcycle would greatly facilitate transportation and communication among park guard stations and would provide a means for the park administrator to make more frequent visits to them. No boats are available for marine patrolling, but it should be noted that these were not programmed for in the original work plan.

At the time of this evaluation, all parkguard stations (4) and the GJ field station have communication equipment installed and can communicate with one another. These systems are VHF radios (Motorola) that are run from a 12-volt battery that is charged by a solar panel. Park guards on patrol will have the capacity soon to carry mobile radios (5).

F. Have basic protection facilities been constructed on-site?

Yes. As a result of PIP three guard stations have been constructed bringing the total to four.

Although, all guards agree that better enforcement could be achieved if the partially completed station at Playa San Luis were completed and staffed. This station is of importance because it stands on the beach which most visitors use for access to the park in order to collect land crabs and sea turtle eggs. Parkguards stationed there could monitor also people arriving at the beach via La Laguna de Oviedo.

Additionally, several guards mentioned that a boat would be useful for the DNP station at Bahia de las Aguilas due to the need to monitor fishing and increasing tourist activities there. Enforcement could be improved at La Laguna de Oviedo if a larger horsepower motor were provided to the park guard stationed there.

At the inception of PIP a guard station existed at El Cajuil (headquarters). The new stations have been constructed at Fondo Paradi (northern region) and Bahia de Las Aguilas (western region). A fourth guard station was constructed at Trudille (southern region) with funds from The World Wide Fund for Nature (WWF). These stations are wood-framed structures that have a central room (with table and chairs), a sleeping area with bunk beds, and a storage and cooking area.

Although all guard stations that were programmed to be built were completed, it is still felt that three more guard stations are needed for total park protection .

G. Does the area have continuous field logistical support?

Partial field logistical support is available as no equipment is on-site for the park guards to use for patrolling (i.e. horses, mules or boats for marine work).

The Dominican Republic government provides the food and uniforms to the parkguards, but the majority of support comes from PIP funds.

H. Are ecological carrying capacity, baseline biological assessment and monitoring programs underway?

Studies to obtain baseline data on selected important native species have begun. Field personnel have also begun to acquire baseline information on the distribution and effects of non-native species (i.e. cattle, goats, dogs and cats). Studies to document the existing land-use practices and vegetation cover as well as monitor the changes in this cover also have been started.

I. Has a Management Plan been completed for the area.

Yes. A plan was completed in June, 1986.

J. Are Annual Operations Plans and Budgets completed?

Yes. These are completed for Parque Nacional Jaragua by the Direccion Nacional de Parques.

PERFORMANCE INDICATORS:

II. COMPATIBLE RESOURCE USE

A. Have key social and economic values of the protected area been identified?

Partially. What generalities are known about social and economic values come as a result of other investigations carried out by GJ, Propescar and others. PIP funds were not directly used to fund any socio-economic research but did cover the salaries and logistical support of personnel engaged in socio-economic data gathering. The original workplan identified GJ as the organization that would seek the resources to carry out this type of study. The main economic value of the protected area is as 1) a place to let cattle wander freely and graze; 2) a place to hunt wild (once domestic) goats; 3) a place to collect products from palm trees; 4) a place to harvest marine and terrestrial invertebrates (mainly spiny lobster, conch and land crabs) and fishes; and 5) as a source of wildflowers that provide nectar to the local apiaries.

B. Have basic human needs of local communities been satisfied (i.e. health, safety, welfare, etc.)?

No. The local communities are lacking many basic needs. These are important and need to be addressed if Parque Nacional Jaragua is to be a success. Determining these needs was not part of the original work plan, but they do need to be identified and attended to.

C. Is there direct community and resource user participation in resource management and allocation decisions?

This is a difficult question to answer because a distinction has to be made between the community and resource users. Many community members do not make use of resources with the park and many persons come from outside the neighboring communities to extract resources. This said, the evaluator is not sure that any allocation decisions that would affect resource users have been made as a result of the protected area status that Parque Nacional Jaragua enjoys.

The communities surrounding the park are spread out and no formal mechanisms exist for their participation in resource management proposals and/or decisions. In Oviedo, the largest town on the border of the park, some attempts have been made by GJ to include the community in management decisions through workshops. These attempts to involve the community have been criticized by some members of the community for their narrow focus (e.g. no presentation of alternative forms of employment for those workers that will be displaced by park regulation enforcement) and limited audience (e.g. no participation by the local Agricultural, Cultural, or Ecological Associations or municipal leaders). Much less than being involved in the decision making process, members of the Oviedo community would just like to be included in some environmental education programs.

D. Is the land tenure in the area stable?

Yes.

Land tenure system: Small private holdings. Large government land holdings of plantations for cotton, hemp, aloe and livestock.

Is the local partner organization protecting land through acquisition?

No.

E. Are there diverse agricultural and natural resource uses within the protected area buffer zone?

Yes.

Principal land/resource use: Livestock (cattle and goats), small plots for household crops and sorghum, large plantations of cotton, hemp and aloe.

Is this resource use within the carrying capacity of the buffer zone?

Not known at this time.

F. Are local people employed by PIP project funds.

Yes.

Full-time: Ten men - 8 parkguards (DNP), 1 local project coordinator (GJ), 1 chauffeur

One woman - secretary (GJ)

Part-time: Three men - 3 field assistants

PERFORMANCE INDICATORS:

III. LONG-TERM FINANCIAL SECURITY

A. Have the long-term financial needs of the protected area been identified?

Yes.

Categories and projected budget:

Estimated necessary capital for the next ten years (in thousands US\$):

Personnel	412.4
Logistic	91.2
Training	152.5
Infrastructure and Equip.	208.4
Monitoring and T.A.	154.5
Admin. costs and Instit. Strength.	154
Total	\$1,173,000

Title and year of document: Information above taken from Parks in Peril Program (AID/TNC), 2nd Year Evaluation for Jaragua National Park, Dominican Republic, September 8, 1992. Budget prepared by Domingo Marte, Dominican Republic Country Program Director, The Nature Conservancy

B. Are there local revenues that support the protected area?

No. Revenues are generated within the protected area through park entrance fees. Entrance fees for country residents is \$20.00 RD = \$1.60 US and for foreigners is \$50.00 RD = \$4.00 US. The income generated this way is a very small percentage of the total operating costs and does not go towards park administration/management.

Type of support and estimated annual US\$ dollar revenue to the area:

Current local revenues do not exceed \$1,200.00 US per year.

C. Are there national budget allocations that support the protected area?

Yes.

Type of support and estimated annual US\$ dollar revenue to the area:

Revenue from the national budget to DNP for Jaragua National Park is \$16,000.00 US.

D. Are there international funds that support the protected area?

Yes. Although the majority of this support is for scientific investigation with only a small percentage allocated for park operations.

Type of support and estimated annual US\$ dollar revenue to the area:

World Wide Fund for Nature (WWF) - \$4,000.00 for 1993

Helvetas (Swiss) - \$250,00.00 US for scientific research and community outreach.

Global Environmental Facility (UNDP-World Bank -UNEP) - \$300,00.00 US for scientific investigation of marine life and resources adjacent to the park, monitoring, and construction of a museum. It is still undetermined if this money will be used for protection and management of the marine resources.

E. Has a Financial Plan been approved for the protected area?

No.

Categories and projected budget: N/A

Source of funds: N/A

Title and year of document: N/A

F. Is a fiscally responsible administrative system in place to manage the funds?

Yes.

External audit at TNC?

G. Are financial resources committed to operations of the area?

Yes. The Dirreccion Nacional de Parques provides \$16,000.00 US annually to Jaragua National Park.

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

I. ON-SITE PROTECTION AND MANAGEMENT:

A. Has there been a change in the natural vegetation or land cover?

This is difficult to answer definitively based on the available information and the time period over which observations have been made. Comparisons made among the results of remote sensing from 1984, 1989, 1990 and aerial overflights done in 1992 indicate no significant changes in land use patterns or natural vegetation coverage. In the years 1984 -1990 the largest change in vegetation cover was documented in the area surrounding the coastal fishing village of Trudille (pop. 500). The report from the 1992 overflight makes no mention of deforestation in this area.

On-site personnel of Grupo Jaragua say that there is less cutting of native forest for agricultural plots or carbon production than before PIP activities were initiated. Additionally, they say that many abandoned "conucos" or farmplots are becoming revegetated. No investigations have been done to determine if regrowth is composed of the original native species.

Source(s): Uso actual de la tierra y su dinamica en el Parque Nacional Jaragua. A report completed by El Gobierno de la Republica Dominicana, La Secretaria de Estado de Agricultura, Departamento Inventario de Recursos Naturales, February, 1993.

Informe sobrevuelo Parque Nacional Jaragua, June 11, 1992. Prepared by Sixto Inchauste

Interviews with personnel of Grupo Jaragua.

B. Has there been a change in the distribution, abundance or status of key species?

These ecological measures are still being investigated. Mention was made in a synthesis of assessment and monitoring to date of a drastic decline in the number of nesting boobies on the island of Alto Velo. Ottenwalder (1978) observed 20-25 thousand nesting individuals. Grupo Jaragua field scientists observed only 180-200 individuals on a trip to the island in May, 1993. Mention is made of 1) the large quantity of feral cats on the island and 2) the large amount of rain that had fallen. Other than these no details concerning differences in time of, or conditions during, the two field observations are given in the report. In the same synthesis Grupo Jaragua biologists mention observing the destroyed remains of many Hispaniolan parrot nests - presumably by collectors.

A report filed by Propescar-Sur (1990) states that in the marine area adjacent to the coastal village of Trudille, 29% of the total catch (by weight) is lobster and that 95% of these are undersize juveniles.

Source(s): Monitoreo Biologico para El Parque Nacional Jaragua - A Synthesis. Quarterly Report, June 1993. Prepared by Jesus Almonte, Biologist, Grupo Jaragua.

Censo comprensivo de la pesca costera de la Republica Dominicana, 1990. Gobierno de la Republica Dominicana, Secretaria de Estado de Agricultura, Departamento de Recursos Pesqueros, Proyecto de Promocion de las Pesca Costera Artesanal de la Region Sur.

C. Has there been a change in water quality or quantity?

No investigations are being conducted to determine this. Not applicable.

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities....

II. COMPATIBLE RESOURCE USE:

A. Have there been changes in the pattern or intensity of land or natural resource use?

These have remained more or less the same. GJ staff in Oviedo feel that the practice of clearing plots for subsistence agricultural is decreasing due to high incidence of abandoned plots. The staff feel that the community is much more aware of the protection measures that DNP is instituting.

Likewise, the aforementioned report by the Departamento de Recursos Naturales notes little change in land use pattern and intensity.

B. Have there been changes in the social or economic conditions of local residents?

No quantitative information exists for this. The original work plan for the PIP project did not define the need to acquire baseline economic information and/or monitor this over time.

Clearly, members of the community like the parkguards have benefited by gaining employment. GJ shares the use of the project vehicle to help local residents where and when possible. Persons that used forest products for their production of carbon have felt a negative impact, although, for most, this was not their sole source of income. Additionally, the prohibition of the cutting of forests for the production of carbon is a national law and not just a DNP restriction.

Source(s): Interviews with GJ staff and local community members.

C. Have there been changes in the policies or institutions?

There have been changes in the policies of the DNP, particularly in respect to the manner in which parkguards are selected. But no information was found that would indicate that as a result of PIP activities changes in policies or institutions occurred that would affect compatible resource use.

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities....

III. LONG-TERM FINANCIAL SECURITY:

A. Has a trust fund or endowment been established for the protected area?

No, but the development of a Park and Protected Area Trust Fund, as part of a national trust is being pushed. Because of the Dominican Republic's ineligibility in accessing EAI funds and the slow process of negotiating commercial bank debt, the process of establishing a national trust has been delayed.

B. Are there diverse sources of funds/revenues for this area?

As mentioned earlier (pages 15 & 16), diverse funds exist that will allow the continuation of existing and beginning of new scientific investigations by Grupo Jaragua. Some of this funding will cover community outreach work. Very little money is available for future operation of the protected area, aside from the provisions made by the DNP.

Efforts are being made now to try to capitalize on the ecotourism potential of Parque Nacional Jaragua. At the moment no visitor infrastructure is in place and the visitation rate is very low.

I. Achievements

A. Technical

Land Protection

- the protected areas' northern boundaries have been surveyed and posted park guard staff have been increased
- three new guard stations have been constructed
- construction of a dock to facilitate DNP work on La Laguna de Oviedo
- communication equipment has been provided linking together guard stations and patrolling park guards
- purchasing of a vehicle dedicated to the PIP project
- park guards have received several training courses
- environmental awareness of the local community has increased

Research and Monitoring

- GJ has put forth a program and budget for the development of a biological database
- additional field staff needed for this data collection have been hired
- baseline data collection has begun in an effort to determine and monitor the status of populations of iguanas, Hispaniolan parrots, white-crowned pigeons, and blue-footed boobies
- conducting terrestrial surveys to determine the locations of threatened plant and animal species
- verifying the use of threatened species by human communities within and adjacent to the protected area and determining the level of exploitation
- conducted a study of land use patterns and vegetation cover over the past 9 years with the use of remote sensing products, aerial overflights, and field surveys
- investigating the threat to native flora and fauna caused by exotic and/or feral animals
- select GJ and DNP personnel have been sent to international workshops
- international funds have been secured to continue terrestrial monitoring for two more years and to begin work in coastal/marine systems

Community Support

- execution of two workshops on development alternatives for the Oviedo community
- PRONATURA has obtained the services of a Peace Corps volunteer in Oviedo, who has served as a resource person for the community
- support has been provided to the Oviedo community to do beach cleaning and other environmental education activities
- NP hired a local teacher to act as a counterpart to the Peace Corps volunteer

Institutional Strengthening

- GJ hired a local project supervisor
- Improvement of GJ's administrative and investigative capacity
- mechanisms have been established to coordinate the activities of TNC, Pronatura, GJ and DNP.

B. Financial

- establishment of a fiscally responsible administrative system for managing funds
- development of the long-term financial needs of the park
- use of USAID/TNC funds to leverage \$600,000 of other international funds for scientific investigation and park protection/management

C. Administration

- the strengthening of Pronatura and Grupo Jaragua to become efficient and effective NGOs
- accurate budget management; accurate and timely financial/progress report preparation and submission

II. Limitations

A. Technical

Land Protection

- due to the low salaries earned by park guards, there has been a high desertion rate of already trained guards which has negatively affected the continuity of the project
- park guards are still without some basic equipment
- despite marking park boundaries and building a guard station, cattle intrusion is still a problem along the northern border - especially in the vicinity of Fondo Paradi
- despite the construction of a guard house in the village of Trudille, local residents still make a large impact on the parks resources by cutting forest wood, grazing cattle and goats, maintaining dogs and cats, and harvesting undersize marine invertebrates and fishes
- despite the construction of three new guard houses and doubling the number of park guards, unregulated access still occurs along the Playa San Luis for persons collecting turtle eggs and land crabs and hunters
- evidence still exists that cattle wander freely within the park and that cattle grazing has secondary affects (i.e. killing of iguanas by cattlemen's dogs and hunting by cattlemen)
- people are still entering the park to hunt and collect native species

Research and Monitoring

- GJ/Pronatura/DNP/TNC need to maintain better communication about the status and findings of individual assessment and monitoring projects
- no reference found to the acquisition of baseline data on the population status of sea turtles, land crabs and colonies of aquatic birds in Laguna de Oviedo and on offshore islands (with the exception of boobies)
- no reference found to what the proposed plan will be by DNP/GJ to control feral animals in the park
- as of July 1993, animal traps needed in December 1992 still have not been acquired
- as of November 1993 limited funds exist for continuation of the PIP research and monitoring program
- no mention made of monitoring activities that included parkguard participation
- no funds made available to support a socio-economic data acquisition component that would identify 1) the value of the resources extracted from the protected area to the local communities and 2) the social benefits of the protected area

Community Support

- community is still vague as to the specific roles of Pronatura and Grupo Jaragua and their respective personnel
- community workshops not held often enough and as a result some community members feel left out of the process
- no formal mechanism exists for community groups or members to express their ideas or preoccupations (e.g. how is park regulation enforcement going to affect them and what is the plan for the buffer zone?)
- development alternatives have been presented in past workshops, but the community or community associations never received follow-up information on how to enact them
- lack of strong and constructive relationships among DNP, GJ, and local municipal, agricultural, ecological and youth groups
- need to share ideas with the community on what approach to take for capitalizing on ecotourism
- local residents feel that the DNP could put more effort towards trying to include them in construction projects (i.e. gates, sign, guard houses)
- GJ and DNP not utilizing the local community groups as resources for community-wide environmental education efforts

B. Financial

- limited local resources are generated at the park
- no clear effort being made to capitalize on ecotourism
- international funds available to the park are largely for biodiversity investigation and not for park operations
- no long-term financial plan has been approved for the area
- no trust fund or endowment has been established for the protected area

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C. Administration

- need for DNP to take an active role in coordinating activities in Jaragua National Park and Oviedo to minimize repetition of effort and waste of financial resources
- lack of a clear mechanism for community groups in Oviedo to become involved in the project
- need for GJ and Pronatura to come to a mutual understanding of how money will be dispersed for monitoring projects

III. Recommendations

A. Technical

Land Protection

- consider salary increases, health care, government housing or some other type of incentive to maintain park guards employed
- continue to do whatever possible to support the park guards and keep them motivated; reiterate their importance to the success of the park
- provide park guards with the basic necessities that they still lack (c.g. boots, canteens, backpacks, mules, firearms, etc.)
- make initial attempts to educate the population of Trudille about Jaragua National Park and plans for the future; until alternative forms of employment can be found, park guards should at least start enforcing some regulations (e.g. minimum sizes for conch, lobster and finfish; limits on the number of cattle or goats allowed per person)
- obtain funds for terminating the construction of the biological station/guard house on Playa San Luis and add two more park guards to the staff; include this caseta on the regular rotation schedule
- it is important that GJ/DNP work together to develop a control program for feral animals (the community should be part of this discussion)

Research and Monitoring

- determine if more PIP funds are available for data acquisition and biomonitoring after October 1993 and if so, GJ/DNP/Pronatura/TNC should draw up a work plan and budget for how it will be spent
- begin baseline data acquisition and monitoring programs for populations of iguanas, sea turtles and colonial aquatic birds
- acquire animal traps from US distributors as soon as possible and begin deployment as part of the baseline data acquisition; work with TNC to expedite their acquisition if necessary
- GJ and DNP should make a concerted effort to get the park guards involved in biomonitoring efforts; this should be encouraged even if the guards carry out menial tasks at first
- GJ should provide to DNP/Pronatura/TNC on a quarterly basis detailed (i.e. quantitative) information (even if it is preliminary) on the status of monitored populations; this could be included in the quarterly progress reports

- TNC can provide technical assistance to GJ in the development of their monitoring program if it is desired (terrestrial or marine)
- funds should be made available to complement those that GJ is already receiving from Helvetas to carry out a socio-economic analysis; perhaps these funds would allow this analysis to be broadened to include some investigations into alternative development opportunities or ecotourism potential of the area

Community Support

- a greater effort must be made by DNP/GJ/Pronatura/TNC to clarify for the surrounding communities their respective roles and the responsibilities of their personnel
- DNP/GJ should invest more resources (time, labor, funds) in designing and carrying out community-wide workshops and develop some formal mechanism whereby all municipal and/or community groups can hear about park management proposals, ask questions, make suggestions, etc.
- somebody needs to invest time thinking about how the future of the area will develop and how the community would like to see it develop; there is a vital need to arrive at an agreement with the cattlemen on the issue of grazing within the park; likewise the development of the buffer zone needs to be addressed, keeping in mind how the region will change with the arrival of the freshwater canal and the new pressures (and threats) that it will bring to the community and the park
- TNC/Pronatura/GJ/DNP should engage more players in the search for development alternatives that are viable for the Oviedo community and help the community follow through with these
- regardless of past history, GJ/DNP need to forge constructive alliances with local municipal, agricultural, ecological and youth groups and use them as a conduit for informing the community and getting the community involved in park and buffer zone management/protection/environmental education
- TNC/DNP/GJ/Pronatura and the community of Oviedo should share ideas on what approach should be taken to capitalize on ecotourism
- local craftsmen should be offered the opportunity to participate in Jaragua National Park construction projects

B. Financial

- a focused approach should be taken to capture the resources that ecotourism can generate and these resources should be reinvested into the park's operational plan and the local community
- international funds should be sought for operational costs of the protected area
- efforts should continue to get an approved long-term financial plan for the area - a trust fund or endowment would be an ideal mechanism to accomplish this
- GJ, Pronatura, and DNP should remain active in the preparation of grant proposals and securing seed money
- GJ, Pronatura and DNP should continue to strengthen their technical and administrative skills to become more attractive recipients of funding

- GJ, Pronatura and DNP should strengthen their institutional relationships to increase credibility
- current and future financial resources should be used to fill priority needs - these being a fair compensation for the park guards and secure operational funds on a long-term basis

C. Administration

- DNP should become active in coordinating activities as they relate to Jaragua National Park to minimize duplication of effort
- as new funding sources with different foci are becoming available as a result of the progress made with the PIP program, GJ/Pronatura/TNC should communicate with each other frequently to ensure each organizations activities complement one another
- Memorandums of Agreement should be signed among NGOs in Oviedo and GJ or Pronatura to carry out particular community-based environmental projects
- GJ and Pronatura should agree on how money will be dispersed for monitoring projects

SUMMARY OF RECOMMENDATIONS

By the standards established in the Parks in Peril program, Jaragua National Park is a successful PIP project. Most of the conservation goals established in the original Parks in Peril work plan from October 1990 have been attained. Efforts are currently underway to achieve those goals still remaining. These have been addressed to the degree that considerable progress will have been made toward achieving them by the time three years is completed (July, 1994).

As conserving the biodiversity of the park is the main focus of the PIP project, the remaining nine months should include considerable energies in this effort. Priorities should be to finish and staff the guard house/biological station at Playa San Luis, institute a control program for feral animals (especially at the boobies colony on Alto Velo), educating the community at Trudille about the need to respect fisheries regulations and equipping the park guards with what basic needs they still lack. Other government agencies need to be included in the discussion of alternative grazing areas for the cattle that are presently in the park.

In spite of the initial delays, implementation of the biological assessment and monitoring program is moving ahead. GJ staff are in the field and collecting data. It is imperative that the focus be kept on the species and threats addressed in the work plan. Any indications of negative impacts on native populations by exotic species should be dealt with as soon as possible. As Grupo Jaragua has been successful in using PIP funding to leverage more funds for investigations, project planning and budgeting must be done so as to insure no duplication of effort. This coordination must occur among TNC/Pronatura/GJ and DNP. Additionally, as data on the status of populations is collected, GJ should keep its partner organizations informed as to their findings. This could be accomplished with quantitative reports annexed to their quarterly progress reports.

The exact amount of funds available in FY'94 for baseline data acquisition and monitoring through PIP needs to be determined. Given the limited amount of funding probably available and the increasing complexity of the data gathering effort (i.e. more personnel, more research projects, and

diverse sources of funds) two recommendations are suggested. The first is to focus on fewer species. If a common threat is known to endanger several species (e.g. feral cat predation on nesting seabird young), controlling this threat and monitoring one species of seabird might be adequate. The second recommendation is to distribute the funds to GJ for these studies on case by case basis. GJ has submitted a budget for baseline data acquisition and monitoring divided into different categories. Each category could be expanded into a separate proposal and funded one at a time. This would make the tracking of costs easier and prevent the chance that a cessation of funding would endanger several monitoring projects at once.

Conversations with members of the local ecological society make it clear that some sectors of the community of Oviedo are concerned about future developments in the region.

As the park becomes more established they see local users (principally cattlemen and farmers) being denied access. As a result, they are very interested in alternative places to raise cattle and farm. At the same time, with the arrival of the freshwater canal, they anticipate large changes in the land tenure system. In their view, the government will establish large "plantation style" farms on the remaining available lands in the buffer zone (this large scale agriculture should also be viewed as a potential threat to the health of the park ((i.e. ground water contamination, introduction of pest or exotic species, etc.)). GJ/DNP should become engaged with local community groups and other government organizations in order to build constructive partnerships. Working together, these groups need to keep the community involved in the management/protection process and develop viable alternative forms of employment. Some mechanism needs to be developed that will allow community support programs to become a larger portion of the project. All efforts by the community to be involved in park-related activities should be encouraged - even if this means funding local NGO's independently. Funds should be sought to do more socio-economic analysis, perhaps including an investigation into the potential for ecotourism development.

GJ is to be commended on securing more funds for support of their field investigations. Working together, GJ/DNP/Pronatura need to focus on using current and future financial resources on priority needs. Two of these priorities are fair compensation for park guards and long-term operational funds. Securing funds for the long-term operations and protection of Jaragua National Park will be one of the biggest challenges. These groups should work with the community of Oviedo and TNC to develop some strategies for developing the ecotourism potential of the Jaragua National Park region.

	Jaragua	Total Dominican Rep
ON-SITE PROTECTION & MANAGEMENT		
# Hectares in protected areas:	137,400	137,400
Management plan completed:		
Yes	1	1
No	0	0
Operations plan completed:		
Yes	1	1
No	0	0
Ecological values determined:		
Yes	1	1
No	0	0
Critical threats/areas located:		
Yes	1	1
No	0	0
Studies/monitoring underway:		
Yes	1	1
No	0	0
Radio equip. installed:		
Yes	1	1
No	0	0
# Radios on-site:	9	9
# Personnel:	19	19
# Rangers:	19	19
# Ranger training events:		
# Km demarcated:	70	70
# Ranger centers:	4	4
Basic transportation:		
Yes	1	1
No	0	0
Continuous field supervision:		
Yes	1	1
No	0	0
COMPATIBLE USE/ECONOMIC DEVELOPMENT		
Socioeconomic values identified:		
Yes	1	1
No	0	0
Basic human needs met:		
Yes	0	0
No	1	1
Local participation in resource mgmt:		
Yes		
No		
Land tenure stabilized:		
Yes	1	1
No	0	0
# Local people employed with PIP funds:	14	14
LONG-TERM FINANCIAL SECURITY		
Long-term financial needs identified:		
Yes	1	1
No	0	0
Funding from external sources:		
Yes	1	1
No	0	0
Amount	\$594,000	\$594,000
Funding from Federal/State sources:		
Yes	1	1
No	0	0
Amount	\$16,000	\$16,000
Funding from local sources:		
Yes	0	0
No	1	1
Amount	\$0	\$0
Financial plan approved:		
Yes	0	0
No	1	1

Parks in Peril

1993 Evaluation

Ecuador

Machalilla National Park

Podocarpus National Park

**PARKS IN PERIL PROGRAM
1993 EVALUATION FORM**

PROTECTED AREA NAME: MACHALILLA NATIONAL PARK

GENERAL INFORMATION:

Country: ECUADOR

NGO Partner: Fundación Natura
America 5653 y Voz Andes, Quito - Ecuador

Telephone: 011-593-2-447341 through 47.

Proj. officer: Ruth Elena Ruiz, Biologist

Government agency: Instituto Ecuatoriano Forestal y de Areas Naturales y Vida Silvestre (INEFAN).
Ave. Eloy Alfaro y Amazonas, Edif. Ministerio de Agricultura y Ganadería, Piso 8, Quito - Ecuador.

Project officer: Dr. Jorge Barba

Conservation objectives of protected area:

The creation decree clearly states the park objectives:

- o Protection of the last remnants of Dry tropical forest in the western Ecuador.
- o Protection of the Ayampe's aquifers.
- o Ensuring water provision for the villages and towns in the coast.
- o Conservation of the archaeological sites and their surrounding natural environment

Is there an NGO/GO agreement to work on this PIP site?

Yes, on file at TNC

Is the TNC/NGO agreement up to date?

Expired last August. Agreement needs to be renewed.

Is the PIP Work Plan and Budget up to date?

Yes, on file at TNC

Name of evaluator: Hugo Arnal
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1815 North Lynn St., Arlington, VA 22209
Phone: (703) 841-7414
Fax: (703) 841-4880

INTRODUCTION

Coastal Ecuador possesses only two official protected areas: Manglares Churute Ecological Reserve and Machalilla National Park. Both areas have marine and continental sectors but Machalilla has a much greater landscape and seashore diversity. Machalilla National Park holds a gradient of different forest formations that have been deeply altered by human activities. There is a marine zone with the only coral reef in the continental part of the country. It is unnecessary to say that both areas, Machalilla and Manglares Churute, do not represent all the marine diversity of Ecuador. A third conservation unit, the "Cerro Blanco Natural Preserve", is an exceptionally well preserved non-governmental area managed by Fundación Natura Guayaquil. However, due to its small size and location near Guayaquil (central-southern coast) it does not include samples of all the ecosystems of the Ecuadorian coast. In other words, even though there is an important conservationist contribution by Cerro Blanco, conserving Machalilla is an unquestionable need. Furthermore, adding up the high diversity of Machalilla as a marine-continental area and the lack of potential sites for new conservation units, due to the fast transformation of the coastal ecosystems and to the private land tenure of most of the lands closer to the coast, we come to the conclusion that it is a first priority to protect this park. Machalilla probably represents the only real opportunity to preserve the last remnants of the low altitude dry forest and the coast fog forest in western Ecuador.

Machalilla National park was established in 1979. The park consists of three non-contiguous continental sectors (Salaite, Agua Blanca and Salango) joined by a two-mile wide marine corridor. The Islands of Salango and La Plata are included in the park; the latter is larger than the first one and is located at a good distance from the coast. All these sectors and the marine corridor enclose almost 55,000 hectares of the Province of Manabí.

In the park we can recognize four life zones according to Holdridge's system: tropical xerophilous matorral, tropical dry brushwood, tropical dry forest and lower mountain dry shrubs. The first life zone is the most extended and covers as much as 46,000 hectares. The most wet life zone is the lower mountain dry brushwood which is found at high altitude and receives the influence of humid winds. Most recently, Parker and Carr (1992) have defined three vegetation types:

- Cloud Forest: in the hills near the ocean, often impacted by logging and cattle grazing.
- Dry Forest: almost does not exist in natural conditions.
- Coastal Scrub: heavily transformed and impacted.

An important portion of the park territory has been transformed or degraded by human action. However, as it has been repeatedly emphasized at the beginning, this protected area comprises the only natural refuge for many animal and plant species. Almost 8% of the total bird fauna of Ecuador and 2.5% of the total of mammals have been recorded in Machalilla

National Park. To date, there are no studies to assess the status of the species populations. Without hesitation, we can affirm that population level is generally very low as poaching is frequent and habitat destruction has been intense.

The marine ecosystems, including the islands of Salango and La Plata, are relatively diverse with a high number of economically important fish and sea shell species. The fisheries base inventory contracted by Fundación Natura has already been completed and will be published very soon. In addition to the marine species, La Plata island is inhabited by large populations of seabirds, mainly pelicans and petrels.

The park is also important from the socio-economic point of view. This unit protects the Ayampe River watershed which provides water to many communities in the coast, even though the water table is not very high and can be almost non-existent in the dry season. However, some sectors of the park have important aquifers resources with good water quality. The Manabí Committee for Hydrological Resources has completed an study that estimates sixteen sites for water intakes (see Secretaría de Desarrollo Rural Integral, 1983)).

This conservation unit occupies an important territory between Guayaquil and Manta. These two cities are connected by a network of paved roads . The roads allow an important movement of people and resources that affect the park. Due to the high quality of its beaches and to its accessibility, the park receives a very high number of visitors throughout the year.

Within the park limits there are a number of small communities: Agua Blanca, El Pital and Casas Viejas, being the most important. Also, there are a few scattered families well spread throughout the park area. In the 1992 evaluation of the Parks in Peril Program in Machalilla, performed by this same evaluator, it was pointed out that there is abundant discordant literature about the number of inhabitants living in the park. A document from 1987 (Paucar et al., 1987) indicates a total of 1,500 people living within the park limits while 4,500 are occupying the buffer zone of the area. The study on the human communities of Machalilla, which was part of the Machalilla work plan for fiscal year 1992, has been published (Cuellar et al., 1992). Although the research team could not conduct the questionnaire in all the households (some refused to do it), most of the families were interviewed and the indexes that were obtained have allowed to accurately estimate the number of the park inhabitants. The total population inside the park is of 684 people, while there are 980 people living in the buffer zone. If the data from Paucar et al. (1987) is accurate, these amounts show a net decrease in the population living within the park and its buffer zone. Around half of the total population is under 15 years of age and 18% of the total is illiterate. The incidence rate of diseases is very high with 39.5% of the population suffering respiratory diseases and 23.2% suffering a combination of respiratory and gastric-intestinal diseases.

The human occupation inside the current conservation unit is not new as it is evidenced by several ruins and relics of ancient cultures. Some artifacts collected in the area, belonging to the Machalilla and Valdivia cultures, are as old as 5,000 years (Norton, 1986). An interesting archaeological museum exists in the town of Salango and a smaller exhibition can be seen in the community of Agua Blanca, within the park (see below).

The park is affected by several different threats, both in the continental and the marine sector. In the terrestrial zones the most important threats are loss of tree diversity by commercial charcoal production and selective commercial logging, overgrazing and erosion, loss of animal diversity by poaching and habitat transformation and depletion of the population of game species. In the marine sector the major threats are loss of benthic animals diversity due to commercial over fishing, destruction of nesting habitat for sea turtles, destruction or perturbation of nesting habitat for sea birds, just to mention a few of them.

Management of the park is directed by INEFAN, an autonomous governmental institute specially created to undertake protected areas responsibilities. The institute is linked to the Ministerio de Agricultura y Ganadería at the Minister level. Some other organizations are involved in different aspects of the management. Fundación Natura (FN) contributes by hiring personnel for the park and conducting studies and evaluations. The Universidad de Guayaquil, as well as the Instituto Benjamín Carrión, have done several scientific studies in the area. CETUR (Corporación Ecuatoriana de Turismo) conducts the tourism sectorial planning and policies. Banco Central del Ecuador has given economical support to the Agua Blanca community for building a small museum and for maintaining the archaeological sites. The Nature Conservancy has been providing funds and technical support to MAG and FN to improve the status of this park. Funds provided by TNC come either from the Debt-for-Nature-swap or from PIP.

There is a master plan for this park, which was written in 1986. However, according to Lic. Carlos Zambrano, Park Director, this document is outdated and does not take into consideration the marine area of the park. As with many other park master plans in Latin America, this one lacks precise scientific information. Also, a detailed management program (monitoring, operations, visitor management) is missing. However, good cartographic information exists for the park, and this information is available to the guards and managers. No specific legislative instrument to reinforce the protection of this park exists. Borders have not been demarcated and in some sectors are not well defined; the number of posts or guards houses is very limited.

To evaluate the progress of the annual work plan in Machalilla National Park as well as the general impact of the Parks in Peril Project, a visit to the area was conducted by the evaluator, Hugo Arnal, during the first half of July, 1993.

SUMMARY OF ACHIEVEMENTS AND RECOMMENDATIONS

I. TECHNICAL ASPECTS

Achievements and Limitations

Personnel

Fundación Natura was provided with funds for personnel, to be hired during fiscal year 1992. Thanks to this financing, coming from the debt-swap, five park guards and two conservation officers (pointed out in the plan as technicians) are working in the park. A third Conservation officer, Ms. Patricia Galeano, was working in the park until recently. One of the officers and a supplementary guard are designated to work on Isla La Plata. The other officer is in charge of the terrestrial sector.

The complex labor situation of the personnel in this park is not different from any other protected area in Ecuador. Hiring is done through a third party as neither Fundación Natura nor INEFAN want to assume legal responsibilities of the personnel. Contracts need to be renewed every year, but the process takes more than three months. Very often salaries must be retrieved in Quito and not in the working site. According to Fundación Natura, personnel are not budgeted for more than one year.

Training

Most of the planned training activities in this park have already been implemented. During 1992 communal workshops were developed. Campesino leaders from the park and its buffer zone participated in two, two-day workshops. The workshops on verbal tradition remain to be organized.

Equipments

The radio-communication system that was to be implemented during fiscal year 1992 is still pending. The evaluator recommended the park director and conservation officer, Leonardo Maridueña, to proceed with the acquisition soon, as personnel working in La Plata Island is isolated. At this moment two corporations have offered Natura to sell and install the transceivers. Proposals are under revision in order to choose the one that better fits our needs. In Isla La Plata solar panels seem to be the solution to the energy source problem.

At the beginning of fiscal year 1993 field equipment was distributed among the guards and officers. No proper first aid kits exist for the park.

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Infrastructure

The project for the 'Park-Guard House & Communal Center' in Casas Viejas has already been completed. The construction of the building is underway at this moment. Some problems need to be solved before starting the project: the salary compensation asked by the community was too high, unbelievable if we keep in mind that the house is for the community use! According to Natura there is a budgetary deficit of \$ 13,500 for this building.

The re-construction of the administrative center in Puerto López goes well. This is a concrete work of appreciable magnitude and a good number of local workers have been hired.

Trail improvements in Los Frailes and in La Plata Island were made according to the original plan. Contrary to what the work plan reflects, neither Natura nor the park authorities intended to build an Interpretative trail. The budget was invested in general improvements and posting. Some funds were used on other trails and roads of the park. As it was mentioned, Metropolitan Inc. has made some investments in La Plata; in particular a long stairway to climb from the beach to the plateau of the island. This activity should be considered in the workshop on ecctourism development of La Plata.

No border demarcation activities were carried out this year. This has been due to conflicts with the local population in the areas that were supposed to be demarcated and to the lack of defined borders in those areas where this kind of conflicts do not exist.

The budget reserved for the interpretative models of the archaeological resources was spent on the conservation of those resources. As a result of the strong rainy season last year, deterioration and weathering of the archaeological sites increased significantly.

The evaluator had the opportunity to speak with architect Rido Pacheco, who has recently finished the project for Isla de La Plata. The former hotel will be re-built to accommodate two guards with their families and will also have some facilities for visiting scientists. In one of the lower levels, the building will have dining space for visitors. It is expected that the construction will begin shortly. The approximate investment will be \$ 40,000.

The Guale house, originally rebuilt at the end of year 1992, has been inhabited.

Operations

The operations in La Plata have been slow as the infrastructure has not been rebuilt. The budget is intact and has been reprogrammed for the following fiscal year. In the Ayampe watershed and the San Sebastian area operations have also been slow. However, it should be mentioned that as the project for park house at San Sebastian has been finished and approved by the park authorities, we may expect the house to be constructed and inhabited soon.

Studies and Institutional Support

A study on the human population of the park was completed and published. The research on the fisheries has also been finished as well as the dendrological study in the terrestrial sector. Still awaiting to be completed are the studies on sea birds from La Plata and on intertidal fauna of the park. The research regarding tree species and their potential use for the reforestation in the Ayampe's watershed has not yet started. This is also the case for the turtle sites inventory.

Limitations

Two main types of limitations challenge the implementation of the work plan. First, the complex bureaucratic structures of FN and INEFAN. In the case of Natura, until recently funds were administered from Quito, without knowledge of the park needs and realities, while the conservation officers are based in Guayaquil with very few resources. Fortunately, this counter productive situation has recently ended. According to the information that Natura has provided, more responsibilities will be delegated directly to the Guayaquil Chapter of Natura.

On the side of INEFAN, the newly created organization, most of the problems of the former Forestry Sub-Secretariat of the Ministry of Agriculture and Livestock persist. Some time must pass by before we can verify any major advances in the administration.

An important limitation that emerges this year is the attitude of the park personnel. For reasons that can be inferred, probably the labor instability produced by the lack of clear institutional policies on the part of INEFAN, apathy is evident. A boat that was brought from Yasuní months ago is still un-repaired; the engine remains on the floor covered with mud and dust and lacking care. These and other details call for our attention. This factor is perhaps the most important in limiting the extent to which any contributor can positively provide financial and technical support.

Suggestions

Considering all the factors that were explained before, the evaluator suggests the following:

1. establish formal and direct relationships with the Guayaquil Chapter of Fundación Natura (as they will be the responsible for the implementation of the work plan);
2. resolve issues related to this park at both levels, the park director as well as the INEFAN central office;
3. reprogram the remaining funds and request replenishment for this area from USAID because the park is too far from graduation;
4. undertake the transceiver installation as a high priority activity in order to provide safety to the personnel;
5. convince Natura-Quito to transfer the Machalilla funds to the Guayaquil Chapter in addition to the responsibilities;
6. search for additional funding (non-PIP), to support baseline inventories and social-economic studies in the marine sector.

II. FINANCIAL ASPECTS

It was not possible to collect governmental financial information about the park. The transformation that the official institution, which is responsible for the parks, is undergoing has enlarged the gaps of information and the misunderstandings in the institution. No contacts were made with the regional authorities as the park is managed almost in direct contact with the central offices and not with the region.

A new structure is to be approved for the INEFAN and a new budget will be assigned to it. A proposal for a World Bank GEF grant is currently being discussed and Ing. Jorge Barba, INEFAN's Executive Director, hopes to have a final agreement very soon.

For the period October 1, 1991 to September 30, 1993 the PIP budgeted a total of US\$ 93,000 from AID and \$ 14,000 from TNC. Of this amount US\$ 44,000.00 were to be invested during FY '93.

Machalilla has been included in the list of parks to receive GEF funds from World Bank. The requested amount is not known.

III. ADMINISTRATION

The memorandum of agreement between TNC and FN expired last month and it needs to be renewed. However, the agreement between Fundación Natura and the Ecuadorian government remains valid.

As expected, when the 1992 Evaluation was presented, inflation has surpassed prices in Ecuador. The exchange rate \$/Sucre has increased but the balance is a net rise of conservation costs in American money.

Fundación Natura continues to administer the funds for the PIP program at Machalilla NP. FN has undergone a reorganization process. The previous Conservation Program was converted to the Biodiversity Department and many of the bureaucratic chains have disappeared. However, the Biodiversity Department is not managing its own funds and many of the decisions go to higher or different levels. The same applies for minor determinations that can be made at lower hierarchical levels but are required to be approved by the Biodiversity Director. As well as most of the major decisions that should be made by the Biodiversity department, this same department should delegate most of the decision making to Guayaquil, as it is currently occurring.

PERFORMANCE INDICATORS:

I. ON-SITE PROTECTION AND MANAGEMENT**A. Have the ecological values of the area been identified?****YES .**

size (hectares): 55,000 hectares. The park is located in the northern coast of Ecuador and it is formed by three independent continental units and two islands: La Plata and Salango. A two-mile wide belt along the coast is also enclosed within the park limits.

key ecosystems: Most of the ecosystem classifications that have been done for this park are based upon the Holdridge life zones system. However, there is a recent publication by Parker & Carr (1992) where the following vegetation types list can be found:

- Cloud Forest: in the higher hills near the ocean, impacted by logging and cattle grazing.
- Dry Forest: almost non existent.
- Coastal Scrub: heavily transformed and impacted.

It is well known that the area occupied by Machalilla NP has been deeply transformed and impacted. Not only due to the recent logging activity of the last 50 years, but also to pre-hispanic alterations by the indigenous population (the case of the nearby regions to Agua Blanca).

There are no studies that characterize the marine sector of the park. Research on the fisheries of the park has recently been completed by Fundación Natura and the information will be published. The seashore is a rocky coast with low to medium degree of steepness and medium values of turbidity. Coral reefs are found in La Plata Island. Seasonal visits by sea lions have been recorded. Large nesting populations of at least four species of petrels. inhabit the island.

key processes:

- Water cycle, in the continental areas.
- Nutrients cycle and climatic cycles, in the islands and sea shore.

endemic species: Very few botanic inventories have been previously conducted in Machalilla NP and there is only one study that deals with the patches of moist forest (Parker and Carr, 1992). In areas occupied by moist or fog forest, two of the most conspicuous endemic species are the ivory palm Phytelephas aequatorialis and the legume Erithrina megistophylla; the latter with high importance for the birds community. The endemic Bignonaceae

genus Macranthisiphon is the most common species in the disturbed areas of the dry forest. The second record ever seen of Delostoma gracile took place in the site of Mata Blanca; this species can be considered a regional endemic to that sector of the Pacific coast as the first record is from Tumbes, Perú. Although we do not have information on additional endemic species, Parker and Carr (1992) reported that apparently they have found an undescribed species of the tree Phytolacca, a new pendant Heliconia, one undescribed Dieffenbachia, one undescribed Capparis, another undescribed Anthurium and a new genus of Simaroubaceae. No information has been found regarding endemic animals.

threatened species: No red book has been published for Ecuador but we have enough information on the distribution of some species and the rate of habitat transformation to estimate their degree of threat. It must also be stated that Machalilla NP is an excessively disturbed conservation unit. The majority of the top predators and the large mammals and birds herbivores inhabiting Machalilla are endangered. Most of the low density endemic species with highly restricted habitat in western Ecuador must be considered either vulnerable or threatened. This is the case of Phytolacca sp, Delostoma gracile and Macranthisiphon sp; all them mentioned in the precedent paragraph. The majority or all of the large mammals and birds (mainly cracids) that have been traditionally hunted for survival are endangered either locally, regionally or nationally; exceptional cases are the Crested guan (Penelope purpurascens), the white tail deer Odocoileus virginianus and two brocket deer of the genus Mazama. Big cats are locally extinct, though from time to time Felis pardalis is still observed in the protected area.

In the marine sector of the park some highly endangered species of sea turtles have been recorded. Los Frailes Bay was often visited by these animals, but now the visits are less frequent. The nesting populations of petrels are imperiled not only due to the disturbance caused by fishermen who come to the island to collect the regurgitated food from the chicks, but also due to introduced feral cats that feed on the eggs, chickens and juveniles. The scarce vegetation cover of the island has been heavily impacted by goats. Intense campaigns are periodically developed to eradicate this problem.

migratory species: The nearctic migrants Contopus sordidulus, Empidonax virescens, Cathuru untulatus, Seiurus noveboracensis, Setophaga ruticilla and Piranga rubra, are often seen in forested areas over 500 masl.

- B. Have critical threats been located on a map?
YES .

A threat analysis has been conducted for the park. According to this analysis, both the continental and the marine sectors have evident and well documented threats affecting major areas of them.

In the case of the terrestrial zone, we can recognize the following threats:

Park Subsystem	Threat	Source	Location I= Inside park B= buffer zone F= Distant from park
Water	- Chemical and Organic pollution of rivers	- Human use. Lack of sewage treatment and latrines - Pork farms	- Agua Blanca, Casas Viejas and other villages (I) - Agua Blanca (I)
Air	- Chemical pollution and smoke	- Fish dryer plant	- Las Pampas (I), Salango(F)
Soil	- Erosion	- Overgrazing - Logging and deforestation	- Agua Blanca, El Pital (I) - El Pital (I)
Vegetation	- Decrease in trees diversity and local extinction of Sp - Local extinction of Bromeliads and Orchids	- Commercial logging - Deforestation - Overgrazing by introduced Sp: cows, goats, donkeys - Commercial harvesting	- Ayampe's Watershed (I) - Casas Viejas, Julcuy(I) - Agua Blanca, Casas Viejas, Julcuy (I) - mainly Agua Blanca (I)
Animal Life	- Depletion of cynegetic Sp - Decrease of Animal Diversity	- Subsistence and commercial Poaching - Introduced carnivorous: cats, dogs - Poaching	- All over the park, low intensity - Villages and their adjacent areas within the park - All over the park, low intensity
Cultural Resources	- Erosion and weathering of archaeological resources	- Not adequate management	- Agua Blanca, Isla Salango (I)
Management	- Lack of enough funds - Lack of enough adequate personnel - Lack of adequate legal frame work - Undefined boundaries	For all threats: - National policy - Lack of constituency - Lack of general adequate support from NGOs	Locally, Regionally and Nationally

Park subsystems have been defined as in Machlis & Tichnell (1985).

Around 15% of the park area was transformed before the park decree, either for agriculture (1,200 hectares) or for pastures (5,881 hectares).

The forests within the park area were heavily exploited between 1960 and 1970. Charcoal production mounted up to 500,000 'sacas' per year during more than 20 years. Cattle raising in the park has decreased by 90%, but still remains as an important impacting factor. Some threat sources originate different threats simultaneously. This is the case of the fish dryers. The factories need charcoal and that implies forest alteration, on one hand, and atmospheric pollution, on the other hand. Another intense disturbing factor in recent times has been timber

extraction, which is responsible for the sharp decrease in the trees diversity in major sectors of the park.

The park is also threatened by the human occupants and by an elevated number of grazing animals. The number of animals that is given in this evaluation is considerable lower than that indicated in the 1992 evaluation. According to the recently completed research by Cuellar et al.(1992), in the area of the park there are only 87 cows and 609 goats (not 1,000 cows and nearly 1,500 goats, as has been normally pointed out, based on the data provided by Páucar et al., 1987). In Isla La Plata, there were until recently some 500 feral goats.

As has been indicated in other reports by this same evaluator, two other important factors threaten the integrity of the park. First, its use as a service corridor for power lines, and oil and natural gas pipelines. Second, touristic developments in La Plata Island and Los Frailes Beach.

In the marine sector of the park we can also easily identify some major threats. According to different interviews that were conducted during the realization of the threats analysis for this park, we may summarize them as follows:

Park Subsystem	Threat	Source	Location I= Inside park B= buffer zone F= Distant from park
Water	- Chemical and Organic pollution of littoral waters	- Fuel and other oil derivatives dropped after ships maintenance - Littering and dumping at the coast line by the county	- Salango and Pto. López (B)
Vegetation	- Decrease in plants diversity	- Overgrazing by introduced goats - Ecotourism	- Isla de la Plata
Animal Life	- Depletion of fisheries - Extinction of sea birds - Local extinction of sea cucumber - Local extinction of black coral - Destruction of nesting habitat for sea turtles	- Subsistence and commercial fishing - Ecotourism - Introduced cats - Poaching - Additive effect of vultures, and the preceding factors - disturbance by fishermen - Commercial fishing by trans-national fleets - Commercial gathering for souvenirs and handcrafts - Gathering by locals - Ecotourism developments	- Isla de la Plata, Punta Los Piqueros (I) - Around Salango Island and Pto. López (I, B) - Islands of Salango and La Plata
Management	- Lack of enough funds - Lack of enough adequate personnel - Lack of adequate legal frame work - Undefined boundaries	For all threats: - National policy - Lack of constituency - Lack of general adequate support from NGOs	Locally, Regionally and Nationally

An ecotourism development plan for La Plata Island was drawn up by Metropolitan Tours Inc. The plan should be considered as a threat to the park. The study is very detailed in terms of their objectives but lacks an assessment of potential impacts and of impacts ameliorating programs. Trails and resting posts will be constructed or improved. An estimated of 80,000 visitors/year have been planned. The first investment budget rises to US\$ 25,000. It is worrisome that there has not been defined a tourist carrying capacity for the island. The study conducted by the company just establishes their capacity to serve tourists: the 80,000 visitors/year before mentioned. The evaluator does not know of any study documenting the influence of this plan on the nesting colonies of seabirds of the island. The trails pass by the middle of those colonies. Although the island is used by the locals as a fishing center and though it is an important park resource, Metropolitan's project has not been discussed openly with either the communities or the Universities of Guayaquil and Portoviejo. There is not a democratic process for taking crucial decisions affecting parks. As some minor investments have started in the park, it is mandatory to openly discuss that

plan in order to know what are its implications for the conservation of the area and the well being of the local communities. Funds to support a public workshop with this objective have been reprogrammed in the work plan for the next fiscal year. In relation to planned developments in Los Frailes Bay, many Ecuadorian technicians have insisted that as there are a good number of excellent beaches outside the park it does not make sense to sacrifice the only turtles nesting beach in all continental Ecuador.

Threats to the management component are not normally well documented and this is the situation for this area. In general, park management institutions have a low internal evaluation capacity. Some of the threats are due to vague national policies. To cite an example, we may mention the lack of funds, personnel and adequate legislation. There is an evident common factor in all three cases: decisions at the highest level in government and congress. Both government agencies are susceptible to public opinion, with the resultant that lack of constituency is partially a cause for the problem. In the case of technical and/or site specific management threats, such as undefined boundaries, the absence of a committed NGO can be the origin of the conflict. Committed NGOs can easily solve minor conflicts and overcome threats.

**C. Are critical boundaries surveyed and posted?
YES.**

Some few kilometers of boundaries were posted in the Ayampe's watershed in recent years, but none during the current year.

of kilometers demarcated: Not measured, but nearly 7 Km.

**D. Are rangers trained and equipped?
YES .**

(In addition to the facts described in the next paragraphs, more detailed information can be found in the section 'Summary of Achievements and Recommendations')

of rangers on-site: 14. The park personnel amounts to 18 employees, including five guards paid by the Debt-Swap. See summary section for details on performance, hiring conditions and labor stability.

type of training received: As well as personnel from other Ecuadorian parks, Machalilla's ranger and officers have received training from the system established by the agreement between Fundación Natura/INEFAN. Furthermore, since the Park Director's background is in 'Teaching', in this park it has been possible to verify a higher commitment in terms of the professional improvement of the park guards. A large series of nonformal training events have been organized in this area. Unfortunately, the personnel administration

and policies do not help reinforce the behavior and consolidating the skills gained through training.

- E. Does the personnel have transport and communications equipment?
YES , but inadequate.

of transportation and type: The park has an old four wheel drive vehicle, two motorcycles, two boats and an outboard engine. The conditions of the vehicle are deplorable but it is still working properly. One of the boats is currently parked in front of the park office while the other is anchored in Puerto López. The first boat was brought from Yasuní National Park where it was accidentally damaged; it still remains to be repaired. The boat that is anchored was acquired with debt-swap funds three years ago. It is seaworthy and in good condition. One motorcycle is located in the guard house at the entrance of Los Frailes Bay while the other motorcycle has been assigned to the guards that presently work in the Agua Blanca area.

of communication equipments and types: There is one 40 meters HF transceiver in the park office, which allows communication with the national headquarters in Quito. The park also has two marine band VHF transceivers that are not currently installed. Radio-communications remains as one of the most urgent needs to be solved in the near future. The park personnel that is stationed in the isolated post of Isla de la Plata, lack contact with the office. In the event of an emergency anything can happen but a fast rescue. This aspect of personnel management is certainly among the most disappointing findings in this park.

- F. Have basic protection facilities been constructed on-site?
YES .

The park has three guards houses and the Director house. The office building and the visitor center have been reconstructed and are almost ready to be used again.

location: One of the guard's house is located over the paved provincial road in Salaita. The two other houses are located one at the entrance of Los Frailes Bay and the other in Guale, by the Ayampe watershed. All the other infrastructure is located in Puerto López, conforming the administrative headquarters of the park.

type and size of facilities: The three guard houses are of small wooden infrastructure with only the most basic services, two rooms and integrated living-dining room. The houses have the local characteristic of being built

over 9 foot-high columns. The Park Director's house is a new wooden infrastructure, with two floors and straw roof; probably its size is near 90 m². The new office and visitor center buildings have a combined area of around 200 m².

**G. Does the area have continuous field logistical support?
NO.**

lthough the area receives certain types of support, the evaluátor considers that it is not enough for the needs and the size of the area.

type of NGO support: Field equipment for the personnel (The park has currently enough field equipment for 18 people, including tents, backpacks, machetes, sleeping bags but not anti-snake serum). The boats, the engine and the life vests have been provided by Fundación Natura.

type of GO support: Most of the logistical support comes from the official sector: fuel, vehicle, engine part replacements, supplies.

H. Are ecological carrying capacity studies, baseline and monitoring underway?

Not in general, though some studies have been carried out in this area during the last year while others are currently being undertaken.

type of study: The study about population was completed by a team lead by Dr. Cuellar, a local social scientist; see the list of references. The fisheries inventory, conducted by Dr. Segundo Cuello, from Universidad de Guayaquil, has been finished and is pending for publication. Some projects are underway. First to be mentioned is the research on migratory birds, conducted by Fundación Semillas de la Vida (contact person is Tamara Núñez). Another study is the work on intertidal species. The project on turtles still awaits for clearer definition. No monitoring project is underway at this moment.

**I. ON-SITE PROTECTION AND MANAGEMENT:
YES.**

The plan is outdated and does not consider the marine sector. It needs to be updated.

year of publication: 1986; see the reference list for details.

**J. Are Annual Operations Plans and Budgets completed?
YES .**

II. COMPATIBLE RESOURCE USE:

**A. Have key social and economic values of the protected area been identified?
YES .**

key values:

Water production: preceding paragraphs pointed out that the park is important in terms of the water it supplies to the local communities. This unit protects the Ayampe River watershed which provides water to many communities in the coast, even though the water caudal is not very high and can be almost nil in the dry season. However, some sectors of the park have important aquifer resources with good water quality. The Manabi Committee for Hydrological Resources has completed an study that estimates sixteen sites for water intakes (see Secretaría de Desarrollo Rural Integral, 1983).

Resources for tourism: the park is in itself a value as it preserves the most important touristic resources of that region. Without the park status, it is certain that the resources would be gone. In this way, probably unrealized by the local population, the park is generating regional incomes and temporary jobs.

Facilitate traditional fishing: due to the regulations over industrial high-tech fishing in the waters of this protected area, the park status helps the local community of fishermen to compete more with the big fleets that otherwise would devastate that sector of the coast.

- B. Have basic human needs of local communities been satisfied?
(ie., health, safety, welfare, etc.)
NO.**

To answer this question requires differentiating the population inside the park from that in the buffer zone. The population outside the park receives better services than the one inside. Outside the park most of the population has electricity, schools and road access. Less common, but still available, is potable water and very recently telephone access. Around the park there exist ten health care centers of different levels of quality. Inside the park the story is absolutely the opposite. Nearly 80% of the population lack electricity and no one has potable water; 78% of the people use wells while the other 12% collect rain or bring in the water from rivers. Twelve percent of the inside population do not have any kind of toilet or latrine.

key issues: Electricity, potable water, health, education, excrement disposal, etc.

- C. Is there direct community and resource user participation in resource management and allocation decisions?
NO.**

key formal mechanisms: There are none. Quite often the Park Authorities organize meetings with the communities, however, these meetings are not intended to be for participatory management purposes.

- D. Is the land tenure in the area stable?
YES .**

land tenure system: Around and inside Machalilla National Park there exist private landholdings with sufficient legal tradition according to the Ecuadorian constitution. Each land owner has the land title which is a certified copy of the actual title registered and filed at the local official public registration office. Cuellar et al. (1992) have done a very emotive discussion of the land tenure issue in this park. Although their interpretation of the process leading to the present situation is poor, there is no doubt that the data presented are correct. In the park and the most adjacent portion of the buffer zone there are 115 individually owned properties and two communal properties. The Casas Viejas community, with 41 families, claim that they owned 10,000 hectares within the national park long before its creation.

Is local partner protecting land through acquisition?
NO.

E. Are there diverse agricultural and natural resource uses within the carrying capacity of the protected area buffer zone?

Not in general. A study on this issue has been not conducted but some information was collected during the completion of the threat analysis. Cuellar et al. (1992) present reliable data on the type of economic activity practiced by the inhabitants of the park and its buffer zone. It is well known that the population of sea cucumbers in and adjacent to the park's areas has been depleted. It is also suspected that most of the fisheries are over exploited. This conclusion can be made after interviewing the fishing community. In the terrestrial zone the situation does not seem to be different. More than half of the families in and around the park depend mainly on agriculture for their support; in addition to it they practice a series of complementary activities. Almost 10% of the families in and immediately around the park make their living from forest exploitation while another 15% relies on the harvesting of tagua seeds (Ivory palm-tree).

principal land/resource uses: The Land Use map of the park shows the existence of the following land uses patterns:

- Permanent crops (fruits) in areas of natural or slightly altered Dry and/or Fog forest.
- Annual Crops and cultivated pastures in zones highly disturbed.
- Semi-natural very dry forest under selective logging.
- Highly altered areas with a mosaic of different uses.

F. Are local people employed by PIP project funds?

YES .

of men: At least 7.

types of positions: five as park guards, two as conservation officers and several temporary construction workers.

of women: There was one until few weeks ago, but none at the present time.

III. LONG-TERM FINANCIAL SECURITY

- A. **Have the long-term financial needs of the protected area been identified?**
NO.

Categories and projected budget: No information is available at the park office, however, the national entity that administers the parks and other protected areas is presently undergoing a thorough reorganization. No Ecuadorian government information was available. An official request for GEF funds has been submitted by the government of Ecuador to the World Bank. In a GEF sponsored document, 'Master Plan for the Protection of Biodiversity through the Strengthening of the National System of Protected Areas', there is no specific project for this area, though some of its components will be partially developed in this conservation unit.

- B. **Are there local revenues that support the protected area?**

No, although there is a general fee charged to visitors for entrance to Los Frailes Bay. The amount collected is very small and it goes to the general fund of the INEFAN.

- C. **Are there national budget allocations that support the protected area?**
YES .

type of support and estimated annual US\$ dollar amount: This question is very difficult to answer. During the evaluation the Park Director was interviewed in relation to this issue but was unable to provide a clear answer. Every year, at the beginning of the fourth quarter, the park director and the regional director are required to draft a work plan and budget for the next year. Both the plan and budget are sent to the central offices of the INEFAN where they are changed without notifying either the regional authorities or the park. Very often the only information that park authorities receive about budgeting is the approval or disapproval for expenditures.

- D. **Are there international funds that support the protected area?**
YES .

type of support and estimated annual US\$ dollar amount: There are three international sources of economical support for this area. First, the park receives funds from the Debt-for-Nature-Swap fund. Though two international NGOs, World Wildlife Fund-US and TNC, are associated with the debt-swap, only TNC funding goes to Machalilla. Secondly, the park gets funding from the Parks in Peril Program. TNC is the only international NGO involved in the Parks in Peril Program, channeling the help of several organizations,

USAID being one of the most important. The third source of funds is a grant from the European Community and the German Government. The grant amount is US\$ 13,000 during fiscal year 1993, but can be doubled in the future and be maintained for five years. This fund must be invested in programs for sustainable development.

The total combined budget that the park was to receive from PIP and the debt-swap during fiscal years 92-93 was \$ 224,675.

- E. **Has a Financial Plan been approved for the protected area?**
NO.
- F. **Is a fiscally responsible administrative system in place to manage the funds?**
YES .
External audit at TNC? YES
- G. **Are financial resource committed to operations of the area?**
YES.

As it has been pointed out before, there is no financial plan for the area but it is receiving economic support from two international, American based NGOs (funds from the German government do not cover operations of the park). Funds from these two sources are totally committed for the area's operations for at least the next two years. It was also mentioned that the national government of Ecuador provides financial resources for the park, including the salaries of the park personnel. We unfortunately do not have access to any information related to this issue.

categories and projected budget: This information cannot be provided at this time.

STRATEGIC INDICATORS

I. ON-SITE PROTECTION AND MANAGEMENT:

- A. **Has there been a change in the natural vegetation or land cover?**

There probably has not been a change. A study in which the objective is to measure vegetation changes has not been carried out in the park area. During the periodical visits to the park conducted by the evaluator no major change has been observed. At the end of the rainy season of 1992, a major invasion of a species of cucurbit was noticed. This species covered hundreds of hectares. The plants of this species were dry after a few weeks. Apparently, it is a

natural temporary change due to an exceptionally wet season. Some selective logging had been done in the park in the last year and the expansion of some agriculture plots, which affected only a very small area.

A recovery of the plant community is expected on Isla de la Plata, as the goats are being removed. A lapse, of at least two years, should be allowed before any change can be observed.

how was this change measured? The change was not measured.

cite source(s): Unknown.

B. Has there been a change in the distribution, abundance or status of key species?

Apparently not. As before, a study to measure these parameters has not been conducted. According to the Park Guards, that were designated for La Plata Island some months ago, thanks to the protection given to the island a larger number of birds are using the island as an overnight site and more nests can be seen. The study of Parker and Carr (1992) indicates that the population of agoutis (Dasyprocta punctata) seems to be in good condition but no evidence supports the presumption that this is due to PIP.

how was this change measured? This change was not measured.

cite source(s): Unknown.

C. Has there been a change in water quantity or quality?

No information exist on this subject.

how was this change measured? Not applicable.

cite source(s): Unknown.

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II. COMPATIBLE RESOURCE USE:

- A. **Have there been changes in the pattern or intensity of land or natural resource use?**
YES .

According to interviews done in the area, during the last 10 years logging activity in the park area has decreased due in part to the enforcement of park legislation and also as a consequence of tree over-exploitation. The number of cows and goats have also apparently declined. In the last two years we observed changes that were the product of actions undertaken with PIP financing. We observed that fishermen groups altered the art of fishing: no more dragging. The guards at La Plata Island have also stopped the practice of regurgitating the birds for obtaining bait. In the terrestrial sector, selective logging has presumably stopped in the Casas Viejas area.

How were these changes measured? They were not measured, just subjectively estimated based on inhabitants' opinions.

cite source(s): Unknown.

- B. **Have there been changes in the social or economic conditions of local residents?**

Changes are not probable.

how were these changes measured? Visits to the communities and interviews with the heads of household.

cite source(s): None in relation to changes but it is suggested to see Cuellar et al. (1992)

- C. **Have there been changes in the policies or institutions?**

Aside from the creation of the INEFAN and the transfer of management responsibilities to it, there are no major changes in either policies or institutions.

How were these changes measured? Interviews with park personnel and various NGO officers.

cite source(s): None.

III. LONG-TERM FINANCIAL SECURITY:

- A. **Has a trust fund or endowment been established for the protected area?**
NO.

- B. **Are there diverse sources of funds/revenues for the area?**
NO.

The only known sources of funds are the contributions of TNC, World Wildlife Fund-US and the German Government.

FINAL COMMENTARIES & SUMMARY RECOMMENDATIONS

The 1992 evaluation report indicated that a serious delay was evident in the implementation of the work plan. That was the case even at the beginning of FY 1993. However, a notable tightening of the plan's execution has been observed during the last few months. As much of the budget is allocated to infrastructure, there is a rapid decrease in the available funds for Natura. It is hoped that soon all delays will be resolved. At this moment Natura has expended more funds than it has received. At the beginning of the evaluation it was emphasized that Machalilla is one of the most important protected area in western Ecuador. These final commentaries should serve as frame for the statement that until the organization of INEFAN is completed and other sources of funding are brought into the scene, this park should continue receiving PIP funding.

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**PARKS IN PERIL PROGRAM
1993 EVALUATION FORM**

PROTECTED AREA NAME: PODOCARPUS NATIONAL PARK

GENERAL INFORMATION:

Country: ECUADOR

NGO Partner: FUNDACION NATURA
America 5653 y Voz Andes, Quito - Ecuador.

Phone: 011-593-2-447341 through 47.

PIP Proj. Officer: Ruth Elena Ruiz, Biologist

Government agency: INEFAN
Ave. Eloy Alfaro y Amazonas
Edif. Ministerio de Agricultura y Ganaderia
8vo Piso, Quito - Ecuador.

PIP Proj. Officer: Dr. Jorge Barba

Conservation objectives of protected area:

- Protection of the Ecosystems: Very Humid Montane Forest and Very Humid Low Montane Forest (bmh-M and brnh-MH according to the Holdridge Life Zone System used in Ecuador)
- Protection of the last healthy remnants of Podocarpus and Cinchona Forests
- Perpetuation of the scenic beauties of the region
- To avoid the unsustainable use of exceedingly steep and fragile soils

Is there an NGO/GO agreement to work on this PIP site?

yes, on file at TNC

Is the TNC/NGO agreement up to date?

yes, on file at TNC

Is the PIP Work Plan and Budget up to date?

yes, on file at TNC

Name of evaluator: Hugo Arnal
Address: The Nature Conservancy.
1815 North Lynn Street
Arlington, VA 22209
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I. INTRODUCTION

Podocarpus NP occupies nearly 146,000 hectares in the Provinces of Loja and Zamora, in the southernmost sector of Ecuador close to the Peruvian border. It was declared a national park in 1982, making it the newest park of the country.

The park was established for the protection of large extensions of natural cloud forests that occupy regionally important watersheds. The headwaters protected by the park are: Catamayo, Chinchipe, Zamora and Nangaritza. Though much smaller and apparently less important in geographical terms, the basin of Quebrada Curitroja produces the pipe water that is transported to the city of Loja for human consumption. There are many other small streams that provide water for human use. This is the case for the city of Zamora and the villages of Malacatos, Vilcabamba, Valladolid and Pandala. We can affirm that more than half the population of the region relies on the park's water for subsistence.

The altitude range of the park is between 1000 and 3500 meters above sea level (masl). Its vegetation includes different types of wet communities: Premontane wet forest, lower montane wet forest, montane rain forest (cloud forest) and montane moist forest, according to the ecosystem classification currently used in Ecuador. Minor extensions of Paramo vegetation are found atop the highest mountains while less important dry vegetation types occupy sectors in the western lower slopes in areas of rain shadow. The fauna of the park is poorly known and only very conspicuous species have been registered: mountain deer, mountain tapir, spectacle bear, cougar, Andean cock-of-the-rock, trogons, toucans, parrots, among others.

The park holds a small population of campesinos and indigenous people in its periphery, few of them within the park borders, and a floating variable population of miners in its core. The campesinos groups are distributed in the northern sector near the rivers Sabanilla, Romerillo and Bombuscaro, in the eastern slopes and in the southern sector of Loyola and Numbala. In general the campesinos aren't located within the park limits but their landholdings occupy part of the area. The campesino economy is based on the traditional land occupation, the "Finca". Extension of these small farms varies from four to 10 hectares in sectors with subsistence farming and up to 200 hectares in sectors supporting livestock grazing. Most of the farm owners in the Numbala valley do not live in the farms but in the nearby villages of Yangana. From there they manage an incipient agriculture production. Nevertheless, they represent a threat to the park as the community is soliciting the local government to open a new road that partially crosses the protected area.

The indigenous community belongs to the Shuars Family. They occupy the eastern flank of the park, near the middle Nangaritza River. This group survives on park resources, mainly through hunting and gathering.

Miners and their associated activities represent the most serious threat to the park. Most of the park area was granted in mining concessions. Today those concessions have finished but the infrastructure remains in the park. Illegal miners have tried to invade the buildings. Even though there was a very high peak three months ago of miners entering the park, the army strictly controls the entrance and the numbers are diminishing. Very high levels of mercury have been registered in the rivers descending from the park toward the lower parts of Zamora.

Other threats to the park are the opening of a new road connecting the villages of Zamora and Valladolid, the construction of a big tunnel for water transportation toward Loja, poaching and gathering of rare and/or endangered species (particularly orchids and cascarilla), potential invasion by squatters, lack of personnel and budget and the nullification of its park status. A threat analysis for the park has been conducted recently by TNC personnel with the help of Professor Walter Apolo from Universidad Nacional de Loja, Park personnel, Fundación Arcoiris, Fundación Maquipucuna and Fundación Natura. Ron Ruybal, from the USAID mission in Quito, was present at the workshop where this analysis was carried out. There are some other threats that were made evident by the analysis but are not mentioned in this introduction.

As was referred in the 1992 evaluation, the master plan for this area was written in 1982 and has never been updated. Besides this, there is no precise cartographic information of the park. The official map was drawn before the creation decree, using an hydrologic base chart without altitude lines. The park boundary is not described by a polygon with vertexes defined by accurate coordinates. Many names that appear on the map are not known in the park area. The urgent need of a precise map still remains. The region of the park with the exception of the most conflictive zone of Loyola, has been covered by the cartographic missions of the army. In other words, it is relatively easy to produce a detailed cartographic map of the park.

The work plan for this park was to be implemented between October 1, 1991 and September 30, 1993. However, the plan was officially approved by USAID-Quito in April, 1992 and the AID funds arrived to Ecuador only in May, 1992. This factor, together with a complex bureaucratic environment in Fundación Natura and the Ecuadorian Government, explains the extraordinary delay in the implementation of the work plan. After nearly two years, since the inclusion of Podocarpus NP in the list of sites receiving assistance from the PIP, we have the opportunity to evaluate in depth its current situation and to make major changes in our approach to conserving this area. As the original work plan was supposed to be completed by September 30, 1993, this evaluation examines not only achievements and failures for FY '93, but will also make any necessary comments regarding the two year period during which FN received PIP funding.

New ways for making decisions and wider local NGO participation have recently started for Podocarpus. As it will be emphasized in the recommendations, these changes must be kept in order to better preserve Podocarpus' natural richness.

II. TECHNICAL ASPECTS

Achievements & Limitations

According to the 1992 work plan, funds were provided for Fundación Natura (FN) to contract five Park Guards and the Park Chief Assistant for the Zamora Province. As it was mentioned in the 1992 Evaluation, Forester Eduardo Calva was hired as the Assistant for Zamora. Calva's colleagues in Zamora affirm that his performance as Park Chief Assistant has been very good. During fiscal year 1993, Calva has remained in his position. He continues his daily visits to the park, something that has never happened in the history of this protected area.

The five park guards were contracted at different dates during the second half of 1992. Two of the guards have been assigned to the Cajanuma Station and Visitor Center. A third guard works in the park office in the city of Loja, while the remaining two guards have an agenda of inspection visits to different areas of the park.

The personnel selected have a good understanding of their responsibilities and an adequate commitment toward work. Unfortunately, their labor stability has been absolutely inadequate. Every three months the Park-guards had to re-negotiate their contracts. Every six months Forester Calva had to do the same. Trying to avoid paying benefits or getting involved in legal issues, neither INEFAN nor FN wanted to take legal responsibility over the guards and the assistant. Hiring and paying have been done through a third party, generally another local NGO. Frequently these workers do not receive their salaries and worst of all, they are not sure who their supervisor is. Due to this confusing situation, two guards decided to leave their positions a few weeks ago.

The training activities directed to the communities never started. During the 1992 evaluation, the evaluator was told that the funds from AID came late and that FN was waiting for the results of a study on "Conservation Curricula" to design the content and the program for the workshops. The only community activity carried out in the city of Loja was the exhibition of a film about Podocarpus National Park, this was in 1992.

FN developed a two day Wilderness Interpretation Training Workshop for the Park Guards with the help of a Peace Corp volunteer and Fundación Ecológica Arcoiris (FEA). This event was completed at the Cajanuma Visitors Center. The training in interpretation was done in two Interpretative Trails that were designed and constructed by the Peace Corp volunteer with help from FN and Fundación Ecológica Arcoiris (FEA). One of the trails is designed for children while the other, being longer and steeper, is more appropriate for adults.

Since the beginning of 1992 and thanks to the support provided by TNC and FN, FEA has carried out an intense Environmental Education Program for scholars. Almost weekly, during the academic period, student groups from Loja have been visiting Cajanuma. ECOCIENCIAS, from Ecuador, and Wildlife Conservation International will still supply FEA with a four-wheel-drive vehicle, an important instrument for this remote area.

The improvements to the Visitor Center and trails in Cajanuma were finished in accordance to the proposal written by Arcoiris. The art work is of high quality and should be considered a sample of what local organizations can achieve in Loja, the polychrome clay birds are remarkable.

The field equipment was finally given to the park personnel; in interviews conducted with park personnel, they expressed their satisfaction in having the equipment. Most of the furniture for the Romerillos Altos post is still stored in Zamora but will be sent to the house very soon. This house is already occupied by the guards and the army, who have a strict control over the access of miners.

Radio communication between Cajanuma and Loja as well as between these two centers and Quito is working perfectly as the transceivers were installed. FN signed an agreement with Radio Club de Loja, who made the installation and provided training for the park personnel. The day after the transceivers were installed an accident occurred at Cajanuma. Thanks to the radios the rescue teams arrived quickly to help transport the wounded visitors.

The guard post at Loyola was never built. There exists a conflictive situation between the Loyola community and the park authorities. The borders of the park in that sector are undefined and INEFAN, formerly MAG, never tried to correct this problem or negotiate with the campesino community. Although we received the compromise in July 1992 from the 'Sub-Secretario Forestal' that Park personnel would work to accurately define the borders, this was never done. As a consequence, the budgeted border demarcation was not made. Since the Park guard, José Luzuriaga, left the area due to the conflict no other park personnel has visited the zone.

Research and Monitoring

The research on native plant species with potential use for reforestation has proceeded adequately, though it is not formally finished yet. The authors, who are graduating students at the local university, have produced the first draft of the monograph. As this research was intended to create a theoretical base for the community based reforestation project, this last activity did not begin as stated in the work plan.

Another important study has been conducted by two forestry students from Universidad Nacional de Loja: Characterization of the Habitat of the Mountain Tapir. Supported with funds from the debt-swap, provided for Arcoiris by FN, this research has shown interesting

findings in relation to abundance of this species and to the activity of poachers. Like the former study, a first draft of the monograph has been distributed for revision.

Fundación Ecológica Arcoiris is still working on the presence, frequency and abundance of cracid species in the cloud forest around Cajanuma. As it was pointed out in the 1992 evaluation, this investigation remains as the only ongoing monitoring project in the park. It should be reminded that this study had begun before the PIP as a joint effort of FEA, ECOCIENCIAS and Wildlife Conservation International. It is not the result of an analysis of the Ecuadorian Park Service about the monitoring needs for this park. It represents the scientific interest of some organizations but fortunately the results will help to better manage the park.

Effectiveness of PIP

Due to the lack of specific monitoring projects, data on strategic indicators showing us the general impact of PIP on the conservation of the park does not exist. Verifiable indicators such as percent decrease in deforestation, sustainable use of natural resources, improved environment/quality of life, changes in patterns of colonizations, abundance and distribution of key species, are only a few of several possible indicators that are not currently measured in the park. Conservation Officers of FN and FEA estimate that there is still an important deforestation process; however, they cannot assess the rate or the extension of it.

Nevertheless, some recent events and situations bring us to the conclusion that there is a high positive impact of PIP in the conservation of the park. Arcoiris, a partially TNC supported institution and a loyal partner, has developed an intense program against mining activities. By lobbying in Ecuador as well as in other countries, Arcoiris won a legal dispute against the Ministry of Mining and Energy in the Constitutional Rights Supreme Tribunal. The Ministry of Agriculture has approved a resolution asking the army to displace the miners, which the provincial governments of Loja and Zamora have agreed to. In addition, important road projects that posed a threat have been set aside. While we cannot say that the park has been saved, we certainly can observe positive results in its protection.

The rhythm of support activities that TNC has had in the region has been kept at an adequate pace. Land steward personnel, training specialists, and scientists from TNC visited Podocarpus N to provide technical advise to the conservation officers of FN and FEA and to the government managers. Visits either to the park or to the different organization offices are conducted on a bi-monthly basis. Officers of FN who have been working in the park as well as a conservation officer of Arcoiris were invited to the training workshop held in Antisana in November 1992. Additionally, many of them attended 'Conservation Training Week' which TNC organized in Dominican Republic last May. A grant for a "South to South Training Exchange" was recently provided to Attorney César Guerrero, President of Arcoiris.

Limitations

Most of the limiting factors that were pointed out in the 1992 Evaluation Report still exist. We have witnessed many victories in the battle for protecting the park but at the same time many organizational problems remain to be solved.

In this report the evaluator will not focus on the behavior of politicians nor on the many projects that have been threatening the park that were their electoral promises. Instead, attention will be turned to institutional aspects that without a doubt relay at the origin of the problems.

The evaluator wrote in 1992 that the inner bureaucracy of FN and MAG prolonged the decision making process. It should be added that both organizations are very cautious and polite in dealing with each other. Avoiding confrontation, they prefer not to push themselves to action, not even to negotiate. The two most impressive examples of this bureaucracy are the procedures for hiring personnel and for providing field equipment to the park guards; neither of the procedures will be explained here.

In the past, the complex and bureaucratized institutional structure of the Ministerio de Agricultura y Ganadería didn't help to the implementation of the project. As part of the modernization process of the Ecuadorian government that structure has been replaced by INEFAN, an autonomous institute within the Ministry. Modern in its conception, INEFAN has a long way to go before the results of the process can be seen. INEFAN directive authorities know this situation and seem to be doing their best to improve the institution.

A last word should be said in relation to the lack of managerial capabilities of the Park Chief and most of the conservation officers of the NGOs working in the park area. Emphasis should be made to provide training in Project management, conflict resolution and inter-institutional cooperation.

Suggestions

In the introduction to this evaluation report it was said that recent changes had occurred in TNC's approach to the conservation of Podocarpus. The changes were introduced after evaluating the different alternatives to counteract the passiveness and slowness in the implementation phase. Many changes have also occurred in the national scenario. The recommendations issued from this evaluation have to be different than those of the last year.

TNC must consolidate the participation of Fundación Arcoiris and Fundación Maquipucuna in the implementation of the work plan for Podocarpus, as far as this is possible in terms of their effectiveness. The current participation of Arcoiris, Maquipucuna and FN, all of them in a direct relationship with us, is a strategy that must be preserved.

It still holds true that many of the problems originate from the lack of technical expertise by the park personnel and the NGO officers. The evaluator is strongly convinced that this is also due to a lack of managerial virtues. Whether or not this is clearly understood by the high level authorities at NGOs and INEFAN, is something that remains to be verified. In any case, providing training in these areas could be productive in addressing this issue.

Several technical suggestions can be implemented. Many of them were pointed out in the 1992 evaluation:

- 1- define the borders in the southern sector of the park between the rivers Nangaritza and Numbala and work closer to the communities. Park authorities and NGOs officers must work with and for the communities. Unless the communities begin to trust park authorities and officers, park authorities will neither be allowed to build the post at Loyola nor conduct environmental education programs or any other activity they wish to develop.
- 2- generate a precise map of the park. Most of the cartographic information can be found in the Army Cartographic Institute.
- 3- provide support to Arcoiris to develop its institutional organization and to stabilize its personnel.
- 4- create incentives and provide training for park personnel according to the different suggestions made in this document. Stability must be given to the personnel. The recent changes in national policies create an environment of instability for INEFAN employees.

III. FINANCIAL ASPECTS

It was not possible to collect governmental financial information about the park. The transformation that the official institution, which is responsible for the parks, is undergoing has enlarged the gaps of information and the misunderstandings in the institution. Even the Regional Director of the Loja Province does not know the budget for his region. To make matters worse, he does not know if he plans to remain with the institution.

A new structure is to be approved for the INEFAN and a new budget will be assigned to it. A proposal for a World Bank GEF grant is currently being discussed and Dr. Jorge Barba, INEFAN's Executive Director, hopes to have a final agreement very soon.

For the period October 1, 91 to September 30, 93 the PIP budgeted a total of US\$ 99,500 from AID and \$ 29,000 from TNC. Of this amount US\$ 38,000.00 were to be invested during FY '93.

Podocarpus has been included in the list of parks to receive GEF funds from World Bank. The requested amount is not known.

Some minor projects have been developed in the park by different agencies and organizations. Due to the small magnitude of the expenditures, the impact in conservation activities and park resources has been very limited. Many doctoral theses from foreign universities or other types of research that dealt with Podocarpus have been undertaken because of its high diversity.

As the evaluator pointed out in the 1992 evaluation, the lack of managerial capabilities on the part of the park authorities is shown by expending the scarce resources in insignificant and unplanned activities. This year some funds were invested in three small cabins for visitors.

IV. ADMINISTRATION

The memorandum of agreement between TNC and FN has not expired, in fact it does not include a termination clause. The same could be said of the agreement between Fundación Natura and the Ecuadorian government. Both documents expire only when one of the parties expresses its wishes to do so.

TNC has an agreement with Fundación Arcoiris to cooperate in executing programs for the benefit of Podocarpus NP. At the same time Arcoiris has signed a letter of understanding with the Regional Directorate of INEFAN for the same purposes. Moreover, Arcoiris and INEFAN are directive members of the Committee for the Defense of Podocarpus NP. Their status has ameliorated their relationship which at this date seems to be excellent.

As expected when the 1992 Evaluation was presented, inflation has increased at a faster pace than the prices in Ecuador. The exchange rate \$/Sucre has increased but the balance is a net raise of the conservation costs in American money.

Fundación Natura keeps administering the funds for the PIP program at Podocarpus NP. FN has gone through a reorganization process. The previous Conservation Program was converted to the Biodiversity Department and many of the bureaucratic chains have disappeared. However, the Biodiversity Department is not managing its own funds and many of the decisions go to higher or different levels. The same applies for minor determinations that can be made at lower hierarchical levels but are required to be approved by the Biodiversity Director.

The small budget provided to Fundación Arcoiris, through FN, was properly invested and reported. Disbursements to Arcoiris are done either through FN or Fundación Antisana because Arcoiris does not have a bank account in dollars in Ecuador.

FINAL COMMENTARIES & SUMMARY RECOMMENDATIONS

In the Andean and Southern Cone Region there is the general consensus that the implementation of the work plan for Podocarpus NP has suffered a serious delay. This is due to a series of complex political and institutional events in the country as well as the lack of managerial capabilities by the organization responsible for the execution of the work plan. Since the beginning of the support to Podocarpus, the Region and the Country Program knew that the solution to Podocarpus' problems was not as easy as to provide enough funds for the minimum necessary protection of the park. This is just a part of the total actions that TNC has conducted and will continue conducting for improving the conditions at that protected area. Much has been done but there is much more to be done, especially in the institutional aspects. A park is threatened not only when it lacks adequate funding, but also when it lacks adequate local institutional support. The delay in investing the funds is a clear demonstration of this.

At the start of the Parks in Peril program, Podocarpus NP was targeted as priority site in Ecuador and perhaps in the continent in which to initiate conservation actions. Nearly 90% of the park area was assigned under concessions to mining companies for exploration. Two large plots at the core of the park were under semi-intensive exploitation and hundreds of illegal miners were working in the San Luis area. To make matters worse, there was increasing evidence of a lack of wide public support to the conservation of the park and a weak enforcement power of the agency charged to manage the park. Fundación Natura was at that moment the only legally established NGO which publicly expressed interest in the park.

Because Fundación Natura was involved in a high volume of projects, they encouraged other NGOs to participate in the implementation of the work plan. In fact, because they were extremely active in these projects, FN was not the executer of the work plans; instead they selected and hired contractors and consultants to provide the In-Situ work. During these past two years, as the NGO movement has grown, the PIP in Ecuador has suffered a big evolution which has lead to the participation of two new NGOs in the Podocarpus process. Currently, Arcoiris and Fundación Maquipucuna have actively participated in the threat analysis for the park and have helped in reprogramming the work plan. They have also agreed to participate in the implementation of the work plan for FYs '94 & '95, not as contractors (former status of Arcoiris) but as partners with a direct relationship with both TNC and the government. Their interest and participation are not casual as they result from the PIP coordinated actions and lobbying. Whereas previously a national capital based NGO managed the park, today the same NGO is undertaking responsibilities at the national level while Arcoiris and the Zamora Regional Chapter of Maquipucuna will coordinately conduct the operations and will build the infrastructures in the provinces of League and Zamora respectively.

As a consequence of the situation referred to, the evaluator suggests that TNC should establish direct relationships with Arcoiris and Maquipucuna and should directly provide them with the PIP funds rather than through FN as has been the case until now. A direct relationship will also create a better understanding with each of these organizations. The evaluator agrees that working this way would entail an increased effort in coordination among all parties. However, the complexity of Podocarpus demands from us this extra energy. Additionally, the evaluator considers that in order to properly manage all the needs of Podocarpus in the short to mid-term course, TNC must request from USAID that it restock the budget. The evaluator discussed this possibility with Ron Ruybal of the Ecuador AID Mission and he was very supportive of the idea. Not to provide the park with additional technical and financial support could mean losing all the positions we have won over the last two years as well as the re-invasion of the park C. Rahbek, M. Poulssen, J. Fisher and H. Bloch. 1989. Aves de las Montañas de Cajanuma - Parque Nacional Podocarpus, League. *Boletín Informativo sobre Biología, Conservación y Vida Silvestre. Universidad Nacional de League. N° 1, pp. 19 - 57* area, the opening of the two proposed new roads, the exploitation of the Podocarpus forests, and the potential nullification of its park status.

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PERFORMANCE INDICATORS:

I. ON-SITE PROTECTION AND MANAGEMENT

A. Have the ecological values of the area been identified?

YES.

size (hectares): 146,000 hectares

key ecosystems: Cloud Forest

key processes: Water Cycle

endemic species:

In the following list it has been considered as endemic to any specie with distribution restricted to specific habitat type in the park and in the rest of Ecuador and the closest sectors of either Perú or Colombia.

Birds :

- Bearded Guan (Penelope barbata, restricted to very humid forests in Southernmost Ecuador and Northernmost Peru) (1,2)
- Golden Plumed Parakeet (Leptosittaca branickii, known from similar habitats in Central Colombia, Ecuador and Peru) (1,2) (3)
- White-breasted parakeet (Pyrrhura albipectus, only known from three localities in Ecuador) (1,2) (3)
- Red-faced Parrot (Hapalopsittaca pyrrhops, only known from Central and Southern Ecuador and the Northernmost sector of Peru) (3)

Plants:

Madsen (1989) (4) has published a list of 77 endemic species for this park. In this list there can be found 9 species of Centropogon, 6 species of Dendrophthora, 12 species of the Melastomaceae Miconia, to mention some of them.

threatened species: The list of threatened mammals that have been recorded in the park is very long. Some of the most commonly mentioned threatened species that can be also found in this protected area are: spectacle bear (Tremarctus ornatus), Jaguar (Panthera onca), mountain lion (Felix concolor) and mountain tapir (Tapirus pinchaque). Bloch et al. (1991) (3) elaborated a list of 25 bird species that are either rare, vulnerable, near threatened or threatened. Some of them have been mentioned in the former paragraph for endemic species. No list of vulnerable or threatened plants has been found.

migratory species: None information was found on this subject but it's known that a migratory Gallinago sp has been reported for the park.

**B. Have critical threats been located on a map?
YES.**

type:

There are two main sources of threats to the park subsystems and resources: the mining activities and the colonization . The most important threats originating from mining are destruction of forest, soil movements, construction of new roads, sedimentation of rivers, mercury pollution of rivers, impoverish of wildlife diversity. This factor is geographically focussed in the San Luis area and upper Loyola river. The colonization process is taken place in the area of Numbala and lower Loyola river and it consequences are lost of forest cover, decrease of plant and wildlife diversity, construction of new roads, introduction of exotic animals and plants, local attitudes, among others. A third group of threats , according to the definition and classification by Machlis and Tichnell (see reference 5), should be added. This comprised all the threats of the management component: lack of adequate funding, lack of trained personnel, undefined boundaries, lack of internal communications, lack of transportation , lack of adequate legislation, just to mention some few of them. They are listed apart because they emerged from the analysis of the evalqator and not from the sources that will be pointed out in the next paragraph.

source:

Most of the threats before mentioned have been indicated in different documer:ts prepared by Fundación Ecológica Arcoiris, Fundación Natura and INEFAN. These documents include information generated by local and visiting scientists.

**C. Are critical boundaries surveyed and posted?
YES.**

They are partially surveyed. Thanks to this activity we now know that the borders of this unit are not well defined and that there is not consistency between the borders as they are described in the narrative part of the official decree and the cartographic representation of them in the maps prepared by INEFAN.

of kilometers demarcated: 5

**D. Are rangers trained and equipped?
YES.**

However it should be mentioned that training is constrained by the incipient scholar instruction of the guards. Many of them do not have elementary education. Aside from this, we must consider that most of the park guards are well trained. Two or three of them can be considered as excellent!

of rangers on-site: 8 in the park and 2 in the park office. Supposedly there is a rotation of the guards. However we have observed that the best trained guard is always 'kept' working in the offices as he can undertake most of the responsibilities there..

type of training received: Short courses and on the job training. Fundación Natura has developed a training system for both park directors and guards. This system has functioned with funds from the debt-swap. An evaluation of the training system was conducted 2 years ago by consultant Alan Moore. Additional ad-hoc training is provided when ever there is the opportunity to organize it. Peace Corp volunteers have done a nice work in this area.

**E. Does the personnel have transport and communications equipment?
YES, but not all of them.**

Only those that work in Cajanuma and the Park Chief Assistant based in Zamora have transportation. TNC, through FN, has provided the transportation with funds from the Debt-Swap and PIP.

and type: Two four-wheel-drive vehicles and two motorcycles.

**F. Have basic protection facilities been constructed on-site?
YES.**

location: Cajanuma Administrative Center and the guard houses at Bombuscaro and Romerillos Alto.

type and M2 size of facilities: The Cajanuma and Romerillos Altos facilities are brick houses of approximately 70 square meters (sm) each. In the case of Cajanuma, the house has three rooms, one of which is used as an office. The other two rooms serve as bedrooms for the park guards. Although solid, the house does not fulfill the minimum requisites for living: it's extremely cold, the fire place does not work properly and the smoke invades all the house, the electricity generator normally does not work, and so on! Part of the PIP budget for this area has been assigned for improvements to the

infrastructure. In this site there is also a Visitor center that can serve as an auditorium. The facility at Romerillos Alto is similar to the before mentioned at Cajanuma but it's in better conditions. It lacks of electricity. The Bombuscaro facility is an old wood cabin. At this place there is a small prefabricated aluminum shelter that is used as visitor center.

- G. **Does the area have continuous field logistical support?**
NO.

The answer to this question is subjective as it depends on the evaluator criteria. The evaluator considers that field logistical support cannot be considered either continuous or adequate.

type of NGO support: Transportation, fuel, food, spare parts, field equipment, funds.

This support comes from the Debt-Swap and PIP.

type of GO support: The same type of support provided by the NGO but at a much less continuous base.

- H. **Are ecological carrying capacity studies, baseline and monitoring underway?**
Not in general.

Some groups have been studied and the reports and/or papers published are used in this evaluation. These references can be found in the last page (Cited References) of the evaluation.

type of study: Field inventories of birds and flowering plant have been conducted. Surveys were conducted at several locations but the better studied areas are Cajanuma and Sabanilla, San Francisco and Bombuscaro rivers. Two more studies have been conducted in the San Francisco and Sabanilla areas. They are the determination of local tree species to be used in reforestation projects and the characterization and inventory of habitat for Tapirus pinchaque; both have been funded by the debt-swap and included in the PIP work plan.

- I. **Has a Management Plan been completed for the area?**
YES.

It needs to be revised and updated.

year of publication: 1986

- J. **Are Annual Operations Plans and Budgets completed?**
YES .

PERFORMANCE INDICATORS:

II. COMPATIBLE RESOURCE USE:

- A. **Have key social and economic values of the protected area been identified?**
YES .

key values:

- water production for the very dry Provinces of Loja and del Oro.
- Protection to public basic infrastructure and water production for electricity in the Province of Zamora.
- Leisure and recreation sites for both Provinces of Zamora and Loja.
- Protection of ecosystems and biodiversity necessary for the support of indigenous families in the eastern sector.
- bank of stable wildlife populations necessary for campesinos consumption and use outside the park.

- B. **Have basic human needs of local communities been satisfied?**
(i.e., health, safety, welfare, etc.)
NO.

key issues:

- lack of adequate health service, potable water, education, electricity, communications, transportation, etc.

- C. **Is there direct community and resource user participation in resource management and allocation decisions?**
NO.

Community and resource user participation is not a tradition in Ecuador neither it's law enforced. In recent times it's becoming a practice due to the lobbying action of the NOGs (mainly our partners).

key formal mechanisms: Communal meetings where local authorities are invited.

- D. **Is the land tenure in the area stable?**
YES , but not enough.

land tenure system: Around Podocarpus National Park private landholdings exist with enough legal tradition according to the Ecuadorian constitution. Each land owner has the land title which is a certified copy of the title registered and filed at the local official public registration office. Most of the area in the core

central zone of the park belongs to the republic of Ecuador and was supposed to be legally assigned to the park. Some areas in the southern border and other zones without clear park boundaries are national property and consequently can be appropriated for agrarian reform; this is a major conflict as it is the case in Loyola. In the eastern-most zone of the park, the lands are part of the Shuar territory. No legal titles exist for this sector.

Is local partner protecting land through acquisition?

Not in this sector.

E. Are there diverse agricultural and natural resource uses within the carrying capacity of the protected area buffer zone?

No studies have been conducted on this matter so the answer will be based on the evaluator's perception and experience. In the northern and eastern sectors of the Province of Zamora the local population has a low density, and we can assume that uses like hunting and wood extraction are made under non-threatening limits. The distribution pattern of the campesinos' chacras (cultivated areas) is such that it creates a mosaic of cultural and natural remnants. In the sector of Loja and in the southern sector of Zamora, the population density is higher and the ecosystem is dryer and less productive. Overhunting and wood depletion are probably evident in the buffer zone.

principal land/resource uses:

land uses: We can define three main land-use types in this park: i) Traditional farming system (small crop plots + open secondary grasslands for cattle in patches within a matrix of impoverished forest), semi-urban areas and degraded mining zones. The last two types occupy a very small fraction of the whole territory.

other resource uses: There is no comprehensive study on this subject. It is evident that forest resources are used as raw construction materials and as fuel. Wildlife is hunted for protein supplement and the evaluator does not expect differences between the species normally hunted throughout the neotropical area and those under utilization at the buffer zone of this park (probably inside it). The same applies to the plant species or their parts that are used in the area.

F. Are local people employed by PIP project funds?

YES .

of men: 9 + temporals when need.

of women: variable, only temporary.

types of positions:

park guards and temporary construction workers.

PERFORMANCE INDICATORS:

III. LONG-TERM FINANCIAL SECURITY

- A. **Have the long-term financial needs of the protected area been identified?**
NO.

categories and projected budget: No information is available in the regional office of INEFAN. At the same time, as the national entity that administers the parks and other protected areas is undergoing a vast reorganization process, no official dependency could provide information on this aspect. An official request for GEF funds has been submitted by the government of Ecuador to the World Bank. In the document, 'Master Plan for the Protection of the Biodiversity through the Strengthening of the National System of Protected Areas', there is no specific project for Podocarpus NP although some of its components will be partially developed in conservation unit.

- B. **Are there local revenues that support the protected area?**
NO.

- C. **Are there national budget allocations that support the protected area?**
YES .

type of support and estimated annual US\$ dollar amount: This question is very difficult to answer. During the evaluation the Chief of the Park and the Regional Director of INEFAN were both interviewed in relation to this issue. None of them was able to provide a clear answer. Every year, at the beginning of the fourth quarter, the park intendant and the regional director are required to draft a work plan and budget for the next year. These documents are then sent to the central offices of the INEFAN where the Ministry of Agriculture, until a few months ago, would change the documents without notifying the regional authorities or the park. Very often the only information that park authorities receive about budgeting is the approval or disapproval for expenditures.

- D. **Are there international funds that support the protected area?**
YES .

type of support and estimated annual US\$ dollar amount: The only two international sources of economical support for the park are the Debt-for-Nature-Swap fund and the Parks in Peril Program. In the first case the international NGOs associated are World Wildlife Fund US and TNC. In the second case only TNC is involved, channelizing the help of several organizations, needed to

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be mentioned is USAID. The total amount that the park is receiving is over \$ 200,000 for the fiscal years 92-93.

E. **Has a Financial Plan been approved for the protected area?**
NO.

F. **Is a fiscally responsible administrative system in place to manage the funds?**
YES .

external audit at TNC? YES

G. **Are financial resource committed to operations of the area?**
YES.

As it has been pointed out before, there is not a financial plan for the area but it is receiving the economical support from two international American based NGOs. Funds from this two sources are totally committed for the area operations during the next couple of years. It was also mentioned that the national government of Ecuador provides financial resources for the park, including the salaries of the park personnel. Unfortunately we do not have access to the information related to this issue.

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

I. ON-SITE PROTECTION AND MANAGEMENT:

A. **Has there been a change in the natural vegetation or land cover?**
NO.

Although we has not made any kind of assessment on this subject, we can affirm that there have not been any major changes in the vegetation of the park. The park area is not big and the northern, western and southern boundaries are adequately accessible. Any change in these zones will be noticed very soon by the guards. At the same time, the eastern region is inhabited by a low density indigenous population with a limited technology to produce major ecosystem transformation. The areas that are being released from the mining activities will start recovering soon but no changes have occurred until now.

how was this change measured? The information comes from a day-to-day overrun by the park personnel and the conservation officers of the NGOs participating in PIP (Fundación Natura, Fundación Arcoiris, Fundación Maquipucuna).

- B. Has there been a change in the distribution, abundance or status of key species? No information available at this time.**

No studies on species abundance and distribution were made before PIP so there is not data for comparison. The information about Cracids that has been generated by Ecociencia-Arcoiris relates to the last three years and no correlation has been made with PIP activities. The two other studies about tree species for reforestation and the characterization of the tapir habitat do not provide the kind of information necessary to answer the question and have been completed too recently.

- C. Has there been a change in water quantity or quality?**

As it was mentioned in the preceding paragraph, we do not have data allowing us to make comparisons and to answer the question. We actually know that the content of mercury in the water flowing from the San Luis area is very high. This is also the case for some small affluents of the Bombuscaro river. Data came from a study conducted by a Belgian scientist working at the Universidad Nacional de Loja.

II. COMPATIBLE RESOURCE USE:

- A. Have there been changes in the pattern or intensity of land or natural resource use? YES.**

Due to the support for logistics that we have provided to Arcoiris and the park authorities, the increased protection activities have lead to a decrease in the colonization rate. The construction of a new colonization road into the area of Numbala was stopped as also was the construction of a provincial road that would otherwise bisect the park. The number of miners in San Luis has decreased by more than one half and the army and park guards are controlling the access to the protected area.

how were these changes measured? The information before mentioned was obtained from the conservation officers of our partner organizations, from well informed visitors and government officials.

B. Have there been changes in the social or economic conditions of local residents?
No information.

C. Have there been changes in the policies or institutions?
YES.

The regional office of the INEFAN as well as the Chief of the park have taken more rigorous positions and are getting stricter in terms of the protection of park resources. The current policy requires that any project that even marginally deals with the parks should be revised by the regional authorities as well as the central office.

how were these changes measured? TNC personnel have been closely following the development of the park.

III. LONG-TERM FINANCIAL SECURITY:

A. Has a trust fund or endowment been established for the protected area?

NO.

B. Are there diverse sources of funds/revenues for the area?

Besides what was explained before: No.

Parks in Peril : FY 1993 Evaluation

	<u>Machalilla</u>	<u>Podocarpus</u>	<u>Total Ecuador</u>
ON-SITE PROTECTION & MANAGEMENT			
# Hectares in protected areas:	55,000	146,000	201,000
Management plan completed:			
Yes	1	1	2
No	0	0	0
Operations plan completed:			
Yes	1	1	2
No	0	0	0
Ecological values determined:			
Yes	1	1	2
No	0	0	0
Critical threats/areas located:			
Yes	1	1	2
No	0	0	0
Studies/monitoring underway:			
Yes	0	1	1
No	1	0	1
Radio equip. installed:			
Yes	1	0	1
No	0	1	1
# Radios on-site:	3	0	3
# Personnel:	18	10	28
# Rangers:	14	10	24
# Ranger training events:	1	1	2
# Km demarcated:	7	5	12
# Ranger centers:	4	3	7
Basic transportation:			
Yes	1	1	2
No	0	0	0
Continuous field supervision:			
Yes	0	0	0
No	1	1	2
COMPATIBLE USE/ECONOMIC DEVELOPMENT			
Socioeconomic values identified:			
Yes	1	1	2
No	0	0	0
Basic human needs met:			
Yes	0	0	0
No	1	1	2
Local participation in resource mgmt:			
Yes	0	0	0
No	1	1	2
Land tenure stabilized:			
Yes	1	1	2
No	0	0	0
# Local people employed with PIP funds:	7	9	16
LONG-TERM FINANCIAL SECURITY			
Long-term financial needs identified:			
Yes	0	0	0
No	1	1	2
Funding from external sources:			
Yes	1	1	2
No	0	0	0
Amount	\$224,675	\$200,000	424,675
Funding from Federal/State sources:			
Yes	1	1	2
No	0	0	0
Amount			0
Funding from local sources:			
Yes	0	0	0
No	1	1	2
Amount	\$0	\$0	0
Financial plan approved:			
Yes	0	0	0
No	1	1	2

Parks in Peril

1993 Evaluation

Guatemala

**Sierra de las Minas
Biosphere Reserve**

**PARKS IN PERIL PROGRAM
1993 EVALUATION FORM**

PROTECTED AREA NAME: SIERRA DE LAS MINAS BIOSPHERE RESERVE

GENERAL INFORMATION:

NGO partner: Fundación Defensores de la Naturaleza
7a. Ave. 13-01, Zona 9. Edificio La Cupula
01009 Guatemala, C.A.

PIP project officer: Ing. Oscar Manuel Nuñez Saravia

Government agency: CONAP
2a Ave. 0-69, Zona 3, Colonia Lo de Bran
Guatemala

PIP project officer: Emma Diaz, Executive Secretary of CONAP

Conservation objectives of the protected area:

- Conserve the diverse ecosystems, the biodiversity, the genetic resources, and the forests.
- Protect the springs and other hydrologic resources for their socioeconomic importance to the area surrounding the reserve.
- Promote the sustainable use of existing natural resources to benefit the local population.
- Ensure the participation of the local communities in the protection and management of the preserve.
- Promote the scientific investigation of the ecosystems and biological and genetic wealth of the reserve, to further knowledge, and to benefit the country and humankind.
- Preserve the unique scenic beauty of the area.

The NGO/GO agreement, "Reserva de la Biosfera Sierra de las Minas, PLAN MAESTRO 1992-1997," was approved by CONAP on March 17, 1992.

Evaluator: Dave Maginel, Land Steward

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Cache River Bioreserve
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Ullin, IL 62992

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INTRODUCTION

The Sierra de las Minas Biosphere Reserve is located in northeast Guatemala between the Polochic and Motagua Rivers. The reserve covers 236,300 hectares, encompasses six distinct life zones, and provides habitat for 70% of the species found in Guatemala and Belize. Dramatic differences in altitude, aspect, and rainfall patterns within the reserve all contribute to the incredible diversity of the area.

The evaluation team consisted of Dave Maginel, Land Steward of the Cache River Bioreserve for the Illinois Chapter of The Nature Conservancy, accompanied by Defensores de la Naturaleza Executive Director Arq. Andreas Lehnhoff and Biosphere Reserve Director Ing. Oscar Nuñez. The evaluation was based on seven days of site visits and personnel interviews, and four years of extension work in Central America.

PROGRAM ACHIEVEMENTS

Defensores has successfully established offices, purchased equipment, set acquisition priorities, coordinated research activities, conducted training, hired personnel, managed land, and planned projects and programs.

Defensores has launched a strong environmental education program which includes teacher training, a Smithsonian exhibit on tropical forests, posters, and written materials including "Ecos de la Sierra," an educational newsletter. Defensores has a resource center which includes slides, videos, and relevant research and textbook materials.

Defensores has initiated a successful protection program and now owns approximately 15,000 hectares in the Sierra de las Minas. Land ownership is not only an excellent protection tool, but also lends tremendous legitimacy to a young NGO with the difficult task of initiating management on remote sites with no history of authoritative intervention.

Defensores has established a field station in the Core Area with basic accommodations for research personnel and rangers. This has been a monumental task, given the location and the difficulty in bringing in personnel, materials, and equipment. Defensores used rangers from other sites in order to complete construction of the field station and trails related to the quetzal research project in a timely fashion. The establishment of the field station, and with it a physical presence in the Core Area, is a major accomplishment.

Fundación Defensores de la Naturaleza has attracted a powerful and interested Board of Trustees that brings a whole new dimension to the project.

LIMITATIONS

1. Baseline data on water quality, flow rates, ecological carrying capacities, and the distribution, abundance, and status of key species is limited.
2. Baseline data on social and economic conditions within the reserve is limited.
3. The long-term financial security of the Sierra de las Minas project has not yet been ensured.
4. The basic human needs of many of the surrounding communities have not been met.
5. The safety needs of field personnel could be better met.

RECOMMENDATIONS

1. Sierra de las Minas Biosphere Reserve should become the object of intensive ecological and economic research.
2. A trust fund or endowment should be established to ensure adequate long-term stewardship of the reserve.
3. An extension program that successfully addresses the issue of basic human needs in the reserve should be implemented.
4. The equipment, training, transportation, and communication needs of field personnel should be met.
5. The protection program should target inholdings with threatened ecological values, that control accesses, or that are bases for illegal or incompatible activities.

SUMMARY OF RECOMMENDATIONS

1. Efforts should be made to focus research on the Sierra de las Minas Biosphere Reserve. Baseline ecological data needs to be generated in order to guide management decisions and to determine the extent of protection success. Economic data should be generated to demonstrate that effective conservation strategies can actually help local economies. Dr. Steve Kraft of Southern Illinois University is generating an ecological/economic model with IMPLAN for the Cache bioreserve under a grant from the Ford Foundation. As a field manager on the Cache I generally see research as an expensive quagmire, but from a political and administrative perspective I'm convinced that large, highly visible projects like Cache and Sierra de las Minas must show demonstrable ecological results and clear local economic benefits.
2. A long-term financial plan which includes a stewardship endowment should be developed for Sierra de las Minas. There is little history of land protection by the Guatemalan government, nor is there a history of philanthropy in Guatemala. Given these obstacles to long-term

protection, the agencies and organizations that have invested in Sierra de las Minas would be wise to invest in a fund to ensure perpetual stewardship of the resource.

3. The extension program to address basic human needs conducted by Defensores should be based on past experience. A thorough, objective, independent evaluation of previous extension programs carried out by INAFOR, DIGESA, DIGESEPE, WWF, CARE, PEACÉ CORPS, and AID should be funded by the Parks in Peril program to determine the extent of and the reasons for their success or failure. Defensores should concentrate on programs that have actually produced positive social and economic changes, particularly those that survive after support is withdrawn.

Another extension strategy that should be pursued is to take local community leaders from Sierra de las Minas to the altiplano to show them first hand what will happen if adequate protection measures are not initiated immediately. The near total destruction of the natural resources of the altiplano by deforestation and overgrazing is a lesson that, once witnessed, is not easily forgotten.

4. The Parks in Peril program should provide a budget adequate to meet the equipment, training, transportation, and communication needs of field personnel working in remote and dangerous conditions. The administrative staff of Defensores listens to field recommendations and has a good understanding of what is needed. The concept of international support for NGOs familiar with local conditions and problems is an excellent idea and is working well in Sierra de las Minas.
5. Defensores should explore the possibility of working with the municipality of Chilasco and the department of Chilasco to protect the biodiversity and scenic splendor of the Chilasco waterfalls and surrounding area. The falls already generate considerable ecotourism on the border of the Core Area. It may be a good opportunity to demonstrate that heavy public use can generate compatible economic activity, particularly when it is concentrated outside the Core Area. At the same time, closer ties with departmental and municipal governments will lend Defensores legitimacy and help them influence management decisions without having to purchase the land. Some baseline ecological data for the area has already been established.
6. International funds directed toward acquisition of the land of Mr. Casasola should be provided immediately. Mr. Casasola and his employees are involved in activities within the Core Area that are incompatible with conservation objectives and are suspected of involvement in violence directed against Defensores. Mr. Casasola also controls road access to the Core Area. Acquisition of access points is a key protection strategy of Defensores.
7. Protection should be extended to the proposed Bocas del Polochic Wildlife Refuge. Baseline data and preliminary recommendations for the area are available. The majority of the land, which borders the Sierra de las Minas Biosphere Reserve, is owned by the government of Guatemala. Formal establishment of the Bocas del Polochic Wildlife Refuge would bring with it a stronger presence of CONAP in the lower watershed of the Polochic, an area that is now underserved by project personnel. The international interest in wetlands and the participation of USFWS in the evaluation of the proposed refuge will help generate funds for establishment and management of the area.

CONCLUSION

The Sierra de las Minas is a magnificent resource worthy of international support. The Parks in Peril strategy of building strong NGOs to accomplish conservation objectives has obviously been successful on this project. Defensores de la Naturaleza is a dedicated team of visionary leaders working with experienced local field personnel. It is my recommendation that the Parks in Peril program take advantage of the favorable political climate in Guatemala and the strength of its NGO partner to quickly protect as much of the Sierra de las Minas as possible.

Dave Maginel, Land Steward, The Nature Conservancy

PERFORMANCE INDICATORS:

I. ON-SITE PROTECTION AND MANAGEMENT

- A. The key ecological values of the area have been identified in the "PLAN MAESTRO."

<u>size:</u>	236,300 hectares
<u>key ecosystems:</u>	cloud forest, humid subtropical forest, very humid subtropical forest, high diversity conifer forests, dry spiny subtropical forest
<u>key processes:</u>	maintenance of regional hydrology and groundwater
<u>endemic species:</u>	information not yet compiled
<u>threatened species:</u>	quetzal, jaguar, howler monkey, puma, peregrine falcon, harpy eagle, horned turkey
<u>migratory species:</u>	information not yet compiled

- B. The critical threats have been located on maps in the "PLAN MAESTRO" and on a map included with this document.

1. Slash and burn agriculture surrounding Q'uechi' villages on the northern slopes is a very real threat to the integrity of the area.
2. Timber operations, both legal and illegal, threaten the southern slopes and are an immediate threat to the Core Area.
3. Hunting, plant collection, and firewood collection are all having an impact on the reserve, but are not threatening the system itself at this time.

- C. Some of the critical boundaries have been surveyed and posted. The number of kilometers posted is unknown.

- D. Eight rangers have been trained in Community Organization, Leadership, Project Planning, Extension and Agroforestry, and Hunting Regulations. The rangers have some equipment, but the terrain and the weather will take a heavy toll. Equipment will be an ongoing expense.

- E. Defensores has two 4WD all terrain vehicles, seven 4WD trucks, three radio bases, four vehicle/hand held radios, and two hand held radios. Good transportation and communications will be critical to the success of this project. PIP should invest heavily in trucks and radios; the safety and welfare of the rangers and quetzal project personnel depend on them.

F. Basic protection facilities constructed on-site in the Core Area for the quetzal project/ranger base are:

1. 30 sq. m. dorm with tin and fiberglass roof, wood floors and sides, with storage and parking for 4WD ATV's below.
2. 30 sq. m. lab with tin and fiberglass roof, wood floors and sides, and a propane stove top for cooking.
3. 22 sq. m. dorm with thatch roof, stick and plastic sides, and dirt floor.
4. 18 sq. m. kitchen with thatch roof, stick and plastic sides, dirt floor, fire on the floor for cooking and heat.

Water is supplied by a good spring near the lab. One latrine is in use, another is under construction. Though basic, the facilities are well constructed.

G. The area has continuous field logistical support from the NGO central office in Guatemala and from three district offices. The NGO provides 8 rangers and equipment, the GO provides 10 rangers.

H. Some baseline ecological data has been collected from Landsat images, the quetzal project, the Rapid Ecological Assessment, and background research for the "Plan Maestro." Monitoring is taking place on three rivers in the Motagua district.

I. The "PLAN MAESTRO de la Reserva de la Biosfera Sierra de las Minas" was approved by CONAP on March 17, 1992. The "PLAN MAESTRO" is a master plan, not management plan.

J. Annual operations plans are completed (until November). The current budget is complete; the coming budget is dependent upon the recommendations of this evaluation.

II. COMPATIBLE RESOURCE USE

A. The key social and economic values of the area have been identified as water and forest products. The outstanding natural beauty of the area along with several archeological sites could also be the basis for ecotourism.

B. The basic human needs of some local communities are not being met. Defensores, at both the staff and field levels, is acutely aware of this problem and has solid plans to address it.

- C. There is direct community and resource user participation in management and allocation decisions. The rangers have been hired from local communities and help represent local interests. A more formal mechanism, a governing board consisting of CONAP, Defensores, local landowners, and community representatives, is planned but has yet to be implemented.
- D. Land tenure on the south slope of the Sierra is stable; on the north slope the Q'echi' still practice slash and burn agriculture and are much more mobile. Defensores has acquired 15,000 hectares, the vast majority of which is in the Core Area.
- E. Agricultural and natural resource uses within the carrying capacity of the protected area buffer zone include: annual crops, coffee, cattle, timber harvest, hunting, plant collection, firewood collection, and ecotourism.
- F. Eleven men, primarily rangers, are employed by PIP funds.

III. LONG-TERM FINANCIAL SECURITY

- A. There is no strategic financial plan for Sierra de las Minas. Long-term financial plans which include a stewardship endowment should be prepared by Defensores.
- B. Local revenues include \$20,000 from calendar sales and approximately \$9,000 in-kind from IBM for loaned equipment and service.
- C. CONAP supports the project with \$20,000 annually in-kind: salary of 10 rangers.
- D. International funds for project implementation include: WWF \$95,000; CARE \$50,000; USFWS \$7,000; and MacArthur Foundation \$45,000. International funds for land acquisition include Swedish Childrens' Rainforest Fund \$125,000 (over 3 yrs); Adopt and Acre \$200,000; and Byron Swift \$20,000.
- E. No financial plan for the area has been approved to date.
- F. Defensores is well aware of the need for good documentation and fiscal responsibility. Their accounting system is superb.
- G. \$400,000 are committed to operations of the area in the following categories: local functions, protection, sustainable development, environmental education, and institutional strengthening.

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

I. ON-SITE PROTECTION AND MANAGEMENT

- A. Baseline data on natural vegetation and land cover is contained in the "Anexo Mapas" to the "Plan Maestro." A more recent map compiled from aerial overflights and landsat images is also available. Land use investigations of Chilasco based on landsat images are presently taking place.
- B. No information on changes in the status, distribution, or abundance of key species is available at this time. Research is being conducted on the quetzal in order to establish baseline data. Other bird studies and studies of two pine species are also taking place.
- C. Three rivers in the Motagua district are presently being studied by the district coordinator. Anecdotal information indicates a severe drop in precipitation, water tables, and flow rates due to deforestation prior to initiation of the PIP project.

II. COMPATIBLE RESOURCE USE

- A. Land use investigations of Chilasco based on landsat images are underway.
- B. Anecdotal data suggests that social and economic conditions may be changing in some areas due to WWF projects.
- C. Officials and governmental institutions are changing their attitudes towards natural resources. This can be measured by the number of resource violation indictments filed without the assistance of Defensores.

III. LONG-TERM FINANCIAL SECURITY

- A. No trust fund specific to the Sierra de las Minas has been established.
- B. Diverse funds and revenues are being used on the project.

Local	\$20,000	calendar sales
	\$9,000	IBM (in-kind)
Governmental	\$20,000	CONAP (in-kind)
International	\$95,000	WWF
	\$20,000	CARE
	\$7,000	USFWS
	\$45,000	MacArthur
	\$125,000/3yrs	Swedish Rainforest (land)
	\$200,000	Adopt and Acre (land)
	\$20,000	Byron Swift (land)

Parks in Peril : FY 1993 Evaluation

	Sierra de las Minas	Total Guatemala
ON-SITE PROTECTION & MANAGEMENT		
# Hectares in protected areas:	236,300	236,300
Management plan completed:		
Yes	1	1
No	0	0
Operations plan completed:		
Yes	1	1
No	0	0
Ecological values determined:		
Yes	1	1
No	0	0
Critical threats/areas located:		
Yes	1	1
No	0	0
Studies/monitoring underway:		
Yes	1	1
No	0	0
Radio equip. installed:		
Yes	1	1
No	0	0
# Radios on-site:		
# Personnel:	18	18
# Rangers:	18	18
# Ranger training events:		
# Km demarcated:		
# Ranger centers:	4	4
Basic transportation:		
Yes	1	1
No	0	0
Continuous field supervision:		
Yes	1	1
No	0	0
COMPATIBLE USE/ECONOMIC DEVELOPMENT		
Socioeconomic values identified:		
Yes	1	1
No	0	0
Basic human needs met:		
Yes	0	0
No	1	1
Local participation in resource mgmt:		
Yes	1	1
No	0	0
Land tenure stabilized:		
Yes	1	1
No	0	0
# Local people employed with PIP funds:	11	11
LONG-TERM FINANCIAL SECURITY		
Long-term financial needs identified:		
Yes	0	0
No	1	1
Funding from external sources:		
Yes	1	1
No	0	0
Amount	\$542,000	\$542,000
Funding from Federal/State sources:		
Yes	1	1
No	0	0
Amount	\$20,000	\$20,000
Funding from local sources:		
Yes	0	0
No	1	1
Amount	\$29,000	\$29,000
Financial plan approved:		
Yes	0	0
No	1	1

Parks in Peril

1993 Evaluation

Mexico

El Ocote Ecological Reserve

El Triunfo Biosphere Reserve

**La Encrucijada
Coastal Wetland Reserve**

**Ria Lagartos Celestun
& Lagartos Wildlife**

Sian Ka'an Biosphere Reserve

PARKS IN PERIL 1993 PROGRAM EVALUATION REPORT:

EL OCOTE FORESTRY AND FAUNAL RESERVE

SUBMITTED TO:

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August 20, 1993

I. INTRODUCTION

El Ocote Forestry and Faunal Reserve is a 48,140 hectare protected area located in the State of Chiapas, 39.5 kilometers northeast of the city of Ocozocoautla de Espinosa. It received Federal protection as a result of a decree issued on October 20, 1982. Conservation and management of the area is provided by the Instituto de Historia Natural (IHN), a semi-autonomous agency of the State government of Chiapas.

The Reserve is composed of three primary vegetation types (following Breedlove 1981): Tropical Rain Forest, Lower Montane Rain Forest, and Evergreen Seasonal Forest, as well as secondary vegetation types. As a consequence of the occurrence of these primary vegetation types, El Ocote provides habitat for a variety of endangered species, with perhaps the most significant and rare species being the harpy eagle. Other endangered species found within the Reserve include jaguar, tapir, white-lipped peccary, howler monkey, spider monkey, and king vulture. It should also be noted that three endangered species of the avian Family Cracidae inhabit the Reserve: the great curassow, crested guan, and black penelopina.

A number of significant threats imperil the continued existence of the Reserve. According to IHN personnel, approximately 40% - 50% of primary vegetation has been deforested as a result of inappropriate land-use practices including extensive slash-and-burn agriculture, cattle grazing, illegal timber harvesting, and wildlife poaching. The Netzahualcoyotl Dam, which forms the northern limit of the Reserve, was constructed in 1960 and generated an influx of immigrants to the area from other parts of Mexico. The growing population has placed increased and perhaps unsustainable demands on the area's renewable resource base. Additionally, the land ownership system within the Reserve is a complex series of mosaic patterns and has resulted in conflicts that now must be settled by the Agrarian Reform Tribunal. President Carlos Salinas de Gortari has promised these conflicts will be resolved before his term concludes at the end of 1994, but much still remains to be done.

In order to counteract these threats, IHN has developed and implemented a management program that consists of community development projects, resource protection activities, environmental education programs, various applied research projects including characterization of soil use and vegetation, and development of a proposal to re-zone and enlarge the Reserve by 25,000 ha. Achievements and limitations of these programs during the past year are detailed in the section below.

The Parks in Peril evaluation was conducted by Jerome Touval, External Consultant for The Nature Conservancy. Interviews were conducted with TNC Mexico Program staff in Tucson, AZ during July 18-20, with Parks in Peril staff at TNC Headquarters in Arlington, VA on July 22, and with IHN Central Office and El Ocote staff members from July 28 - 29. A site visit to the Reserve was not possible due to weather conditions.

Individuals interviewed for this evaluation:

TNC

Susan Anderson
Jennifer Shopland
Monica Ostria

IHN

Carlos Pizaña, Chief Department of Natural Areas
Filemon Mendoza, El Ocote Reserve Director
Margarita Ventura Cinco, Extension and Environmental Culture
Ignacio Aguilar Ruiz, Chief of Community Development
Sonia Nañez Jimenez, Community Development worker
Adrian Mendez Barrera, Chief of Operations Program
Arturo Arjona Martinez, Ranger Coordinator
Jose Garcia Alfaro, Vegetation and Soil Use Project
Victor Negrete Paz, Vegetation and Soil Use Project
Magdalena Zacarias, Vegetation and Soil Use Project

II. TECHNICAL EVALUATION

A. Achievements

In general, El Ocote appears to have developed an organized and cohesive working group.

Significant achievements were reported by the Reserve's Operations Program. As a result of the opening of Campamento Emilio Rabasa, El Ocote park guards have established a 365 day per year presence in the Reserve. A trail circuit that allows patrols of the critical agricultural encroachment zones around Colonia Emilio Rabasa was developed and completed by the Operations staff.

Operations personnel also installed 72 signs, both within the Reserve as well as in surrounding areas. Overflights were conducted to establish new patrol trails and to begin monitoring changes within Reserve (e.g., monitoring areas of encroaching agriculture).

Progress was made on development of the new Operations Center that will be located in the northwestern sector of the Reserve. According to TNC's 1993 Action Plan for El Ocote, this Center was originally to be located in the northeastern part of the Reserve. However, the Operations staff conducted a study and developed an analysis matrix to select the most effective and strategic site for this Center. The selected location may also be attractive as a base for ecotourism activities. At present, the site has been selected, the land cleared, construction bids have been

solicited, a contract has been awarded, and IHN is now awaiting the beginning of construction.

The Reserve's Chief of Operations attended a USDA-sponsored fire suppression workshop in Chiapas and then conducted a similar workshop for El Ocote's park guard staff. Operations personnel were then able to supervise and provide advice for controlled burns in local communities (conducted for agricultural purposes).

The Community Development and Environmental Education programs have established a consistent presence in 2 communities (C lonias Emilio Rabasa and Confederaci n Nacional Campesinos - C.N.C.). A staff member is present in these communities 15 days per month.

The Community Development program has established eight agricultural demonstration plots in Colonia Emilio Rabasa in the southeastern section of the Reserve. This program is to focus on increased production of corn, beans, and coffee in an environmentally-sound manner.

The Community Development program has also begun a demonstration project focusing on establishment of plots for the cultivation of palma shate (Chamaedorea sp.). The purpose of this project is to provide sustainable and rational use of the palm and to improve the economy of the local communities. To date, a demonstration plot has been developed in the community of C.N.C.

The Vegetation and Soil Use Mapping project is 90% complete. The following maps have been generating using CAMRIS GIS software:

- 2 base maps of the study area at scales of 1:250,000 and 1:50,000
- 1 hipsometric map
- 1 topographic map
- 1 geologic map
- 1 soils map
- 1 climate map
- 1 hydrologic map
- 1 land ownership map
- 1 community-location map

These maps and other information generated by this study will be used in developing the proposal to enlarge the Reserve. The target date for completion of this proposal is August 1993.

B. Limitations

The question of land ownership patterns within the Reserve is very unsettled. Some of the disputed areas include sections of tropical rainforest and other areas of primary vegetation. The outcome of land ownership decisions in several of these disputed areas could have a major impact on IHN's tactics for managing the Reserve.

If the Agrarian Reform Tribunal decides these are Federal lands, IHN would be able to assume direct management of the areas. However, if these areas are found to be ejidal lands, IHN would have to rely more on community goodwill, and increase their emphasis on community development and environmental education activities.

IHN has not yet zoned the Reserve into different types of use areas. This activity should be completed soon (in August or September 1993) as a result of the Vegetation and Soil Use Mapping project. The results will be used in compiling the proposal to enlarge the Reserve.

There are not enough vehicles to accommodate program needs. Additional vehicles are needed to increase coverage of patrol and extension activities within the Reserve. As a result of the vehicle shortage, El Ocote staff has to take on multiple roles for field trips (e.g., community development staff assume some responsibilities of operations staff). Also, the Operations program could use an inflatable raft with a small (3-5 hp) motor to patrol the river in northwestern sector of the Reserve.

The Community Development and Environmental Education staff is too limited to be fully effective. At present, there are 2 staff members working in community development and 1 in environmental education. Additionally, these programs face a language barrier in three communities in which the women speak only Tzotzil. This creates an impediment to reaching an important and influential segment of the local population.

It should be noted that two other Mexican NGO's (PRONATURA and Ecosfera) are also working on community development activities within El Ocote Reserve. IHN has little or no contact with these organizations in regard to their operations within the Reserve. Though I was assured there is no overlap in activities between IHN and these two organizations, the lack of coordination can not make for a healthy and productive situation.

Although IHN has done an excellent job of assembling and integrating the Reserve's management team and established a year-round presence within El Ocote, the Reserve's headquarters are located in the IHN Central Office in Tuxtla Gutiérrez. A regional office, perhaps located in Ocozocoautla or some other major municipality closer to the Reserve, might enhance the opportunity for developing more direct community relations.

There is a need to systematize the collection of wildlife data. This should happen when El Ocote's monitoring program gets underway this year. The staff considers the monitoring program essential for assessing if their current management practices are effective.

Perhaps the most significant limiting factor to the effectiveness of IHN's management strategy for El Ocote is the socioeconomic condition of communities in the area. The level of health care, nutrition, education, and sanitation of communities within the Reserve is low. This likely keeps the Community Development and Environmental Education programs from being fully effective. How

effective can a program emphasizing increased agricultural production be when basic and essential health care facilities are lacking in the community? Is it really ethical to promote environmental education in an area if basic education is not available? These are questions that must be considered when developing tactics that incorporate the consideration of community needs into protected area management.

C. Recommendations

1. TNC should encourage IHN to push for a resolution of land ownership issues as quickly as possible to allow for the development of appropriate tactics and long-term strategies for the effective management of El Ocote.
2. IHN should be encouraged to establish an administrative presence in the El Ocote buffer zone, probably close to Ocozocoautla. The El Triunfo office in Jaltenango could serve as a model for this activity.
3. TNC should proceed rapidly on implementation of a monitoring program at El Ocote. The Reserve's staff is aware that they have been analyzing impacts and changes in a qualitative manner and are ready now to begin a quantitative monitoring program.
4. To promote the greater effectiveness of Community Development and Environmental Education programs, IHN should consider hiring a community development specialist with fluency in both Spanish and Tzotzil.
5. In order to promote effective and committed community involvement in conservation of the Reserve, the socioeconomic conditions of local communities must be addressed. IHN has attempted to do this through their Community Development program (emphasizing improved agricultural techniques) and their Environmental Education program (emphasizing environmental awareness and involvement in conservation). While these activities are certainly a necessary part of the conservation equation, they are not enough. The basic needs of health care, sanitation and waste disposal, nutrition, and basic education must also be incorporated. Of course, one conservation organization can not be all things to all people. Therefore, TNC should consider joining forces with a reputable humanitarian organization (perhaps an organization like Save the Children) to combine forces that bring environmental conservation and basic human needs to local communities in one comprehensive package. A collaboration of this sort could only serve enhance the reputation and credibility of both organizations involved.

PARKS IN PERIL PROGRAM
1993 EVALUATION FORM

PROTECTED AREA NAME: El Ocote Forestry and Faunal Reserve

GENERAL INFORMATION:

Country: Mexico

NGO Partner: Patronato del Instituto de Historia Natural

Address: 3ra Sur Poniente 1631, Tuxtla Gutierrez, Chiapas

PIP project officer: Prof. Miguel Pavia

Government agency: Instituto de Historia Natural

Address: Capilla de La Naturaleza
Av. de los Hombres Ilustres S/N
Tuxtla Gutiérrez, Chiapas

PIP project officer: Prof. Miguel Alvarez del Toro

Conservation objectives of protected area:

- o Conserve in perpetuity the region's tropical ecosystems, as well as maintaining and permitting the continuity of natural cycles and processes
- o Conserve rare, endemic, and endangered species and genetic material
- o Protect forest cover and the Grijalva system watershed to prevent erosion and loss of soils
- o Maintain climatic stability of the region
- o Promote the development of local communities of the region, based on the sustainable use of soils and natural resources
- o Promote environmental education, understanding, and interpretation of nature for local communities and the general public
- o Preserve archeological sites
- o Provide opportunities for scientific research and monitoring

El Ocote Evaluation Form

Is there an NGO/GO agreement to work on this PIP site?

yes no on file at TNC

There is an "understanding" between the two but as yet there is no formal agreement.

Is the TNC/NGO agreement up to date?

yes no on file at TNC

IHN is in the process of incorporating the Patronato into their agreement. This will be in effect 10/93

Is the PIP Work Plan and Budget up to date?

yes no on file at TNC

FY 93 Work Plan and Budget are up to date.

Work Plan for 1993-94 has been written. Restructuring Budget for 1994 to make it compatible with Work Plan. Waiting for meeting with Jennifer Shopland in August to finalize budget.

Name of evaluator: Jerry Touval

Address: 10010 Columbine St.

Great Falls, VA 22066

Phone: (703) 759-4787

Fax: (703) 759-4787

El Ocote Evaluation Form

PERFORMANCE INDICATORS:

I. ON-SITE PROTECTION AND MANAGEMENT

A. Have the ecological values of the area been identified?

yes no

size (hectares): 48,140 hectares

key ecosystems:

Tropical Rain Forest, Lower Montane Rain Forest, and Evergreen Seasonal Forest

key processes:

Rainwater Capture from "nortes." Geological formations result in subterranean aquifer caverns and feed into second largest dam in Chiapas (Presa Malpaso)

endemic species:

No endemic species were identified in the Environmental Impact Study IHN conducted for routing a highway through the Reserve.

threatened species:

Spider monkey, howler monkey, jaguar, margay, rainforest brocket deer, king vulture, unverified reports of harpy eagle. Also great diversity in vegetation

migratory species:

El Ocote is not considered important for migratory species

El Ocote Evaluation Form

B. Have critical threats been located on a map?

yes no

- type:
1. Encroaching agriculture
 2. In south, highlands area may actually belong to ejido. IHN is doing a survey to see if lands are Federal or belong to Colonia Emilio Rabasa. If lands found to belong to ejido, this would make community development projects even more critical for Reserve's conservation. Hopefully it will not take more than a year to figure out land ownership.
 3. Wildlife Poaching - agouti and peccary mostly in the northern areas
 4. Possibly illegal marijuana cultivation in some areas

source: Local population

significance: No information

C. Are critical boundaries surveyed and posted?

yes no

Most signs are posted in southern part of the Reserve including boundary signs and informational signs. In northern part, signs delimiting area are posted. In all, 72 signs have been posted.

of kilometers demarcated: 60 km

D. Are rangers trained and equipped?

yes no

Provided with field equipment: backpacks, sleeping bags, raincoats, flashlights, boots, canteens. Get new equipment every 2 years

of rangers on-site: 5

type of training received:

1. Course on fire-fighting and fire prevention: Nov 1992 attended by Chief of Operations. Purpose was to train trainers. Chief of Operations designed course for rangers - held early 1993. Also designed similar course for community members.
2. Held climate monitoring workshop - also given by Chief of Operations for 5 rangers (2 years ago)

El Ocote Evaluation Form

E. Does the personnel have transport and communications equipment?

yes no

and type:

2 vehicles: 1 4-wheel drive Jeep and a 3-ton truck
4 beasts of burden
3 walkie-talkies
1 mobile radio

F. Have basic protection facilities been constructed on-site?

yes no

location: Campamento Rabasa in southeastern section of Reserve

type and square meters size of facilities: About 300 sq meters

G. Does the area have continuous field logistical support?

yes no

type of NGO support: Administrative and financial

type of GO support:

Rangers spend 20 days in the field with 10 days rest
Technical personnel spend 10 days in the field

H. Are ecological carrying capacity studies, baselines and monitoring underway?

yes no

Now starting - will begin with formal initiation of monitoring program

type of study:

Baseline studies (natural resource inventories) have been carried out which will serve as a reference point for the monitoring program. Will use this information to measure changes.

I. Has a Management Plan been completed for the area?

yes no

year of publication:

El Ocote Evaluation Form

J. Are Annual Operations Plans and Budgets completed?

yes x no

Used in place of Management Plans. 1993-94 Operations Plan is complete and has been approved. In process of negotiating budget and awaiting visit of Jennifer Shopland in August.

El Ocote Evaluation Form

PERFORMANCE INDICATORS:

II. COMPATIBLE RESOURCE USE:

A. Have key social and economic values of the protected area been identified?

yes no

key values:

Many communities existed before the creation of the Reserve. IHN wants to incorporate their needs into management of the Reserve. Important values are land uses for agriculture and cattle grazing. Also important for water capture for hydroelectric production.

B. Have basic human needs of local communities been satisfied (ie.,health,safety,welfare,etc.)?

yes no

key issues:

Deficiencies in local communities in health, nutrition, education, availability of potable water, and availability of electricity. Some of the communities only speak native dialects and no Spanish, making communication difficult in assessment of community needs.

C. Is there direct community and resource user participation in resource management and allocation decisions?

yes no

Ejidos make majority of land use decisions. As newcomers arrive, ejidos determine allocation of uses for them.

key formal mechanisms:

Monthly ejido assemblies. IHN participates occasionally.

D. Is the land tenure in the area stable?

yes no

land tenure system:

60% Federal lands, 40% ejidal and small landowners (Besides Colonia Rabasa, El Pedregal to west and some areas to north have questions regarding land ownership)

El Ocote Evaluation Form

Is local partner protecting land through acquisition?

yes ___ no x ___

Looking for funds for conservation "easements" (my word, not theirs) and would give honoraria to landowners in exchange for not expanding area of cultivation (about 300 hectares). Also, looking to expand Reserve via decree by about 25,000 ha - would all be considered nuclear zones

size and location (core/buffer):

E. Are there diverse agricultural and natural resource uses within the carrying capacity of the protected area buffer zone?

yes x ___ no ___

principal land/resource uses:

Corn, beans, cattle grazing, coffee, fruit trees

F. Are local people employed by PIP project funds?

yes ___ no x ___

of men ___

types of positions:

of women ___

types of positions:

Planning on employing local residents to do construction of new campamento - would contract 3 people

El Ocote Evaluation Form

PERFORMANCE INDICATORS:

III. LONG-TERM FINANCIAL SECURITY

A. Have the long-term financial needs of the protected area been identified?
yes no

Have not been summarized in a formal document. Identified operational necessities, maintenance of infrastructure, personnel needs. Plan to formalize long-term financial needs during 1994 for inclusion in next action plan.

categories and projected budget: No information

title and year of document: N/A

B. Are there local revenues that support the protected area?
yes no

type of support and estimated annual US\$ dollar revenue to area:

C. Are there national budget allocations that support the protected area?
yes no

State support is provided to IHN for general activities but is not specifically earmarked for El Ocote.

Possibility of support from SARH for infrastructure and equipment (vehicles). In process of negotiation.

Have also been talking with SEDESOL about funding possibilities.

type of support and estimated annual US\$ dollar amount:

D. Are there international funds that support the protected area?
yes no

type of support and estimated annual US\$ dollar amount:

TNC: Have received \$83,890 to date this fiscal year
WWF: Info not available

El Ocote Evaluation Form

E. Has a Financial Plan been approved for the protected area?

yes ___ no x ___

There is no overall financial plan - do plans according to their donors. Use existing categories as required by their donor organizations.

categories and projected budget:

sources of funds:

title and year of document:

F. Is an fiscally responsible administrative system in place to manage the funds?

yes x ___ no ___

external audit at TNC? yes ___ no ___

Audit by AID done in 1992. Have not yet done an external audit - one needs to be done in 1993.

G. Are financial resource committed to operations of the area?

yes x ___ no ___

Government funds: 30,000 nuevos pesos for personnel support in central office of DAN, per diem, office supplies, gasoline, and logistical support

categories and projected budget: No information

El Ocote Evaluation Form

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

I. ON-SITE PROTECTION AND MANAGEMENT:

A. Has there been a change in the natural vegetation or land cover?

yes no no information

Have been changes. Measurements will be quantified by the Programa Vegetación y Uso de Suelo. Will be measured against 1990-91 highway EIS, also done by IHN and by comparing to aerial photos dating back to 1972

how was this change measured? No formal measurements

cite source(s): Informal observations

B. Has there been a change in the distribution, abundance or status of key species?

yes no no information

Waiting to implement monitoring program. Can look back for qualitative assessments to early work done by Miguel Alvarez del Toro.

how was this change measured?

cite source(s):

C. Has there been a change in water quantity or quality?

yes no no information

By anecdotal observation have been decreasing quantities of water in all the Reserve.

how was this change measured?

cite source(s):

El Ocote Evaluation Form

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

II. COMPATIBLE RESOURCE USE:

A. Have there been changes in the pattern or intensity of land or natural resource use?

yes ___ no ___ no information x ___

Beginning to analyze data now. Agriculture is encroaching - have done qualitative assessments of encroachment.

how were these changes measured?

cite source(s):

B. Have there been changes in the social or economic conditions of local residents?

yes ___ no ___ no information x ___

Have baseline information to begin monitoring these changes as a result of completion of Community Profiles in 19 communities

how were these changes measured?

cite source(s):

C. Have there been changes in the policies or institutions?

yes x ___ no ___ no information ___

how were these changes measured? N/A

cite source(s): N/A

Previously, all Federal protected areas were managed by SEDUE. Now, Parques Nacionales and Zonas Protectoras Forestales are managed by SARH (since 1992), and Reservas de la Biosfera and Reservas Ecologicas are managed by SEDESOL.

The State Secretaria de Desarrollo Rural has incorporated a Dirección de Ecología within the past 1.5 years.

IHN had a convenio with SEDUE/SEDESOL and is now negotiating new convenio with SARH. Have good relations with the local delegation and are almost 100% certain that SARH will approve the convenio.

El Ocote Evaluation Form

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

III. LONG-TERM FINANCIAL SECURITY:

A. Has a trust fund or endowment been established for the protected area?

yes ___ no x ___

Have to do a study to determine best alternatives. Are in the process of doing one for El Triunfo and will use that as the model - El Triunfo has to be completed next year. Expect TNC will provide them with advice.

type:

principal and annual dividend:

B. Are there diverse sources of funds/revenues for the area?

yes ___ no x ___

type and amount:

sources:

PiP (TNC/AID)
WWF
Possibly from SARH
Possibility of getting State funding.

Right now, entire budget comes from TNC and WWF. All IHN funds go to central office functions, no funds specifically earmarked for the Reserve.

PARKS IN PERIL 1993 PROGRAM EVALUATION REPORT:

EL TRIUNFO BIOSPHERE RESERVE

SUBMITTED TO:

**The Nature Conservancy
1815 North Lynn St.
Arlington, VA 22209.**

PREPARED BY:

**Jerome Touval
10010 Columbine St.
Great Falls, VA 22066**

**Telephone: 703-759-4787
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August 20, 1993

I. INTRODUCTION

El Triunfo Biosphere Reserve is a 119,177 hectare Federally-protected area located in the State of Chiapas, in southeastern Mexico. It is situated in the physiographic region known as the Sierra Madre de Chiapas, the continental divide. The Reserve's altitude varies from 450 to 2,450 meters above sea level. Because of this altitudinal fluctuation, El Triunfo encompasses 10 vegetation types reported for Chiapas in Breedlove 1981, including: Montane Rain Forest, Lower Montane Rain Forest, Tropical Deciduous Forest, Evergreen Cloud Scrub, Evergreen Cloud Forest, Evergreen Seasonal Forest, Pine-Oak-Liquidambar Forest, Pine-Oak Forest, Temperate Riparian Forest, and Second Growth Successional Forest.

El Triunfo is ecologically and economically significant because of its role in the region's hydrologic cycle. A large portion of the Sierra Madre de Chiapas watershed is contained within the boundaries of the Reserve. This watershed captures 10% of all the rain that falls in Mexico, supplying water to the principal agricultural regions of Chiapas and emptying into marine estuaries on the Pacific side of the Reserve. The Rio Grijalva, which originates in the Reserve, produces 60% of Mexico's hydroelectric energy.

El Triunfo provides habitat for a diverse faunal resource, including 10 species of amphibians, 58 species of reptiles, 82 species of mammals, and 378 species of birds. Among these are such rare and endangered species as jaguar, tapir, spider monkey, resplendent quetzal, azure-rumped tanager, king vulture, and horned guan.

El Triunfo received official protection in 1972 when it was designated a 10,000 hectare State ecological reserve. In 1990, a Federal decree declared El Triunfo a Biosphere Reserve. Through this decree, the Reserve was expanded to its current size of 119,177 hectares. El Triunfo is managed by the Instituto de Historia Natural (IHN), a semi-autonomous agency of the State government of Chiapas.

As a Biosphere Reserve, El Triunfo is zoned into two types of use areas: nuclear zones and buffer zones. The Reserve's nuclear zones are composed of five noncontiguous Federally-owned parcels comprising 25,761 hectares. The buffer zones of the Reserve encompass 93,416 hectares. These buffer areas include private property and ejidal lands. The primary buffer zone activities are commercial coffee production and subsistence farming of corn and beans.

The principal threats to El Triunfo are illegal colonization of the Reserve's nuclear zones by Mexican nationals and Guatemalan refugees; illegal harvesting of trees for commercial purposes; clearing lands for human settlements and agricultural fields; illegal hunting within the nuclear zones, and construction of roads for logging and other purposes.

The Parks in Peril evaluation was conducted by Jerome Touval, External Consultant for The Nature Conservancy. Interviews were conducted with TNC Mexico Program staff in Tucson, AZ during July 18-20, with Parks in Peril staff at TNC Headquarters in Arlington, VA on July 22, and with IHN Central Office and El Triunfo staff at the Reserve's headquarters in Jaltenango from July 30 - 31. A site visit to the Reserve itself was not considered necessary because of time constraints and because of the

evaluator's first-hand knowledge of El Triunfo.

Individuals interviewed for this evaluation:

TNC

Susan Anderson
Jennifer Shopland
Monica Ostria

IHN

Carlos Pizaña, Chief Department of Natural Areas
Ricardo Hernandez, Director El Triunfo Research/Monitoring Program
Maria de Lourdes Avila de Hernandez, Quetzal Project Researcher
Carlos Tejada, Coordinator of Sierra Madre Bioreserve Project
Ana Laura Aranda, Analyst Dept. of Natural Areas Planning Office
Jose Hernandez, Director El Triunfo Biosphere Reserve
Roberto Escalante, Chief Operations and Management Program
Ismael Galvez, Park Guard Coordinator
Martin Castillo, Chief Environmental Education
Uriel Trujillo, Chief Community Development

II. TECHNICAL EVALUATION

A. Achievements

Under the Reserve's Operations and Management Program, four new park guards were hired during the past year, bringing the total number of guards to nine. As a result of this increased patrolling capacity, IHN now has a year-round park guard presence in Nuclear Zones I and III, in part of Zone V, and in part of Zone IV, as well as in the surrounding buffer zones. Previously, there had only been a constant IHN presence in Nuclear Zones I and III. In addition, the Operations and Management Program conducted overflights in the Reserve to evaluate forest fires and to detect poachers.

El Triunfo conducted an exchange program in cooperation with Sierra de las Minas Reserve in Guatemala. Although this exchange was primarily oriented towards El Triunfo's Quetzal Research Project, it also dealt with enforcement activities and involved an exchange of ideas between park guards from both Reserves.

IHN personnel are conducting a study in the southeastern section of El Triunfo to determine if a sixth nuclear zone should be added to the Reserve. The entire study area is 15,000 ha. It is anticipated that the new nuclear zone would be approximately 5,300 ha.

The Reserve's Monitoring Project is proceeding well. Global objectives for the

monitoring program have been set, 12 monitoring projects defined, and directors named for 11 of these projects.

Infrastructure for visitor accommodations was improved at the Palo Gordo campamento. One tour group (Save the Rainforests) was able to overnight at Palo Gordo during July.

The Environmental Education program has established a presence throughout the Reserve. Environmental "events" conducted by personnel from this program established new contacts in the northwestern section of the Reserve. Previously, the only contacts with communities in this area had been via park guard patrols. Additionally, the preparation of radio spots about the Reserve to be broadcast throughout the local area have been developed under this program. Scripts for the spots were written, but actual recording still needs to be done.

B. Limitations

Unsettled land ownership patterns are creating a problem in the northwestern section of the Reserve. Settlements are encroaching into Nuclear Zone V, and new migrants are also moving close to Nuclear Zone IV. Other ownership conflicts are resulting from the extension of ejido-claimed lands into Nuclear Zone I.

In order to effectively implement the monitoring program planned for the Reserve, there is a need for training those who will carry out monitoring activities. Most of the people working on the monitoring program are biologists or agronomists with a Licenciatura-level degree. The monitoring program calls for specific activities that require specialized training. There is a need for training at all levels: administrative, central office, and field personnel.

Monitoring may also be hampered by the lack of recent aerial photos for the El Triunfo area. The most recent photos available to Reserve personnel are from 1979. Obviously, this prevents a detailed and quantitative assessment of changes in land use patterns and vegetative cover.

There is soon likely to be a need for a bigger office space in Jaltenango. The staff is beginning to outgrow the available space in the existing office.

Park guards are called upon to do a number of activities outside their usual scope of duties, such as caring for pack animals, maintaining trails, providing building maintenance, assisting tourists, and acting as nature guides. This results in their being sidetracked from the principal activities they are supposed to be performing.

The Secretaria de Agricultura y Recursos Hidráulicos (SARH) ceded control for issuing controlled burn permits and passed this responsibility on to local municipalities. These municipalities are less equipped than SARH to deal with regulating burns, with the result that it is harder within the El Triunfo area to control burns now. As a consequence of this, 6,000 ha burned in eastern part of the

Reserve near Zone V and 1,100 ha in Nuclear Zone V.

Despite the increased presence of the Environmental Education program within El Triunfo, this presence is not constant and does not include any follow-up activities for communities that have held environmental events.

In the past, El Triunfo received economic support from PACONAT, a local non-profit organization. PACONAT has been restructured, and the future of the organization is unsettled. According to Reserve personnel, there is not much going on between El Triunfo and PACONAT at this time. PACONAT had been providing support for one environmental promoter, but lack of funds has precluded that support.

Perhaps the most significant limiting factor to the effectiveness of IHN's management strategy for El Triunfo is the socioeconomic condition of communities in the area. The level of health care, nutrition, education, and sanitation of communities within the Reserve is low. This likely keeps the Reserve's conservation and extension programs from being fully effective.

C. Recommendations

1. TNC should encourage IHN to establish a formal relationship with a local university in order to guide the formulation of applied research projects that would fulfill the conservation information needs of El Triunfo. This would also provide relevant applied research and conservation training for Licenciatura level students.
2. TNC should designate Parks in Peril funds to provide support for IHN to develop a maintenance plant and to sub-contract maintenance work to local people. This would have the double benefit of freeing park guards to do their jobs without having to engage in distracting ancillary activities, and would provide economic benefits for local communities.
3. TNC support should be provided to establish a permanent presence (such as a campamento) in Zone V and Zone II, thereby making patrols more effective. Local people would have more respect for Reserve conservation and park guards' objectives with the establishment of a constant presence in these areas.
4. TNC should arrange for the acquisition of recent aerial photography to assist in development of monitoring activities at El Triunfo.
5. During the site visit to Jaltenango, El Triunfo personnel expressed the need for a larger regional office with sleeping quarters, another pick-up truck, 4 more motorbikes, 2 additional environmental promoters, and 4 more park guards. TNC should conduct an analysis in conjunction with IHN Central Office and Reserve personnel to rank these needs in priority order and provide support as necessary.

PARKS IN PERIL PROGRAM
1993 EVALUATION FORM

PROTECTED AREA NAME: El Triunfo Biosphere Reserve

GENERAL INFORMATION:

Country: Mexico

NGO Partner: Patronato del Instituto de Historia Natural

Address: 3ra Sur Poniente 1631, Tuxtla Gutierrez, Chiapas

PIP project officer: Prof. Miguel Pavia

Government agency: Instituto de Historia Natural

Address: Capilla de La Naturaleza
Av. de los Hombres Ilustres S/N
Tuxtla Gutiérrez, Chiapas

PIP project officer: Prof. Miguel Alvarez del Toro

Conservation objectives of protected area: ,

- o Conserve in perpetuity representative samples of ecosystems of the Sierra Madre de Chiapas, particularly cloud forest
- o Permit the continuity of natural ecological processes and natural evolution
- o Maintain genetic diversity
- o Protect, manage, and improve watersheds to assure the capture and flow of water
- o Provide means and opportunities for research and studies that permit an increase in biological knowledge
- o Promote development of local communities by means of sustainable and rational use of resources
- o Provide means and opportunities for development of environmental education and interpretation activities
- o Provide opportunities for recreation and ecotourism

El Triunfo Evaluation Form

Is there an NGO/GO agreement to work on this PIP site?

yes no on file at TNC ?

Is the TNC/NGO agreement up to date?

yes no on file at TNC No Old agreement is on file

Is the PIP Work Plan and Budget up to date?

yes no on file at TNC

FY 93 Work Plan and Budget are up to date

Awaiting arrival of Jennifer Shopland to update PIP Work Plan for
1994

Name of evaluator: Jerry Touval

Address: 10010 Columbine St.
Great Falls, VA 22066

Phone: (703) 759-4787

Fax: (703) 759-4787

El Triunfo Evaluation Form

PERFORMANCE INDICATORS:

I. ON-SITE PROTECTION AND MANAGEMENT

A. Have the ecological values of the area been identified?

yes no

size (hectares): 119, 177 ha

key ecosystems:

Largest remnant of cloud forest in Mexico

key processes:

1. Water capture (Hydrologic processes)

endemic species:

Azure-rumped tanager, *Abronia matudi*, *Bothriechis ornatus*
(*Nauyaca verde*)

threatened species:

Quetzal, horned guan, jaguar, tapir, spider monkey, puma

migratory species:

Studies underway to determine importance of area for migratory species

B. Have critical threats been located on a map?

yes no

type:

Land clearing, encroaching agriculture, illegal timber cutting,
forest fires, marijuana cultivation

source: Local population

significance: No information

El Triunfo Evaluation Form

C. Are critical boundaries surveyed and posted?

yes no

In progress - The most critical areas are also the most difficult to survey

of kilometers demarcated:

66 km (Additionally, large signs posted at principal access points)

D. Are rangers trained and equipped?

yes no

of rangers on-site: 9

type of training received:

Annual park guard course given by IHN
Forest fire suppression training session

E. Does the personnel have transport and communications equipment?

yes no

and type:

Transport: 2 pick-ups, 3 three-wheel motorcycles, 3 four-wheel motorcycles, 7 mules

Communications: Base radio communication stations at Jaltenango and Campamento El Triunfo, walkie talkies for rangers

F. Have basic protection facilities been constructed on-site?

yes no

location:

Campamento El Triunfo (Base camp, kitchen, housing for guards)
Campamento Palo Gordo (Rustic cabin)
Campamento Quetzal (Semi-rustic facilities)

type and square meters size of facilities: No information

G. Does the area have continuous field logistical support?

yes no

type of NGO support: Administrative and financial

type of GO support: Rangers spend 20 days in the field with 10 days rest

El Triunfo Evaluation Form

H. Are ecological carrying capacity studies, baselines and monitoring underway?

yes no

type of study:

Ecotourism carrying capacity and feasibility study completed 1993
Monitoring study planned for next year

I. Has a Management Plan been completed for the area?

yes no

In progress: Working on a 5-year plan due to go into effect January 1, 1994. Need to do a bit more coordination with TNC on it.

year of publication:

J. Are Annual Operations Plans and Budgets completed?

yes no

1993-1994 Operations Plan completed
In process of doing updated budget - waiting for Jennifer Shopland's arrival to complete it.

El Triunfo Evaluation Form

PERFORMANCE INDICATORS:

II. COMPATIBLE RESOURCE USE:

A. Have key social and economic values of the protected area been identified?

yes no

key values:

Water capture, biodiversity conservation, coffee production, agroforestry

B. Have basic human needs of local communities been satisfied (ie., health, safety, welfare, etc.)?

yes no

key issues:

Deficient health care, education, sanitation, medical care, basic social services, potable water, transportation infrastructure, and communication

C. Is there direct community and resource user participation in resource management and allocation decisions?

yes no

Very little to none. There is some local participation at the regional level

key formal mechanisms:

D. Is the land tenure in the area stable?

yes no

In process of trying to stabilize land tenure system

land tenure system:

25,000 ha are Federal lands and rest are ejidal and small landowners

Is local partner protecting land through acquisition?

yes no

size and location (core/buffer):

El Triunfo Evaluation Form

E. Are there diverse agricultural and natural resource uses within the carrying capacity of the protected area buffer zone?

yes ___ no ___ no information x ___

There are diverse uses but Reserve staff can't say if the uses are within the carrying capacity of the buffer zones in the absence of appropriate studies

principal land/resource uses: Coffee cultivation, subsistence agriculture

F. Are local people employed by PIP project funds?

yes x no ___

of men 9
types of positions:

Chief of Program, Ranger Coordinator, 7 rangers

of women 2
types of positions:

Secretary and Environmental Promotor

Additional local people are contracted (short-term) to support ecotourism activities and in helping to get equipment to the Reserve

El Triunfo Evaluation Form

PERFORMANCE INDICATORS:

III. LONG-TERM FINANCIAL SECURITY

A. Have the long-term financial needs of the protected area been identified?

yes no

IHN wrote a proposal in 1992 to create a trust fund using lottery funds for their conservation activities. In the document they stated how they wanted to grow and by how much. This document was prepared for all Reserves. Also contained information on how much would be required to maintain activities at the desired level of growth. Can't find the entire report now - just bits and pieces

categories and projected budget: No information

title and year of document: No information

B. Are there local revenues that support the protected area?

yes no

type of support and estimated annual US\$ dollar revenue to area:

\$400 (monthly) provided by a farm in the buffer zone to support an Environmental Promoter

C. Are there national budget allocations that support the protected area?

yes no

SEDESOL is applying for a \$2.5 million World Bank-GEF grant and some of that money would be used for protected areas in Chiapas

type of support and estimated annual US\$ dollar amount:

D. Are there international funds that support the protected area?

yes no

type of support and estimated annual US\$ dollar amount:

TNC: \$258,800 for FY 93

WWF: \$75,000/year for 3 years for Community Development (now in 2nd of the 3 years)

Also receive support from RARE Center for Tropical Conservation, Victor Emanuel Nature Tours, Save the Rainforests, and from ecotourists

El Triunfo Evaluation Form

E. Has a Financial Plan been approved for the protected area?

yes ___ no x ___

In planning stage under the Bioreserve Project

categories and projected budget:

sources of funds:

Would solicit local funds from local companies and from individual donors.

title and year of document:

F. Is an fiscally responsible administrative system in place to manage the funds?

yes x no ___

external audit at TNC? yes ___ no ___

Audit by AID done in 1992. Have not yet done an external audit - one needs to be done in 1993.

G. Are financial resource committed to operations of the area?

yes x no ___

Government funds: 30,000 nuevos pesos for personnel support in central office of DAN, per diem, office supplies, gasoline, and logistical support

categories and projected budget: No information

El Triunfo Evaluation Form

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

I. ON-SITE PROTECTION AND MANAGEMENT:

A. Has there been a change in the natural vegetation or land cover?

yes ___ no ___ no information x ___

Lack of access to aerial photos to make determination. Most recent photos are from 1979. Qualitative analysis indicates there have been changes, but sufficient information to make quantitative assessment is not available

how was this change measured?

cite source(s):

B. Has there been a change in the distribution, abundance or status of key species?

yes ___ no ___ no information x ___

Will begin to collect this information when monitoring program is initiated

how was this change measured?

cite source(s):

C. Has there been a change in water quantity or quality?

yes ___ no x ___ no information ___

No significant change has been noted. More information will be available with initiation of the monitoring program

how was this change measured? No formal measurements

cite source(s): Informal observations

El Triunfo Evaluation Form

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

II. COMPATIBLE RESOURCE USE:

A. Have there been changes in the pattern or intensity of land or natural resource use?

yes no no information

With the drop in coffee prices, some areas formerly dedicated to coffee cultivation are being converted to corn fields

how were these changes measured? No formal measurements

cite source(s): Observation

B. Have there been changes in the social or economic conditions of local residents?

yes no no information

Five years ago there used to be marijuana cultivation in the area and lots of money. Mexican army wiped out the marijuana fields and then coffee production became important. Coffee prices have dropped and now areas are being converted to corn. Now, lots of alcoholism within the area

how were these changes measured? No formal measurements

cite source(s): Informal observation

C. Have there been changes in the policies or institutions?

yes no no information

how were these changes measured? N/A

cite source(s): N/A

El Triunfo Evaluation Form

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

III. LONG-TERM FINANCIAL SECURITY:

A. Has a trust fund or endowment been established for the protected area?

yes ___ no x ___

Were looking to the lottery to provide a trust fund, but political changes in the state government precluded the possibility

type:

principal and annual dividend:

B. Are there diverse sources of funds/revenues for the area?

yes x no ___

type and amount: See below

sources:

Proposal to SEDESOL to use some of the \$2.5 million GEF grant (would be a 3 year grant)

TNC Bioreserve Project, if approved, may open avenues of international funding, as well as identify sources of local, state, and Mexican federal funding.

Possible collaboration between the University of Utah, Technologica de Monterrey, and SARH for a 1 year agriculture and forestry project for the Sierra Madre

Gov't of Chiapas contributing less than the 30% indicated in the Action Plan.

Will begin a dialogue with ANCON in Panama on their experience in raising local funds

Ecotourism is generating some funds but they don't have exact figures

PARKS IN PERIL 1993 PROGRAM EVALUATION REPORT:

LA ENCRUCIJADA ECOLOGICAL RESERVE

SUBMITTED TO:

The Nature Conservancy
1815 North Lynn St.
Arlington, VA 22209

PREPARED BY:

Jerome Touval
10010 Columbine St.
Great Falls, VA 22066

Telephone: 703-759-4787
Fax: 703-759-4787

August 20, 1993

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I. INTRODUCTION

La Encrucijada is a 2,000 hectare ecological reserve located along the Pacific Coastal Plain in the southeastern portion of the State of Chiapas. It is managed by the Instituto de Historia Natural (IHN) and was first declared a State protected area in 1972. IHN is conducting studies on an additional 134,000 hectares adjacent to the current Reserve with the hope this will lead to La Encrucijada's designation as a Federally-protected area and will result in an enlargement of the Reserve to 80,000 hectares.

As a coastal wetland, La Encrucijada is characterized by its mangrove stands (red mangrove, white mangrove, yellow mangrove, black mangrove, and buttonwood) as well as its stands of cattail marshes and water sapote. In addition, Evergreen Seasonal Forest, and Swamp and Lowland Riparian Forest (as described in Breedlove 1981) are also found within the Reserve. The Reserve's mangrove stands are the tallest in North America.

Some of the wildlife species of interest found within the Reserve include the pejelagarto, caiman, and American crocodile. Four species of sea turtles have been recorded in the Reserve: leatherback, green turtle, hawksbill, and olive ridley. La Encrucijada provides habitat for migrating waterfowl, pelicans, water birds, and shore birds. Mammals found in the Reserve include jaguar, spider monkey, ocelot, and jaguarundi.

La Encrucijada is truly a "park in peril." The most significant threat facing the Reserve comes from the "Chiapas Coast Hydraulic Program" being implemented by the National Water Commission (CNA) and financed by the World Bank via Loan 2526-ME. Under this project, 350 kilometers of dikes and related structures will be constructed. This will divert the usual freshwater flow to the Reserve's lagoons from the Sierra Madre de Chiapas. Instead of arriving at the Reserve, this freshwater will be delivered to agricultural areas outside La Encrucijada. The completion of this project would likely spell the death of La Encrucijada as a protected area of any ecological significance. Proof of this can be found in a coastal wetland area north of the Reserve where CNA implemented a similar project with World Bank funding. According to La Encrucijada personnel, the rise in salinity that resulted from the fresh water diversion left behind a devastated mangrove stand.

Other threats facing the Reserve include the conversion of forested areas, mangroves, and cattail marshes for the establishment of grazing and agricultural areas; illegal timber harvesting for construction material and firewood; wildlife poaching including illegal harvest of sea turtles and iguana; contamination of canals and coastal lagoons by organic and inorganic waste materials; a significant increase in shrimp farming in 6 municipalities along the Pacific coast; and land ownership conflicts.

The Parks in Peril evaluation was conducted by Jerome Touval, External Consultant for The Nature Conservancy. Interviews were conducted with TNC Mexico Program staff in Tucson, AZ during July 18-20, with Parks in Peril staff at TNC Headquarters in Arlington, VA on July 22, and with IHN Central Office and La Encrucijada staff

members at the Reserve's office in Tapachula from August 1 - 4. A site visit to the Reserve was conducted on August 2.

Individuals interviewed for this evaluation:

TNC

Susan Anderson
Jennifer Shopland
Monica Ostria

IHN

Carlos Pizaña, Chief Department of Natural Areas
Alejandro Hernandez, Director of Planning, Dept. of Natural Areas
Tomas Rodriguez, Director of Operations, Dept. of Natural Areas
Edmundo Reyes, La Encrucijada Reserve Manager
Valentin Rodriguez, Chief of Research and Monitoring
Gladis P. de los Santos, Chief of Public Use Program
Ruth Jiménez C., Environmental Promoter
Joel Escobar O., Environmental Promoter
Alejandro López P., Chief of Operations Program
José Jacobo Nuñez, Park Guard

II. TECHNICAL EVALUATION

A. Achievements

During the past year, the Operations Program focused on developing an understanding of La Encrucijada's problems and identifying the Reserve's most critical areas. Fixed patrol routes were established within the area. Authorization was received from the IHN Central Office to add a fourth park guard position.

Installation of signs in critical areas of the Reserve was begun. To date, nine signs have been posted, and a total of 27 are planned for installation by the end of 1993.

A site was selected for a second park guard station, which will be located in the fishing village of Las Garzas, the main access point to the Reserve. Operations staff also began analysis for the selection of a third guard station site.

Reserve staff developed a global plan for the resource monitoring program scheduled to begin soon. In conjunction with this, a form was developed so that park guards can begin collecting systematic wildlife inventory data in the field.

The Research Program completed three studies: a socioeconomic study, a land ownership survey, and a resource inventory. A series of maps were produced using CAMRIS GIS software. Included were maps delineating local municipalities,

vegetation cover and soil use, land ownership patterns, hydrologic zones, soil types, archeological sites, population centers, cattle grazing areas, fishing cooperatives, and public services and utilities.

The Public Use Program developed a questionnaire to determine how to best make contact with local communities. The purpose of the questionnaire was to ascertain the most effective media outlets for reaching people in these communities. As a result of the information obtained from the questionnaire, environmental "events" were conducted in four communities chosen because of their potential environmental impact upon the area.

Environmental promoters visited 22 of the 64 communities within the study area (i.e., the area proposed for enlargement of the Reserve). Socioeconomic profiles were developed for four of the study area's principal communities.

The Public Use Program also developed an audiovisual presentation and a brochure describing the Reserve and its importance. Environmental and conservation oriented messages were published in a Tapachula newspaper.

The Reserve's staff worked with local communities in an attempt to unite against the Chiapas Coast Hydraulic Program. Although their efforts did not result in any modification to the plan, it enabled the establishment of a strong bond with the community.

B. Limitations

La Encrucijada's staff has been unable to establish open dialogue with the National Water Commission about the hydrologic project. They described the atmosphere at CNA as "impenetrable."

The original decree that established the Reserve was poorly worded and did not specifically state the Reserve's geographical coordinates. As a result, there is no exact demarcation of the Reserve's current boundaries.

Implementation of the upcoming monitoring program will require specialized skills that are not represented by the Reserve's staff. There is a need to have better access to information sources. Tapachula's distance from IHN's Central Office in Tuxtla Gutiérrez makes it difficult to obtain relevant reference materials.

The Reserve's staff has only limited resources to fight fires. They are not getting needed cooperation from the Secretaria de Recursos Hidráulicos (SARH).

Because of the lack of high ground within the Reserve, the current communication system does not cover the entire area. There are "shadow areas" where radio signals are blocked. The lack of high ground also makes it difficult to establish geographic reference points within the Reserve. A Geographic Positioning System (GPS) would assist in overcoming this difficulty.

Although the Reserve's staff is developing a computer database to record wildlife observations within the area, they are doing so on pirated software without the benefit of manuals that are supplied with legal copies of database software. There is an obvious need for software training (or at least for the appropriate manuals) to fully take advantage of capabilities of the programs being used.

Prior to this year, the Reserve had been receiving some financial support from the Natural History Society of Soconuzco, a non-profit conservation organization. Most of the members of this Society are wealthy coffee growers, and coffee prices are down this year. As a result, the Society has been unable to provide La Encrucijada with funds.

C. Recommendations

1. TNC should immediately open a dialogue with the World Bank in Washington regarding the Chiapas Coast Hydraulic Program. There is no other single action that is so urgently needed to ensure the survival of the Reserve. The water diversion program should be halted immediately; at the very least, an environmental impact study should be implemented before any other progress is allowed to occur. According to Reserve personnel, an EIS for the project was conducted approximately 15 years ago. This document should be reviewed for accuracy and current relevance.
2. TNC should facilitate access by La Encrucijada staff to appropriate information sources, such as the CATIE information network.
3. TNC should conduct an analysis of the training needed to effectively implement the resource monitoring program.
4. TNC should consider providing the Reserve's Operations staff with GPS equipment.

PARKS IN PERIL PROGRAM
1993 EVALUATION FORM

PROTECTED AREA NAME: Reserve Ecological La Encrucijada

GENERAL INFORMATION:

Country: Mexico

NGO Partner: Patronato del Instituto de Historia Natural

Address: 3ra Sur Poniente 1631, Tuxtla Gutierrez, Chiapas

PIP project officer: Prof. Miguel Pavia

Government agency: Instituto de Historia Natural

Address: Capilla de La Naturaleza
Av. de los Hombres Ilustres S/N
Tuxtla Gutiérrez, Chiapas

PIP project officer: Prof. Miguel Alvarez del Toro

Conservation objectives of protected area: ' 1

- o Protect natural ecosystems, flora, and fauna included within the area of La Encrucijada
- o Conduct required technical studies to develop proposals to zone and re-categorize the Reserve
- o Develop a work plan with local communities through a strategy of approach and involvement, an environmental education program, and a plan for community development to promote conservation and sustainable use of resources in the region.

Is there an NGO/GO agreement to work on this PIP site?

yes no on file at TNC ?

Is the TNC/NGO agreement up to date?

yes no on file at TNC Old agreement is on file

La Encrucijada Evaluation Form

Is the PIP Work Plan and Budget up to date?
yes no on file at TNC

FY 93 Work Plan and Budget are up to date

Operational Plan for 1994 up to date
Starting on 1994 Budget

Name of evaluator: Jerry Touval
Address: 10010 Columbine St.
Great Falls, VA 22066

Phone: (703) 759-4787
Fax: (703) 759-4787

La Encrucijada Evaluation Form

PERFORMANCE INDICATORS:

I. ON-SITE PROTECTION AND MANAGEMENT

A. Have the ecological values of the area been identified?

yes no

size (hectares):

Currently 2,500 ha. Doing study on an additional 134,000 ha. In the process of determining how much of that additional area would be included in enlargement of the Reserve.

key ecosystems:

Mangroves, cattail marshes, and water-sapote stands

key processes:

- (1) Movement of water from highlands to the sea
- (2) Mangrove processes, e.g., nutrient production important for shrimp industry

endemic species: None

threatened species:

Jaguar, spider monkey, American crocodile, caiman, pejelagarto, leatherback sea turtle, green sea turtle, hawksbill sea turtle, and olive ridley sea turtle

migratory species:

Important area for migratory birds. In process of completing study in order to submit grant proposal to Partners in Flight/National Fish and Wildlife Foundation

B. Have critical threats been located on a map?

yes no

type:

Intentional setting of fires, poaching of wildlife and timber

source: Local population

significance: No information

La Encrucijada Evaluation Form

C. Are critical boundaries surveyed and posted?

yes ___ no x ___

Decree declaring creation of Reserve does not specifically state the Reserve's boundaries. No demarcation per se within the Reserve.

of kilometers demarcated: N/A

D. Are rangers trained and equipped?

yes x no ___

Equipment provided: backpacks, uniforms, machetes, flashlights, sleeping bags, boats, binoculars, compasses.

of rangers on-site: 4

type of training received:

Mostly on-the-job training provided by the Chief of Operations for the Reserve in use of equipment, boat operation, and the basics of ecology.

E. Does the personnel have transport and communications equipment?

yes x no ___

and type:

Transport: 1 pick up truck, 1 three-wheel motorbike, 2 four-wheel motorbikes, 1 dugout canoe, 2 motor boats (40 hp), 1 motor boat (15 hp).

Communication: 2 base radio stations (1 in main office, 1 in campamento), 1 mobile station in pick up, 5 walkie talkies

F. Have basic protection facilities been constructed on-site?

yes x no ___

location:

La Concepción campamento built by SEDUE

type and square meters size of facilities: No information

La Encrucijada Evaluation Form

G. Does the area have continuous field logistical support?

yes no

type of NGO support: Administrative and financial

type of GO support:

1 vigilante lives permanently in campamento. Others spend 20 days on-site with 10 days off per month.

H. Are ecological carrying capacity studies, baselines and monitoring underway?

yes no

type of study:

Waiting for initiation of Jennifer Shopland's monitoring project.

Studies conducted so far: Baseline studies on water bird censuses, general inventory of natural resources, photo interpretation study of vegetation cover, land ownership study, socioeconomic study in 34 communities, sea turtle study.

Initiating environmental impact study on human activities being conducted by UNAM students as thesis projects.

I. Has a Management Plan been completed for the area?

yes no

After completion of basic studies, will do zoning study and then will propose decree for enlargement of Reserve.

year of publication:

J. Are Annual Operations Plans and Budgets completed?

yes no

1994 Operations Plan is complete. In process of getting budget ready for 1994 to present to Jennifer Shopland in August.

La Encrucijada Evaluation Form

PERFORMANCE INDICATORS:

II. COMPATIBLE RESOURCE USE:

A. Have key social and economic values of the protected area been identified?

yes no

key values:

Shrimp production, agriculture, and cattle grazing

B. Have basic human needs of local communities been satisfied (ie., health, safety, welfare, etc.)?

yes no

key issues:

In the most important community in the area (La Palma) there is no potable water. There are clinics in some communities but they mostly have only first-aid facilities. Educational capacities are deficient.

C. Is there direct community and resource user participation in resource management and allocation decisions?

yes no

key formal mechanisms: Organized fishing cooperatives

D. Is the land tenure in the area stable?

yes no

land tenure system:

State decree declaring the Reserve left no question about land ownership within existing Reserve; however, 80% of the land in the area being studied for Reserve enlargement is under question by Reforma Agraria

Is local partner protecting land through acquisition?

yes no

size and location (core/buffer):

La Encrucijada Evaluation Form

E. Are there diverse agricultural and natural resource uses within the carrying capacity of the protected area buffer zone?

yes no

principal land/resource uses:

Shrimp production, agriculture, cattle grazing

F. Are local people employed by PIP project funds?

yes no

of men 4
types of positions:

3 park guards and 1 environmental promotor

of women
types of positions:

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La Encrucijada Evaluation Form

PERFORMANCE INDICATORS:

III. LONG-TERM FINANCIAL SECURITY

A. Have the long-term financial needs of the protected area been identified?

yes ___ no x ___

Needs have been identified on an informal basis.

categories and projected budget:

title and year of document:

B. Are there local revenues that support the protected area?

yes ___ no x ___

type of support and estimated annual US\$ dollar revenue to area:

C. Are there national budget allocations that support the protected area?

yes ___ no x ___

type of support and estimated annual US\$ dollar amount:

D. Are there international funds that support the protected area?

yes x no ___

type of support and estimated annual US\$ dollar amount:

TNC: \$250,000

FWS: \$ 48,000 for 3 years

E. Has a Financial Plan been approved for the protected area?

yes ___ no x ___

Have only prepared a budget for international funds

categories and projected budget:

sources of funds:

title and year of document:

F. Is an fiscally responsible administrative system in place to manage the funds?

yes x no ___

external audit at TNC? yes ___ no ___

La Encrucijada Evaluation Form

G. Are financial resource committed to operations of the area?

yes no

Government funds: 30,000 nuevos pesos for personnel support in central office of DAN, per diem, office supplies, gasoline, and logistical support

categories and projected budget: No information

La Encrucijada Evaluation Form

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

I. ON-SITE PROTECTION AND MANAGEMENT:

A. Has there been a change in the natural vegetation or land cover?

yes ___ no ___ no information x ___

Staff has been working in the Reserve for 2 years. Some changes have been observed but nothing has been quantitatively measured. Most recent aerial photos are from 1986.

how was this change measured?

cite source(s):

B. Has there been a change in the distribution, abundance or status of key species?

yes ___ no ___ no information x ___

Need more detailed information to make a determination

how was this change measured?

cite source(s):

C. Has there been a change in water quantity or quality?

yes ___ no ___ no information x ___

Observations indicate that there have been changes in quality. They are not able to say if there have been changes in quantity.

how was this change measured?

cite source(s):

La Encrucijada Evaluation Form

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

II. COMPATIBLE RESOURCE USE:

A. Have there been changes in the pattern or intensity of land or natural resource use?

yes ___ no ___ no information x ___

how were these changes measured?

cite source(s):

B. Have there been changes in the social or economic conditions of local residents?

yes ___ no ___ no information x ___

how were these changes measured?

cite source(s):

C. Have there been changes in the policies or institutions?

yes ___ no x ___ no information ___

how were these changes measured? N/A

cite source(s): N/A

La Encrucijada Evaluation Form

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

III. LONG-TERM FINANCIAL SECURITY:

A. Has a trust fund or endowment been established for the protected area?

yes ___ no x ___

type:

principal and annual dividend:

B. Are there diverse sources of funds/revenues for the area?

yes ___ no x ___

type and amount:

sources: TNC

PARKS IN PERIL 1993 PROGRAM EVALUATION REPORT:
INSTITUTO DE HISTORIA NATURAL CENTRAL OFFICE FUNCTIONS
AND
PATRONATO DEL INSTITUTO DE HISTORIA NATURAL DE CHIAPAS,A.C.

SUBMITTED TO:

The Nature Conservancy
1815 North Lynn St.
Arlington, VA 22209

PREPARED BY:

Jerome Touval
10010 Columbine St.
Great Falls, VA 22066

Telephone: 703-759-4787
Fax: 703-759-4787

August 20, 1993

I. INTRODUCTION

This report provides an evaluation of the Instituto de Historia Natural Central Office (IHN) and the Patronato del Instituto de Historia Natural de Chiapas, A.C. (Patronato) in terms of the technical, financial, and administrative achievements and limitations of these organizations during the past year. Unlike the other reports prepared for the 1993 Parks in Peril - Mexico Program evaluations which assess the technical aspects of specific reserves managed by IHN, this report considers the technical elements of Central Office functions and practices common to all three IHN reserves that receive TNC funding.

Since long-term financial planning is considered by IHN to be a Central Office responsibility and not a specific function of the individual reserves, an evaluation of the development and implementation of financial planning is presented in this report rather than in the separate technical reports that have been prepared for each of the three reserves.

Finally, the Patronato provides administrative support for all three of IHN's Parks in Peril-supported reserves. To avoid repetition, the achievements and limitations of the Patronato in providing support functions for these protected areas is presented in consolidated form in this report. Some items that are specific to the individual reserves are so indicated in the text.

The Parks in Peril evaluation was conducted by Jerome Touval, External Consultant for The Nature Conservancy. Interviews were conducted with TNC Mexico Program staff in Tucson, AZ during July 18-20, with Parks in Peril staff at TNC Headquarters in Arlington, VA on July 22, and with IHN Central Office and Patronato staff members from August 5 - 6.

Individuals interviewed for this evaluation:

TNC

Susan Anderson
Jennifer Shopland
Monica Ostria

IHN

Carlos Pizaña, Chief IHN Department of Natural Areas
Alejandro Hernandez, Director of Planning, Dept. of Natural Areas
Tomas Rodriguez, Director of Operations, Dept. of Natural Areas
Ana Meli Torres, Analyst Ecological Preservation Office
Ana Laura Aranda, Analyst Dept. of Natural Areas Planning Office
Ignacio Alvarez, Chief IHN Department of Planning
Miguel Pavia, Patronato President
Javier Cancino, Patronato Accountant
Victor Aquino, Patronato Parks in Peril Administrator

II. Technical Evaluation

1. Achievements

During the past year, the Department of Natural Areas (DAN) established monthly meetings of a leadership group known as the Grupo Planificador. This group consists of all DAN Office Chiefs, Reserve Directors, and IHN researchers assigned to work with the DAN. The purpose of these meetings is to discuss program necessities, problems, work plans, and support needs.

As a result of the 1992 Parks in Peril evaluation, the DAN Planning Office has developed two questionnaires. One questionnaire was designed to determine training needs of DAN employees by developing a training profile of each employee, including academic preparation, previous relevant training, and courses needed for effective performance of their duties. The second questionnaire is being distributed to Reserve personnel to evaluate management effectiveness within the reserves.

2. Limitations

There has recently been a change in the leadership of the Department of Natural Areas, as well as a change in the management team of El Triunfo Biosphere Reserve. This should not be considered a limitation as much as a period of adjustment to the new management style that will be instituted in the DAN. In the case of El Triunfo, the situation will probably not be entirely settled until a new Reserve Director and Monitoring/Research Program Director are named. It is anticipated that those appointments will be made soon and that the Reserve will continue to function as usual.

The decrees that created El Ocote and El Triunfo declared them as Federally protected areas. As such, these areas were originally the legal responsibility of the Federal agency charged with resource conservation, the Secretaria de Desarrollo Social, SEDESOL (formerly SEDUE). IHN, a State government agency, manages these reserves by agreement with the Federal government. In 1992, there was a fundamental change in the division of Federal responsibilities for protected area management. Previously, all Federal protected areas were managed by SEDUE/SEDESOL. Now, National Parks and Protected Forest Zones (such as El Ocote) are the responsibility of the Secretaria de Recursos Hidráulicos (SARH), while Biosphere Reserves and Ecological Reserves (including El Triunfo) still come under the jurisdiction of SEDESOL. IHN had a cooperative agreement with SEDUE/SEDESOL to manage both these areas, but these agreements have expired. IHN is in the process of negotiating a new agreement with SARH for the management of El Ocote. DAN personnel are fairly certain that this agreement soon will be approved. At present, no formal signed agreement is in effect with SEDESOL regarding the management of El Triunfo.

Some aspects of the administrative support provided by the Central Office are limited because of inadequate computer facilities. These facilities are limited because of electric surges and resultant equipment damage. About \$2,000 is needed

to recondition electrical wiring in the Central Office and set up a fully-functional computer center.

3. Recommendations

1. TNC should continue to provide support for DAN leadership and maintain close working relationships with the new administration of the Department.
2. IHN should ensure that all legal documentation and necessary cooperative agreements are completed in order to continue their management programs for the Federally protected reserves of El Ocote and El Triunfo. If possible, these procedures should be completed before President Salinas de Gortari leaves office in late 1994.
3. TNC should consider providing financial support to recondition the electrical wiring in a section of IHN's Central Office so that a functional and reliable computer center can be established.

III. Financial Evaluation

1. Achievements

As a result of the US-AID Global Climate Change Workshop held in San Cristóbal de las Casas, IHN will work with PRONATURA Peninsula Yucatan (PPY) to take advantage of PPY's experience in generating local funding for their projects. IHN also plans to contact non-governmental conservation organizations with experience in developing long-range financing, such as ANCON in Panama and Fundación Natura in Colombia.

TNC and IHN are discussing the possibility of implementing a 5-year strategic plan to promote comprehensive management and financial sustainability for a Sierra Madre de Chiapas Bioserve. Although the Bioserve Project would not automatically provide additional funding to IHN, it would allow both the TNC Mexico Program and IHN access to potential donors and could provide a framework for long-term financial planning for the Chiapas reserves. If successful in this respect, the Bioserve Project could serve as a step towards establishing financial self-sufficiency for IHN.

2. Limitations

Last year, IHN was in the process of developing an agreement with the State government so that a portion of funds raised through a State lottery would be provided to IHN to create a trust fund. Political changes in the State government have eliminated that possibility.

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There appears to be a general lack of long-range financial planning. Most financial plans are simply one- to three-year budgets submitted to international funding organizations. In connection with last year's plan to create a trust fund using lottery proceeds, IHN wrote a proposal in which they outlined how they wanted to grow programmatically over the long-term, and how much funding would be needed to achieve their goals. This document was prepared for all Reserves. It also contained information on how much would be required to maintain activities at the desired level of growth once it was attained. Apparently, IHN staff are unable to locate the entire report now; just bits and pieces of it can be found in the Central Office. In all fairness, this may only be a function of the recent changes in the DAN's administration, and could be more a reflection of the difficulties of growing into a new position rather than an actual loss of information.

The Host Country contribution as listed in the Budget section of the Parks in Peril Action Plans is somewhat confusing. The Action Plans indicate a Host Country contribution of \$24,900 for El Ocote and \$44,568 for El Triunfo (no Host Country contribution is listed for La Encrucijada). This is confusing because, according to IHN personnel, the Host Country contribution is used to support salaries, per diem, and supplies for IHN Central Office personnel and is not specifically designated for use in the two reserves as one would assume from reading the Budgets. However, subsequent discussions with TNC Mexico Program personnel indicated that since all DAN staff spend 100% of their time on reserve management, their salaries are directly related to the reserves and are legitimate host-country contributions to the individual reserve budgets. Although there has been some difficulty in the past determining the specifics of counterpart contributions, TNC staff is already addressing this issue by requiring greater precision in describing IHN Central Office staff and host country contributions in the FY 94 Parks in Peril Action Plans.

Only El Triunfo has developed what can be considered to be a diversified funding base (i.e., more than two funding sources). The budget for El Ocote is financed by TNC and World Wildlife Fund. La Encrucijada also receives funding from two sources: TNC and the U.S. Fish and Wildlife Service/North American Wetlands Conservation Council (NAWCC). Although the NAWCC component was originally intended to be a 3-year project, La Encrucijada has only received the first year of funding because of their tardiness in submitting required reports.

Perhaps exacerbating this lack of diversified funding is the loss of support from independent organizations that previously had been providing financial support for two of the Reserves. El Triunfo has not received support from PACONAT because of administrative changes within PACONAT. La Encrucijada has not received support from the Natural History Society of Soconuzco because of a drop in coffee prices and the resulting loss of income by the Society's members, most of whom are wealthy coffee growers.

Expenditure of TNC funds has not proceeded smoothly. For FY 93, El Ocote is \$12,000 in the red. IHN and the Patronato had to reprogram funds intended for La Encrucijada to keep El Ocote's projects going for the remainder of this year.

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The distance from Tapachula to Tuxtla Gutiérrez makes it difficult for La Encrucijada to execute required transactions in a timely manner. One example that was given during the evaluation was the requirement of getting two price quotes for purchases above \$500 to the Patronato's office.

3. Recommendations

1. TNC should develop a series of self-sufficiency and financial planning workshops. These could be organized by TNC fund-raising personnel who could share their experience, techniques, and insights so that IHN can plan and develop their own long-term self-sufficiency program.
2. TNC should promote and sponsor information exchanges and workshops between IHN and other TNC partner organizations that have achieved a degree of self-sufficiency, such as ANCON in Panama.
3. TNC and IHN should view the Bioreserve Project (if implemented) as a bridge to fostering greater self-sufficiency for IHN, and use the 5-year period to promote contacts with potential donors and provide self-sufficiency training opportunities as they arise.

IV. Administration Evaluation

1. Achievements

The composition of the Patronato's Executive Council changed in February 1993. The incoming Patronato president was not a DAN employee, as was the past president. This move was made in order to separate the Patronato's management of finances from the DAN's management of programs, to provide a more formal structure for the administration of funds managed by the Patronato, and to ensure a more comprehensive flow of information regarding project funding details.

In addition, the Patronato instituted a more formal procedure for fund requests from the reserves. Any funding requests coming from the field must be passed through the DAN to IHN's Director and then to the Patronato before any disbursements may be made.

The Patronato has hired a professional staff (an accountant and an administrator) trained in the management and regulation of non-profit funding organizations.

In compliance with Mexican law, the Patronato changed their official financial records from dollars to pesos.

A formal agreement with the State of Chiapas was executed which defines the relationship between IHN and the Patronato. Previously there only had been an informal verbal agreement between the State government and IHN that checks made

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out to IHN could be deposited into the Patronato's bank account.

The Patronato provides IHN with regular analyses of the status of Parks in Peril funds (at least once per month), creating a feedback loop of how fund disbursements are proceeding. IHN Central Office staff then verbally inform Reserve Directors of the status of their expenditures and remaining funds.

For the future, the Patronato plans to open a broader Board of Directors and invite participation by prominent people from Tuxtla Gutiérrez.

The Patronato has established contact with PRONATURA Peninsula Yucatan to discuss the possibility of receiving training in the custom-developed accounting software used by PPY. The Patronato has also established contact with the World Wildlife Fund office in Oaxaca for the purpose of exchanging ideas and methodologies regarding fund management.

2. Limitations

The restructuring of the Patronato took three months to complete. This resulted in delays of some fund disbursements. As an example, during the restructuring period per diem often did not arrive at reserves in a timely manner to facilitate field trips. This resulted in delays in field personnel getting to their sites. Some field personnel expressed a concern that this could have the effect of eroding community confidence in IHN programs.

Restructuring also resulted in a delay by the Patronato in requesting fund disbursements from TNC. As of early August, the Patronato had only requested the first trimester's disbursement from TNC. The first trimester TNC payment was received 5 months late because of unspent previous year's funds (i.e., because of the requirement to spend 80% of previously-requested funds before receiving a subsequent disbursement). This means that IHN has slightly more than 2 months to spend the remaining 75% of their FY-93 budget.

TNC requests for information related to fund disbursements have resulted in delays in receipt of funds by the Patronato. Because of the delay in receiving TNC funds, the Patronato only has enough money to cover salaries through August 15 and will not have any funds after that date. They expected to have money from their latest request by August 1, but payment was delayed because of an apparent misunderstanding between IHN and TNC regarding the required procedure for fund disbursements (i.e., that TNC always requires a schedule of itemized expenditures to accompany any disbursement request). This misunderstanding may have arisen because both the Patronato's President and the Chief of the Departamento de Areas Naturales were new to the fund disbursement process.

It should be noted that a formal agreement between the Patronato and TNC has not yet been executed.

TNC fund accounts for each reserve are being tracked separately by the Patronato via Quattro software, although Parks in Peril funds are all kept in a single account.

In a sense, the Patronato is still living in the shadow of FUNDAMAT. Some debts and unresolved issues are left over from the time before FUNDAMAT's responsibilities were passed on to the Patronato. Information on some expenditures prior to IHN's disassociation with FUNDAMAT is still missing. Additionally, 20-30% of the equipment purchased by FUNDAMAT with TNC funds is still unaccounted for (i.e., the equipment can not be traced via identifying property tags).

The current composition of the Patronato is largely made up of family members and could have the appearance of being somewhat inbred. This situation will be remedied when the current President steps down from his post in December. Although the Patronato's president is knowledgeable of the organization's activities and appears more than capable of performing the responsibilities of the position, the family association does not convey a favorable impression.

Mexican law states that the Patronato's administrative costs may not exceed 5% of the funds they administer. Because of this restriction the Patronato currently is unable to cover their operating expenses. At present, there are about 50 IHN employees who are paid via contracts with the Patronato. Funds used to support these contracts are included within the 5% administrative cost ceiling. The amount of funds used by the Patronato to pay contract employees, coupled with the Patronato's other administrative expenses, results in a total administrative cost that exceeds the allowable 5% ceiling. A reduction of 8 of these contract positions would allow the Patronato to meet their operating costs while staying within the 5%-of-funds-administered restriction.

Basic equipment for proper functioning of the Patronato is lacking. There is an obvious need for an upgraded computer (386-SX class or better), a fax machine, original software with manuals, training in the use of relevant software, and possibly a laser printer.

3. Recommendations

1. TNC and the Patronato should define in advance all information submissions that TNC requires for subsequent fund disbursements. This will serve to avoid unnecessary delays in disbursements and subsequent shortages of funds available to IHN for Parks in Peril program activities.
2. A formal agreement between the Patronato and TNC should be instituted as soon as possible.
3. TNC and the Patronato should conduct a complete assessment of the software and hardware needs required for the efficient operation of the Patronato.

V. SUMMARY RECOMMENDATIONS

1. Continue providing support to DAN leadership and maintain close relationships with the Department.
2. Ensure all cooperative agreements with SEDESOL and SARH are completed to guarantee continuity of IHN management programs at El Ocote and El Triunfo.
3. Consider providing financial support to recondition electrical wiring in IHN's Central Office for establishment of a computer center.
4. Develop self-sufficiency and financial planning workshops.
5. Promote information exchanges between IHN and self-sufficient TNC partner organizations, such as ANCON in Panama.
6. Consider the Bioreserve Project as a means of fostering financial self-sufficiency for IHN, and use the 5-year period to promote contacts with potential donors and provide self-sufficiency training opportunities as they arise.
7. Define in advance all information submissions required of Patronato by TNC.
8. Institute a formal agreement between the Patronato and TNC.
9. Conduct a complete assessment of Patronato's software and hardware needs.

PARKS IN PERIL 1993 PROGRAM EVALUATION REPORT:
RIA LAGARTOS/RIA CELESTUN SPECIAL RESERVES OF THE BIOSPHERE

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August 20, 1993

I. INTRODUCTION

Special Reserves of the Biosphere Ria Celestun (59,130 hectares) and Ria Lagartos (48,840 hectares) are Federally-designated estuarine wetland protected areas located along the Gulf Coast of the State of Yucatan. The Federal agency charged with management of these Reserves is the Secretaria de Desarrollo Social (SEDESOL). Logistical and financial support for SEDESOL's management activities is provided by PRONATURA Peninsula Yucatan (PPY) through TNC's Parks in Peril Program.

Characteristic vegetation of the area includes scrub forest, seasonally flooded marshlands, peten (hardwood hammocks), savannahs, mangrove swamps, cattail marshes, coastal lagoons, and coastline areas. Wildlife species found within the Reserves include jaguar, American crocodile, Morelet's crocodile, hawksbill and green sea turtles, ocelot, jaguarundi, and spider monkey. These Reserves provide breeding and wintering habitat for the only North American continental population of the Greater flamingo. Additionally, Ria Celestun is an important wintering ground for neotropical migrants. Over 70 species of shorebirds, ducks, and passerines either migrate through or spend the Northern Hemisphere's winter months at the Reserve. Ria Lagartos is considered to be a wetland of international importance, and was designated as such by the Mexican government through the Ramsar Convention.

The principal threats facing the conservation of Ria Lagartos are the encroachment of cattle grazing and the expansion of salt mining and production activities. The threats posed by the salt industry are likely to decrease in the near future, but this too will lead to an even greater threat: Of the 300 people currently employed by the salt industry in Las Coloradas, 200 will be laid off in the coming months. It is anticipated that this massive unemployment will place an even greater stress on the area's resource base as wildlife poaching and illegal timber cutting increase.

At Celestun, some areas within the Reserve are being considered for subdivision for the purpose of constructing summer homes. It was unclear how rapidly this construction process would proceed, if at all. Nevertheless, road construction is resulting in some loss of mangrove stands. Local communities are growing because of growing populations, and putting a strain on the available resource base.

Hurricane Gilbert generated ecosystem modifications in both Reserves. In the absence of human alteration, natural processes likely would have restored these areas to their former functionality, or perhaps to a different but equally vital functionality. Poorly-managed and unsustainable land-use practices make it harder for a degree of equilibrium to return to these systems.

Perhaps an even greater threat to the conservation of both Reserves is the apparent disinterest of SEDESOL in carrying out effective management programs. The Federal policy at Celestun appears to be one of utter neglect. Fortunately, the vacuum left by SEDESOL has been taken up by PPY. The PRONATURA Parks in Peril Coordinator is the de facto manager of Ria Celestun, and has gained the respect of the Reserve's employees.

Apparently, SEDESOL has taken a greater interest in the management of Ria Lagartos, and has obtained a 3-year/\$3 million dollar grant from the World Bank's Global Environmental Facility (GEF) designated for conservation activities at Ria Lagartos. SEDESOL's response to receiving this grant was to immediately expand the Reserve's staff from 8 to 24 contract positions. Although these people began working at the Reserve in late June, as of early August they still had not been paid or received other financial support from the Federal government. The GEF money appears to be mired in bureaucratic red-tape in SEDESOL's Mexico City headquarters. Ria Lagartos employees who had been working for SEDESOL before the recent work-force expansion have not been paid since late 1992. At both Ria Lagartos and Ria Celestun, PPY has provided support to SEDESOL personnel via "dispensas" (i.e., monthly packages of food, clothing, and other essential items).

The Parks in Peril evaluation was conducted by Jerome Touval, External Consultant for The Nature Conservancy. Interviews were conducted with TNC Mexico Program staff in Tucson, AZ during July 18-20, with Parks in Peril staff at TNC Headquarters in Arlington, VA on July 22, and in Mexico with PRONATURA staff at their Mérida headquarters and with Ria Lagartos and Ria Celestun staff members at Reserve offices in El Cuyo, Las Coloradas, Ria Lagartos, and Celestun from August 10 - 13. Site visits were conducted to both Reserves.

Individuals interviewed for this evaluation:

TNC

Joe Quiroz
Jennifer Shopland
Monica Ostria

PRONATURA

Luis Gonzalez, Director General
Federico Nava, Parks in Peril Program Coordinator
Armando Sastré, Chief Operations and Administration
Elvia Rodriguez, Researcher Sea Turtle Program

SEDESOL

Victor Alcantar Cardenas, SEDESOL Sub-Delegate
Wilam de Jesus Aguilar Cordero, Ria Lagartos Reserve Director
Leila Flores, Ria Lagartos Park Guard
Jorge Aguilar, Ria Celestun Reserve Director
Eliodoro Caamal, Ria Celestun Park Guard
Marcos Akae, Ria Celestun Park Guard

Also, 9 members of the newly hired Ria Lagartos research and park guard staff were interviewed.

II. TECHNICAL EVALUATION

A. Achievements

As a result of securing a \$3 million dollar grant from the Global Environmental Facility, SEDESOL expanded the Ria Lagartos staff from 8 to 24 contract employees in late June. The new SEDESOL staff is high on enthusiasm and ready to provide effective management for the Reserve. The 1992 Parks in Peril evaluation conducted by Gonzalo Castro indicated that Ria Lagartos staff suffered from low morale because of ineffective management from SEDESOL's Mexico City headquarters. The new staff members have not yet been jaded by neglect from SEDESOL Central. Even for the old-time staff members, the GEF grant has given hope that they eventually will be paid, even if they don't know when their checks might arrive.

The GEF grant is very specific about what items and activities can and can not be covered by World Bank funds. Through their administration of Parks in Peril funding, PPY has a degree of flexibility in their use of funds that complements SEDESOL's inflexibility in what can be covered with GEF money. Relations between PPY and SEDESOL appear to be very strong. Although checks for SEDESOL employees have not arrived since late 1992, PPY has been able to provide the staff at both Reserves with "dispensas"; i.e., CARE packages of food, clothing, and other essential items. TNC funds make these dispensas possible. Of course, this does not substitute for receiving a paycheck, but it does keep conservation and patrolling activities moving at the Reserves. SEDESOL employees described the no paycheck/PPY dispensa situation as "trabajo de sobrevivencia."

In addition to the dispensas, PPY has also supplied both Reserves with a 14'/15hp boat to conduct their patrols.

It is interesting to note that one of SEDESOL's expressed goals for Ria Lagartos is to have the Reserve be self-sufficient by the end of the GEF grant period (1996). While one must wonder whether any concrete plans have been laid to achieve this objective, SEDESOL must be applauded for considering self-sufficiency as a priority.

Last year in Celestun, SEDESOL conducted an environmental education workshop for school children. This apparently had an impact upon the community, as some community members approached SEDESOL staff for more information. SEDESOL is planning another workshop for late this summer.

PPY conducted a Rapid Ecological Assessment to determine threatened areas in Celestun. A Rapid Ecological Assessment soon will be conducted for Ria Lagartos.

With support from PPY, a field station for SEDESOL employees was completed and equipped in the town of Celestun. Radio-communication equipment purchased with TNC funds allows park guards in Celestun and Ria Lagartos and PPY personnel in Mérida to stay in touch with each other on a daily basis.

B. Limitations

The rapid and drastic expansion of the Ria Lagartos SEDESOL staff mentioned above as an achievement might better be viewed as a limitation. Although the staff has academic training as biologists and engineers, they lack most of the specific skills required for protected area conservation and natural resource management. SEDESOL plans to conduct a biodiversity study of the area, but they have no game plan as to how this will be done. Apparently no one on the staff has the proper training to either plan or execute such a program. The SEDESOL staff expansion has not been accompanied by an organized division of responsibilities. It is not clear to either the staff or the Reserve Director how the work will be apportioned among the new employees. Although a 3-year management plan for Ria Lagartos was completed in order to obtain the GEF funds, a copy of that plan has not been provided to the Reserve staff by the central SEDESOL office in Mexico City.

PPY had not counted on such a rapid expansion of SEDESOL's staff at Ria Lagartos and will have to reassess their funding plans regarding how they will support the larger staff. More logistical considerations and priority-determinations will have to go into deciding what items will be included in future dispensas. For example, PPY was planning to provide the Ria Lagartos staff with uniforms. Obviously, there is a big difference between providing uniforms for 8 people versus 24 people. This becomes more complex when even more essential items (such as food) must be factored into the budget planning process.

The GEF grant lacks any flexibility as to how funds may be used, so many of the immediate and day-to-day needs of the SEDESOL staff can not be fulfilled via the grant. For example, although there are motorbikes available to the SEDESOL staff, there is no gas for them. The SEDESOL substation offices at Ria Lagartos lack chairs, tables, desks, and a refrigerator. Computer equipment is out of the question since there is no reliable and steady source of electrical power.

One of SEDESOL's expressed priorities is to work with the local communities to promote conservation and sustainable use of resources, and to help the Reserve to become self-sufficient after the GEF funds have been expended. Nevertheless, there is no clear plan as to exactly how they will work with the local communities or what specific activities will be implemented.

Land ownership patterns within Ria Lagartos are not known. As a result, consumptive land-uses (such as cattle grazing and salt extraction) are encroaching upon what PPY considers to be territory located within the Reserve.

As mentioned previously, SEDESOL employees at both Reserves have not been paid since late 1992. Nevertheless, morale at Ria Lagartos appears to be high, probably because of the newness and youth of the staff. The same can not be said of Ria Celestun. Although the park guards are dedicated to their work and committed to doing their job to the best of their abilities, they are obviously not pleased with the lack of support from Mexico City. Resources available to SEDESOL employees in Celestun are even less than those in Ria Lagartos. Celestun park guards exist solely

on the dispensas provided by PRONATURA. While they are grateful to PPY for their dispensas, they expressed to me that they are in need of more support than PPY has been able to provide and asked me to relay that message to TNC.

It is anticipated that in the coming months, the salt extraction industry in Las Coloradas will lay off 200 of the 300 people working there. This will result in a severe economic crisis in the Ria Lagartos area, and probably lead to an increase in wildlife poaching and illegal timber harvest.

In the town of Celestun, the municipal president is strongly anti-SEDESOL and has influenced community sentiment in that direction. His term is up soon, and Reserve employees believe that the community's animosity towards SEDESOL will abate when he is out of office.

C. Recommendations

1. TNC should ensure that open communications and flexibility are maintained in their relationship with PRONATURA so that PPY is able to respond to urgent SEDESOL needs as they arise. The practice of providing SEDESOL employees with dispensas should be allowed to continue. It is questionable whether TNC should become involved in the SEDESOL "missing paycheck" fiasco. The funds that are not being delivered to their proper destinations at Ria Lagartos are GEF funds. As such, the situation should be the concern of the World Bank, not of TNC. If the World Bank can not apply the required pressure for SEDESOL to release the funds to the field, it is doubtful that any international funding organization can do so.
2. A thriving ecotourism industry already exists at Ria Celestun and a smaller-scale ecotourism trade is beginning at Ria Lagartos. In fact, ecotourism may not be the correct word to describe the kind of tourism found at these sites since there is no particular conservation message associated with the tours, and tourism is not generating funds to support management of these protected areas. It remains to be seen whether tourism at Celestun and Lagartos will develop into the type of tourism practiced by Amigos de Sian Ka'an along the Caribbean coast of Quintana Roo, or whether it will become like the tourism associated with boat rides through the floating gardens of Xochimilco in Mexico City.

In either case, the potential for further tourism development at both sites appears to be extremely high. This increasing interest in the area's natural attractions, combined with the drawing power of the Yucatan Peninsula's tourist centers at Cancun and Mérida, could provide a focus for conservation activities and generate additional outside support for the two Reserves. TNC should provide consultation and support to SEDESOL via PPY for integrating conservation themes into the ecotourism activities that already exist at both Ria Celestun and Ria Lagartos.

3. Aside from receiving a paycheck in a timely manner, the principal obstacle to a fully-functioning SEDESOL work force at the two Reserves is the lack of appropriate training in applied resource management and conservation. TNC and PPY should assess training needs for personnel at the Reserves and plan for appropriate resource management workshops. These training sessions should take place in the near future so as to take advantage of having GEF-financed SEDESOL personnel in place.
4. PPY should take advantage of SEDESOL's stated goal of increasing local community involvement in conservation activities by assessing training needs and providing workshops and consultation in community development and extension activities.

III. FINANCIAL EVALUATION

A. Achievements

PPY has developed a diversified funding base that includes contributions from local businesses and individuals as well as from a variety of international funding organizations. Besides the Parks in Peril program, current PPY projects are funded by World Wildlife Fund, US-AID, U.S. Fish and Wildlife Service, the North American Wetlands Conservation Council, and the Ford Foundation. In the past, other funding organizations, such as the Tinker Foundation, have also contributed to PPY projects.

From the financial information I was given, it appears that approximately 7% of PPY's current budget is financed through self-generated funds (i.e., local contributions). PPY's goal is to eventually be entirely financed by funds generated within Mexico.

In order to promote greater self-sufficiency, PPY plans to hire a public relations specialist whose principal responsibility will be to look for local sources of funding. Currently, applicants are being solicited and candidates are being interviewed for this position.

PPY's Membership Director traveled to Panama to talk with the non-governmental conservation organization ANCON about their progress towards becoming a self-supporting entity. PPY plans to continue working with ANCON to develop their own self-sufficiency strategy.

B. Limitations

Although PPY appears to be farther along the road to self-sufficiency than the other TNC partner organizations in Mexico, it is not likely they will attain the level of self-sufficiency they desire by the end of the Parks in Peril funding period.

C. Recommendations

1. TNC should consider using the upcoming Bioreserve project as a bridge between Parks in Peril funding and full self-sufficiency. During this period, TNC should encourage, promote, and support cooperation with self-supporting organizations such as ANCON in Panama, and provide other types of training activities for developing self-sufficiency. Perhaps TNC fund-raising personnel could develop a workshop in which all TNC partner organizations in Mexico could participate.

IV. ADMINISTRATION EVALUATION

A. Achievements

PRONATURA is using a custom-developed computer-based information system for program administration in order to effectively and efficiently track projects and expenditures. This system is being used for all funds administered by PPY so that all accounts can be tracked in a homogeneous manner. PPY's Administrator plans to set up the information system as a local area network (scheduled for implementation during last third of 1993). The LAN will allow different levels of access and security for different people within the organization, and provide instant access to necessary budget information for those who need it.

Plans call for the inclusion of US-AID's logical framework indicators (as developed at the July workshop held in San Cristóbal de las Casas) as components within their fund tracking system.

As part of their fund administration procedures, PPY keeps specific project expenditures to within plus or minus 15% of estimated expenditures for any given trimester. Any larger difference must be justified by staff involved in the project.

PPY appears to be very open and cooperative about sharing their fund administration methodology with other Mexican conservation organizations. They plan to work with Mexican NGO's (such as IHN and Amigos de Sian Ka'an) to demonstrate their system for administering funds and provide assistance to these organizations as needed.

B. Limitations

PPY receives funding from a variety of different international organizations, each with its own reporting requirements and formats. Administrative categories must be massaged and rearranged in order to produce the required documentation for each of these organizations. The software package developed for PPY's administrative tracking system is supposed to handle this task with minimum difficulty. I did not have the opportunity to verify that the software performed as advertised, but even if it does, the various reporting requirements create an extra burden for PPY's

administrative staff.

C. Recommendations

1. To lessen PPY's administrative burden and allow more time for doing the work of conservation, TNC Mexico Program and Parks in Peril staff should consult with their counterparts at US-AID and World Wildlife Fund to determine if reporting requirements can be standardized among the three organizations. In the likely event that reporting requirement can not be standardized, TNC can set an example by designing a reporting format that yields the most information for TNC with the least administrative burden on PRONATURA.

V. SUMMARY RECOMMENDATIONS

1. Ensure that open communications and flexibility are maintained in TNC's relationship with PRONATURA.
2. Provide consultation and support for integrating conservation themes into existing ecotourism activities at Ria Celestun and Ria Lagartos.
3. Assess training needs for SEDESOL personnel and plan appropriate resource management workshops.
4. Assess training needs and provide workshops and consultation for SEDESOL personnel in community development and extension activities.
5. Encourage, promote, and support cooperation with self-supporting organizations such as ANCON in Panama.
6. Provide training activities for developing self-sufficiency, including development of a workshop taught by TNC fund-raising personnel.
7. Consult with TNC counterparts at US-AID and World Wildlife Fund to determine if financial and programmatic reporting requirements can be standardized. If this is not possible, design a TNC reporting format that yields the most information with the least administrative burden.

**PARKS IN PERIL PROGRAM
1993 EVALUATION FORM**

PROTECTED AREA NAME: Ria Celestun/Ria Lagartos

GENERAL INFORMATION:

Country: Mexico

NGO Partner: PRONATURA Peninsula de Yucatan

Address:

Calle 1d 254a entre 36 y 38
Col. Campestre
97120 Mérida Yucatán

PIP project officer: Federico Nava

Government agency: SEDESOL

Address:

Rio Elba #20
Piso 10
Colonia Cuahtemoc
CP 06500
Mexico, D.F.

PIP project officer: N/A

Conservation objectives of protected area:

- o Strengthen conservation activities in both reserves**
- o Carry out basic research activities to assist management of the reserves**
- o Provide necessary materials and equipment to reserve personnel**

Is there an NGO/GO agreement to work on this PIP site?

yes x no on file at TNC ?

Is the TNC/NGO agreement up to date?

yes x no on file at TNC ?

Ria Lagartos/Ria Celestun Evaluation Form

Is the PIP Work Plan and Budget up to date?

yes no on file at TNC

FY 93 Work Plan and Budget are up to date

1994 work plan and budget is in progress. PRONATURA is currently negotiating with SEDESOL on current priorities as a result of new situation with increased personnel at Ria Lagartos.

Name of evaluator: Jerry Touval

Address: 10010 Columbine St.

Great Falls, VA 22066

Phone: (703) 759-4787

Fax: (703) 759-4787

Ria Lagartos/Ria Celestun Evaluation Form

PERFORMANCE INDICATORS:

I. ON-SITE PROTECTION AND MANAGEMENT

A. Have the ecological values of the area been identified?

yes no

size (hectares):

Celestun: 59,130 ha, Lagartos: 48,840 ha

key ecosystems:

Petenes, selva baja, selva inundable, savannah, tulares, mangroves, lagoons, coastline

key processes: Hydrologic processes of area

endemic species:

Pseudophoenix sargentii, Thinax radiata, Mammillaria gaumeri, various fish species endemic to cenotes and petenes

threatened species:

Jaguar, American crocodile, Morelet's crocodile, hawksbill and green sea turtles, ocelot, jaguarundi, spider monkey, Greater flamingo

migratory species:

Over 70 species of shorebirds, ducks, and passerines

B. Have critical threats been located on a map?

yes no

Celestun: Threats have been located via Rapid Ecological Assessment

Lagartos: Will start Rapid Ecological Assessment this month

type: Ria Lagartos: Cattle grazing and the expansion of salt mining and production

Ria Celestun: Road construction

source: Local population

significance: No information

Ria Lagartos/Ria Celestun Evaluation Form

C. Are critical boundaries surveyed and posted?

yes ___ no ___

Signs have been installed, but the exact boundaries of the Reserves were not well-defined in the decrees that created them, resulting in intrusions by other uses

of kilometers demarcated: No information

D. Are rangers trained and equipped?

yes ___ no ___

PRONATURA is providing some equipment to rangers in both Reserves, but newly hired staff at Lagartos have not been equipped

of rangers on-site:

Ria Lagartos: 10

Ria Celestun: 2

type of training received: None

E. Does the personnel have transport and communications equipment?

yes ___ no ___

and type:

Transport- Both: 1 motorcycle, 1 14' 15hp boat, and bicycles

Communications: Two base stations in Merida, 3 base stations in Lagartos, 1 base station in Celestun, 2 walkie-talkies in Celestun, 6 walkie-talkies in Lagartos

F. Have basic protection facilities been constructed on-site?

yes ___ no ___

location:

Celestun: One field station

Lagartos: Two SEDESOL field stations

type and square meters size of facilities: No information

Ria Lagartos/Ria Celestun Evaluation Form

G. Does the area have continuous field logistical support?

yes no

type of NGO support: PiP Project Coordinator

type of GO support:

Lagartos: 24 staff positions

Celestun: 4 staff positions

H. Are ecological carrying capacity studies, baselines and monitoring underway?

yes no

type of study:

PRONATURA: Sea turtle study in Lagartos, and Rapid Ecological Assessment in Lagartos (to start August 1993), Rapid Ecological Assessment in Celestun (completed)

Other studies are being supported by FWS in migratory birds and environmental monitoring data analysis

I. Has a Management Plan been completed for the area?

yes no

Lagartos: Yes Celestun: No

year of publication: Lagartos: 1993

J. Are Annual Operations Plans and Budgets completed?

yes no

Lagartos: Yes Celestun: No

For Celestun: Just have TNC Action Plan. There is no official SEDESOL plan for the area

Ria Lagartos/Ria Celestun Evaluation Form

PERFORMANCE INDICATORS:

II. COMPATIBLE RESOURCE USE:

A. Have key social and economic values of the protected area been identified?
yes no

Values were identified by CINVESTAV in an empirical manner, not analytically

key values: No information

B. Have basic human needs of local communities been satisfied (ie.,health,safety,welfare,etc.)?
yes no

Partially. There is a need for better health care. Educational services are very basic

key issues: No information

C. Is there direct community and resource user participation in resource management and allocation decisions?
yes no

Lagartos: Fishing cooperatives and ranchers participate in land use decisions and took part in formulation of the management plan

Celestun: No local involvement

key formal mechanisms: See above

D. Is the land tenure in the area stable?
yes no no information

Ownership patterns have not been identified. Plan on identifying ownership via Rapid Ecological Assessment

land tenure system:

Is local partner protecting land through acquisition?
yes no

size and location (core/buffer):

Ria Lagartos/Ria Celestun Evaluation Form

E. Are there diverse agricultural and natural resource uses within the carrying capacity of the protected area buffer zone?

yes ___ no ___ no information x ___

There are diverse uses but there is no way of gauging if they are within carrying capacity

principal land/resource uses:

F. Are local people employed by PIP project funds?

yes ___ no x ___

Not permitted by SEDESOL

of men ___
types of positions:

of women ___
types of positions:

Ria Lagartos/Ria Celestun Evaluation Form

PERFORMANCE INDICATORS:

III. LONG-TERM FINANCIAL SECURITY

A. Have the long-term financial needs of the protected area been identified?

yes ___ no ___

Lagartos has identified 3 years of funding via GEF grant. Have not yet developed long-range plans past PiP and GEF.

No long term needs have been identified for Celestun.

categories and projected budget:

title and year of document:

B. Are there local revenues that support the protected area?

yes ___ no ___

type of support and estimated annual US\$ dollar revenue to area:

PRONATURA receives approximately \$75,000/year from local businesses and individual donors

C. Are there national budget allocations that support the protected area?

yes ___ no ___

type of support and estimated annual US\$ dollar amount:

SEDESOL has obtained a 3 year/\$3 million GEF grant that will be used to support conservation at Ria Lagartos

D. Are there international funds that support the protected area?

yes ___ no ___

type of support and estimated annual US\$ dollar amount:

TNC: \$500,000 for 3 years
AID: 75,000
WWF: 115,000
FWS: 58,000 (for fish, turtle, and migratory bird studies)
NAWCC: 120,000
Ford: 75,000

Ria Lagartos/Ria Celestun Evaluation Form

E. Has a Financial Plan been approved for the protected area?

yes ___ no ___

Budgets are prepared for PiP and GEF funds

categories and projected budget:

sources of funds:

title and year of document:

F. Is an fiscally responsible administrative system in place to manage the funds?

yes ___ no ___

external audit at TNC? yes ___ no ___

G. Are financial resource committed to operations of the area?

yes ___ no ___

Financial resources are committed to the areas via SEDESOL budgets, but there are problems with the budgeted funds actually getting to the areas

categories and projected budget: No information

Ria Lagartos/Ria Celestun Evaluation Form

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

I. ON-SITE PROTECTION AND MANAGEMENT:

A. Has there been a change in the natural vegetation or land cover?

yes no no information

Celestun: Loss of mangroves for road construction

Lagartos: Growing ranching and salt production activities

how was this change measured?

Measured qualitatively. Plan to use Rapid Ecological Assessment to conduct quantitative study

cite source(s): See above

B. Has there been a change in the distribution, abundance or status of key species?

yes no no information

Two jaguars in Lagartos this year. Flamingo numbers in Lagartos estimated at 28,000. up from low of 12,000 after Hurricane Gilbert

how was this change measured?

Informal observations by Reserve personnel and visiting birders

cite source(s): See above

C. Has there been a change in water quantity or quality?

yes no no information

Lagartos: State Public works secretariat built water passages beneath bridges to avoid flooding in flamingo areas

Celestun: CINVESTAV working on recovery of cenotes and petenes

If anything, now more water than before

how was this change measured? No formal measurements

cite source(s): Informal observation

Ria Lagartos/Ria Celestun Evaluation Form

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

II. COMPATIBLE RESOURCE USE:

A. Have there been changes in the pattern or intensity of land or natural resource use?

yes no no information

Lagartos: Growth of cattle and salt activities. Not allowed to happen but happening anyway.

Celestun: Beginning to sub-divide area for construction of summer homes within the Reserve. Local communities are growing because of growing populations

how were these changes measured? No formal measurement

cite source(s): Informal observation

B. Have there been changes in the social or economic conditions of local residents?

yes no no information

Big change coming in Lagartos - of 300 people employed in salt works, 200 will soon be laid off

No changes in Celestun

how were these changes measured? No formal measurement

cite source(s): Informal observation

C. Have there been changes in the policies or institutions?

yes no no information

SEDESOL now allows participation of NGO's in a better manner. More cooperation. PRONATURA can talk directly with Reserve Director. PRONATURA and SEDESOL can "negotiate less and work more in the field"

how were these changes measured? N/A

cite source(s): N/A

Ria Lagartos/Ria Celestun Evaluation Form

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

III. LONG-TERM FINANCIAL SECURITY:

A. Has a trust fund or endowment been established for the protected area?

yes ___ no ___

type:

principal and annual dividend:

B. Are there diverse sources of funds/revenues for the area?

yes ___ no ___

type and amount:

sources: TNC, AID, WWF, FWS, North American Wetlands Conservation
Council, Ford Foundation, local sources

PARKS IN PERIL 1993 PROGRAM EVALUATION REPORT:

SIAN KA'AN BIOSPHERE RESERVE

SUBMITTED TO:

**The Nature Conservancy
1815 North Lynn St.
Arlington, VA 22209**

PREPARED BY:

**Jerome Touval
10010 Columbine St.
Great Falls, VA 22066**

**Telephone: 703-759-4787
Fax: 703-759-4787**

August 20, 1993

I. INTRODUCTION

Sian Ka'an is a 528,147 hectare Biosphere Reserve located along the Caribbean coast in the State of Quintana Roo. It was conferred Federal protected status by a Presidential decree issued in January 1986. Management and conservation of the Reserve is legally the responsibility of the Secretaria de Desarrollo Social (SEDESOL). Actual conservation responsibility is shared with SEDESOL by TNC's partner organization Amigos de Sian Ka'an (ASK) by means of a cooperative agreement signed by the SEDUE (now SEDESOL) Director General for Ecological Conservation of Natural Resources and the President of Amigos de Sian Ka'an.

The Reserve encompasses a variety of coastal ecosystems, including upland tropical forests, savannahs, mangrove swamps, coastal lagoons, cenotes, petens (hardwood hammocks), coastline, and 112 kilometers of coral reef. Wildlife species found within the area include jaguar, puma, ocelot, margay, jaguarundi, spider monkey, howler monkey, tapir, white-lipped peccary, collared peccary, manatee, American crocodile, and Morelet's crocodile. Nesting areas for green, loggerhead, hawksbill, and leatherback sea turtles are also found within the Reserve's boundaries. Additionally, 336 species of birds occur in Sian Ka'an, including such rare species as the ocellated turkey, great curassow, king vulture, wood stork, and jabiru stork.

Paradoxically, the most serious threat facing the Reserve is perhaps also its greatest potential asset: tourism. Depending on one's viewpoint, Sian Ka'an has the good fortune or unfortunate curse to be located just south of the massive Cancun - Tulum tourist corridor, an easy 3-hour drive from Cancun's glittering hotel zone. Tourism development along this corridor presents three threats to the conservation of Sian Ka'an. First, tourism development has extended southward from Cancun to the area just outside Sian Ka'an's northern boundary. Further southbound development would place tourism infrastructure within the Reserve itself. As the Reserve's territory is more than 99% Federally-owned land, this may not present a problem. However, considering the vast sums of money generated by Mexico's premier vacation paradise, the possibility of Hotel Sian Ka'an can not be ruled out.

Second, tourism could pose a threat to Sian Ka'an if the concept of ecotourism gained sudden popularity in Cancun and the number of tourists began to exceed the Reserve's capacity to accommodate them. Currently, about 600 people per year visit Sian Ka'an through ecotours organized by ASK personnel. Ideally, ASK's Ecotourism Director would like to increase that number by about 350-450 people per year. As no reliable methodology has been developed to assess tourism carrying capacity in terms of its potential environmental impacts, this is more of an abstract concept than a precise estimation of visitor numbers. Considering the type of resort tourism that Cancun typically promotes and the type of tourists attracted to Cancun, a sudden surge in ecotourism is not likely to occur.

The third threat to Sian Ka'an that tourism development presents is the effect of large-scale region-wide infrastructure development on the area's hydrology. One need only look to the West Palm Beach - Miami tourism corridor and its effect on the Everglades system to understand the irreparable damage that massive tourism and infrastructure development can have on a fragile and complex wetland system. Amigos de Sian Ka'an has initiated various monitoring programs to assess the types

of environmental alterations that can result from human-caused interference in the area's hydrologic cycles.

Properly managed, however, ecotourism can provide a significant source of income for ASK's conservation programs. Ecotourists are charged \$115 each for a day's visit to the Reserve. At the current level of 600 tourists per year, ecotourism generates \$69,000 in revenues (not accounting for operating and other overhead costs). If tourism were to increase to around 1,000 visitors per year (approximately 7 visitors per tour/ 3 tours per week/ 52 weeks per year), gross revenues would increase to \$115,000 per year. This figure does not include the intangible benefits of sensitizing these visitors to tropical conservation issues, or the tangible benefits of encouraging local Mayan communities to participate in commercial activities related to ecotourism. As either an advantage or disadvantage, the tourism/ecotourism question is certain to be a big issue at Sian Ka'an for quite a while to come.

The Parks in Peril evaluation was conducted by Jerome Touval, External Consultant for The Nature Conservancy. Interviews were held with TNC Mexico Program staff in Tucson, AZ during July 18-20, with Parks in Peril staff at TNC Headquarters in Arlington, VA on July 22, and in Mexico with Amigos de Sian Ka'an staff at their Cancun headquarters from August 9 - 10. A site visits was conducted on August 9.

Individuals interviewed for this evaluation:

TNC

Joe Quiroz
Jennifer Shopland
Monica Ostria

Amigos de Sian Ka'an

Juan Bezaury, Executive Director
César Barrios, Ecotourism Program Director,
Pedro Ramirez, Director of Projects
Cándido Caamal, Regional Development Project

Also, various community members in the Muyil vicinity were interviewed.

II. TECHNICAL EVALUATION

A. Achievements

With financial support provided by TNC's Parks in Peril Program, Amigos de Sian Ka'an purchased diving equipment for conducting coral reef inventories. ASK personnel have completed inventories of 20 kilometers of reef in the southern area of the Reserve; 30 kilometers more remain to be inventoried. As a result of the inventory thus-far completed, ASK has decided on the location for two monitoring stations (one permanent monitoring station and one reference monitoring station)

in this area.

During the past year, ASK acquired CAMRIS GIS software. All of the Reserve and the surrounding areas have now been mapped. ASK personnel will receive further training on use of the CAMRIS system during August 1993. Parks in Peril funds were also used to purchase a 486-class computer, a digitizer, and a color inkjet printer.

ASK is in the process of buying land for construction of a field station at Felipe Carillo Puerto.

César Barrios, ASK Ecotourism Director, attended a Natural Areas Planning Course at Big Bend National Park in Texas, sponsored by the U.S. Park Service.

As part of their Australian pine (Casuarina) eradication program, ASK personnel are proceeding with an inventory of the affected areas. Overflights by Project Lighthawk were conducted in support of this activity. ASK expects to begin the actual eradication of Casuarina in 1994. As a result of César Barrios' participation in the U.S. Park Service course at Big Bend National Park, ASK has established contact with personnel from Everglades National Park regarding similar problems with Casuarina invasions in Florida.

ASK is continuing with their monitoring program in the Reserve's upland areas using bats of the Order Chiroptera as indicators of environmental change.

Personnel from Amigos de Sian Ka'an are working with SEDESOL to establish a management plan for the Alta de la Bahia Espiritu Santo watershed, located outside the Reserve boundaries. Their eventual goals are to enlarge the area of Reserve by 120,000 - 150,000 hectares, and to create a new State protected area.

In his 1992 Parks in Peril evaluation report for Sian Ka'an, Victor Hugo Hernandez noted that lack of local community involvement in protecting the Reserve was a significant problem. ASK appears to have made strides in their community outreach programs, especially in regard to the wildlife management projects they are conducting with 7 local communities. Mayan assistants are employed by ASK to work on the project and talk with community members. As a result of this project, ejidos are regulating their own game hunting based on the information provided to them by ASK researchers.

SEDESOL has obtained a World Bank Global Environmental Facility (GEF) grant for Sian Ka'an in the amount of \$377,656 (= 1,132,968 new pesos) for 1993. SEDESOL intends to use these funds for the purchase of vehicles, equipment, various other materials, and to pay salaries.

B. Limitations

Although a new SEDESOL Reserve Director has been named (unexplainably by the Governor of Quintana Roo rather than by the Federal government) and relations

between SEDESOL and ASK have improved, in general the SEDESOL situation has not changed from that reported by Victor Hugo Hernandez in the 1992 Sian Ka'an evaluation. Reserve protection and enforcement activities by park guards are minimal. SEDESOL salaries are low and do not attract the attention of qualified candidates trained in resource management and conservation. Perhaps this will change when the GEF money reaches the Reserve. The Reserve Director's office is in Chetumal, far from the Reserve. Within surrounding communities, the Reserve is still suffering from ill-will directed towards the former SEDESOL Director of Sian Ka'an.

Although not necessary a limitation to the proper functioning of the Reserve, it should be noted that the ocellated turkey is included in SEDESOL's hunting calendar as legal game despite the fact that SEDESOL considers the species to be endangered (legal hunting season: March 12 - April 18).

C. Recommendations

1. TNC should provide consultation, access to current information, and training opportunities for ASK on issues regarding ecotourism development and calculation of ecotourism carrying capacities.
2. SEDESOL personnel are in need of resource management training. In a gesture of goodwill towards the new Reserve administration, ASK and TNC should conduct a survey of current SEDESOL capabilities and assess future training needs. If considered feasible by ASK and TNC, a resource management training workshop could be designed and implemented.
3. TNC should provide financial and technical support for ASK to continue monitoring the impacts of infrastructure developments outside Sian Ka'an on hydrologic cycles within the Reserve.

III. FINANCIAL EVALUATION

A. Achievements

ASK is making strides towards attaining a degree of self-sufficiency. Self-generated funds (from memberships, special events, and ecotourism) account for slightly more than 10% of Amigos de Sian Ka'an's annual budget. Ecotourism alone should generate \$69,000 this year. ASK appears to have an aggressive and effective outreach program within the Cancun business community. A number of Cancun hotels have donated funds to the organization. ASK has developed a diversified funding base that includes an impressive international portfolio of governmental and private funding organizations.

ASK prepared an analysis of Sian Ka'an's long-term financial needs for SEDESOL. Information from this analysis was used by SEDESOL to secure the GEF grant.

B. Limitations

Despite the move towards generating local funds to support their organization, ASK has not developed any concrete plans for long-term self-sufficiency. The thrust of their plans following the termination of Parks in Peril support is to continue looking for international funding sources while partially supporting the organization through self-generated funds.

ASK's Director of Development recently left the organization for another position. This has resulted in a setback to planned fund-raising campaigns.

C. Recommendations

1. TNC's Mexico and Parks in Peril Programs should sponsor a self-sufficiency workshop and invite other NGO's (Mexican and others) to participate in sharing their experience in generating local funds. TNC should also encourage participation by their own fund-raising experts on techniques and strategies for cultivating local funding sources.
2. TNC Mexico Program personnel should meet with ASK to evaluate potential funding sources that could contribute to Amigos de Sian Ka'an conservation programs following the phase-out period of the Parks in Peril program.
3. ASK should be encouraged to hire a new Director of Development as soon as possible in order to resume exploring creative funding possibilities within the Cancun business community.

IV. ADMINISTRATION EVALUATION

A. Achievements

This year ASK began using a new software program to track their project expenses. The software was provided by TNC's Parks in Peril program. TNC is arranging training for ASK personnel in the use of the program.

The relationship between ASK and TNC appears to be open and flexible. TNC is seen as being responsive to local needs. ASK maintains open channels of communication with TNC personnel in the Mexico Program and headquarters offices.

B. Limitations

No obvious limiting factors were encountered during this evaluation regarding the efficiency and effectiveness of Amigos de Sian Ka'an administrative procedures as they relate to commodities procurement, budget management, or financial report preparation and submission.

V. SUMMARY RECOMMENDATIONS

1. Provide information and training opportunities on issues related to ecotourism development.
2. Conduct a survey of SEDESOL capabilities and assess training needs. Implement training workshops as appropriate.
3. Provide financial and technical support for monitoring impacts of infrastructure developments on hydrologic cycles.
4. Sponsor a self-sufficiency workshop and invite other NGO's to participate. Encourage participation by TNC fund-raising experts.
5. Evaluate potential future funding sources to ensure long-term financial stability of ASK.
6. Hire new Director of Development to resume exploration of creative funding possibilities within the Cancun business community.

**PARKS IN PERIL PROGRAM
1993 EVALUATION FORM**

PROTECTED AREA NAME: Sian Ka'an Biosphere Reserve

GENERAL INFORMATION:

Country: Mexico

NGO Partner: Amigos de Sian Ka'an

Address:

Plaza America, 2 Piso
Local 48
Cancun, Quintana Roo

PIP project officer: Juan Bezaury

Government agency: SEDESOL

Address:

Rio Elba #20
Piso 10
Colonia Cuahtemoc
CP 06500
Mexico, D.F.

PIP project officer: N/A

Conservation objectives of protected area:

- o Contribute to the preservation of natural ecosystems of the central coast of Quintana Roo**
- o Preserve the genetic diversity of the area**
- o Maintain natural ecological processes to assure regional hydrologic cycling, fishing production, conservation of soils, and regulation of climate**
- o Protect scenic and cultural values**
- o Promote research, particularly in the area of ecology, socioeconomics, and natural resource management**
- o Offer options for eco-development of tropical forests**
- o Provide facilities for local training to promote sources of income for**

Sian Ka'an Evaluation Form

people living in the area

- Offer options for controlled recreation
- Facilitate environmental interpretation and environmental education

Is there an NGO/GO agreement to work on this PIP site?
yes no on file at TNC ?

Is the TNC/NGO agreement up to date?
yes no on file at TNC ?

Is the PIP Work Plan and Budget up to date?
yes no on file at TNC

FY 93 Work Plan and Budget are up to date

Currently making changes in FY 94 Work Plan and waiting for concurrence of Monica Ostria. Budget is included in the work plan.

Name of evaluator: Jerry Touval
Address: 10010 Columbine St.
Great Falls, VA 22066

Phone: (703) 759-4787
Fax: (703) 759-4787

Sian Ka'an Evaluation Form

PERFORMANCE INDICATORS:

I. ON-SITE PROTECTION AND MANAGEMENT

A. Have the ecological values of the area been identified?

yes no

size (hectares): 528,000 ha

key ecosystems:

Lowland tropical forest, low inundated forest, savannahs,
mangroves, bays, coral reef, and coastal areas

key processes:

Land-sea interface

endemic species:

None

threatened species:

Manatee, white-lipped peccary, collared peccary, jaguar, ocelot,
margay, jaguarundi, puma, tapir, spider monkey, howler monkey,
jabiru, king vulture, American crocodile, Morelet's crocodile, green
sea turtle, loggerhead sea turtle, hawksbill sea turtle, and
leatherback sea turtle

migratory species:

Various species of passerines

B. Have critical threats been located on a map?

yes no

type:

source:

significance:

Sian Ka'an Evaluation Form

C. Are critical boundaries surveyed and posted?

yes ___ no ___

Signs are posted at the entrances to the Reserve

of kilometers demarcated: No information

D. Are rangers trained and equipped?

yes ___ no ___

of rangers on-site: 12 SEDESOL rangers

type of training received: None

E. Does the personnel have transport and communications equipment?

yes no ___

and type:

No transportation equipment provided for rangers. Amigos de Sian Ka'an doesn't know if SEDESOL communications equipment has been installed.

F. Have basic protection facilities been constructed on-site?

yes no ___

location: No information

type and square meters size of facilities:

4 small cabins for rangers

G. Does the area have continuous field logistical support?

yes no ___

type of NGO support: Public outreach and research

type of GO support: Law enforcement

Sian Ka'an Evaluation Form

H. Are ecological carrying capacity studies, baselines and monitoring underway?

yes no

type of study:

Carrying capacity: None

Baseline: 3 projects monitoring wetlands (wading birds), forests (bats of the Order Chiroptera), and marine areas (reefs)

I. Has a Management Plan been completed for the area?

yes no

Nearing completion

year of publication:

J. Are Annual Operations Plans and Budgets completed?

yes no

In progress. Amigos is currently reviewing annual SEDESOL operations plan

Sian Ka'an Evaluation Form

PERFORMANCE INDICATORS:

II. COMPATIBLE RESOURCE USE:

A. Have key social and economic values of the protected area been identified?

yes no

key values:

Lobster fishing and other fisheries, tourism

B. Have basic human needs of local communities been satisfied (ie., health, safety, welfare, etc.)?

yes no

key issues:

In southern area of Reserve, no educational services or health services

C. Is there direct community and resource user participation in resource management and allocation decisions?

yes no

key formal mechanisms: Fishing cooperatives

D. Is the land tenure in the area stable?

yes no

land tenure system:

> 99% Federal, < 1% private

Is local partner protecting land through acquisition?

yes no

size and location (core/buffer):

E. Are there diverse agricultural and natural resource uses within the carrying capacity of the protected area buffer zone?

yes no no information

principal land/resource uses:

Sian Ka'an Evaluation Form

F. Are local people employed by PIP project funds?

yes x no

of men 3

types of positions: Agricultural extensionists

of women

types of positions:

Sian Ka'an Evaluation Form

PERFORMANCE INDICATORS:

III. LONG-TERM FINANCIAL SECURITY

A. Have the long-term financial needs of the protected area been identified?
yes no

categories and projected budget:

Equipment, construction, and operations

title and year of document:

Will be included in management plan

B. Are there local revenues that support the protected area?
yes no

Contributions from local businesses in Cancun. Exact amount of contributions not available

type of support and estimated annual US\$ dollar revenue to area:

C. Are there national budget allocations that support the protected area?
yes no

type of support and estimated annual US\$ dollar amount:

SEDESOL will use NP 1,132,968 from GEF funds

D. Are there international funds that support the protected area?
yes no

type of support and estimated annual US\$ dollar amount:

TNC:	\$200,000 (Parks in Peril)
WWF:	20,000 (community development and agriculture)
Ford:	20,000 (social work)
MacArthur:	20,000 (plant nursery and fisheries)
FWS:	8,000 (marine turtles)
FWS/NAWCC:	15,000 (environmental education)

Sian Ka'an Evaluation Form

E. Has a Financial Plan been approved for the protected area?

yes ___ no x ___

categories and projected budget:

sources of funds:

title and year of document:

F. Is an fiscally responsible administrative system in place to manage the funds?

yes x ___ no ___

external audit at TNC? yes ___ no ___?

Had an external audit in 1992

G. Are financial resource committed to operations of the area?

yes ___ no ___ no information x ___

categories and projected budget:

Sian Ka'an Evaluation Form

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

I. ON-SITE PROTECTION AND MANAGEMENT:

A. Has there been a change in the natural vegetation or land cover?

yes ___ no no information ___

how was this change measured? Qualitative measurements

cite source(s): Informal observation

B. Has there been a change in the distribution, abundance or status of key species?

yes ___ no ___ no information ___

Baseline information is still being established. Will need 1-2 more years to establish status of changes if any

how was this change measured?

cite source(s):

C. Has there been a change in water quantity or quality?

yes ___ no ___ no information ___

Will begin baseline pollution study this year

how was this change measured?

cite source(s):

Sian Ka'an Evaluation Form

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

II. COMPATIBLE RESOURCE USE:

A. Have there been changes in the pattern or intensity of land or natural resource use?

yes ___ no no information ___

how were these changes measured? No formal measurements

cite source(s): Informal observations

B. Have there been changes in the social or economic conditions of local residents?

yes ___ no no information ___

how were these changes measured? No formal measurements

cite source(s): Informal observations

C. Have there been changes in the policies or institutions?

yes ___ no no information ___

how were these changes measured? N/A

cite source(s): N/A

Sian Ka'an Evaluation Form

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

III. LONG-TERM FINANCIAL SECURITY:

A. Has a trust fund or endowment been established for the protected area?

yes ___ no x ___

type:

principal and annual dividend:

B. Are there diverse sources of funds/revenues for the area?

yes x ___ no ___

type and amount: No information

sources: International sources: TNC, World Wildlife Fund, U.S. Fish and Wildlife Service, Ford Foundation, MacArthur Foundation

Local sources: Federal budget (SEDESOL), memberships, ecotourism revenues, local businesses

Parks in Peril : FY 1993 Evaluation

	El Ocote	El Triunfo	La Encrucijada	Sian Ka'an	Ria Lagartos	Ria Celestun	Mexico Total
ON-SITE PROTECTION & MANAGEMENT							
# Hectares in protected areas:	48,140	119,177	2,500	528,000	48,840	59,130	805,78
Management plan completed:							
Yes	0	0	0	0	1		
No	1	1	1	1	0		
Operations plan completed:							
Yes	1	1	1	0	1	0	
No	0	0	0	1	0	1	
Ecological values determined:							
Yes	1	1	1	1	1	1	
No	0	0	0	0	0	0	
Critical threats/areas located:							
Yes	1	1	1	0	0	1	
No	0	0	0	1	1	0	
Studies/monitoring underway:							
Yes	0	1	1	1	1	1	
No	1	0	0	0	0	0	
Radio equip. installed:							
Yes	1	1	1		1	1	
No	0	0	0		0	0	
# Radios on-site:	4	9	6		9	3	3
# Personnel:	14	21	13	12	24	4	8
# Rangers:	5	9	4	12	10	2	4
# Ranger training events:	1	2	0	0	1	1	
# Km demarcated:	60	66					12
# Ranger centers:	1	3	1	4	2	1	1
Basic transportation:							
Yes	1	1	1	1	1	1	
No	0	0	0	0	0	0	
Continuous field supervision:							
Yes	1	1	1	1	1	1	
No	0	0	0	0	0	0	
COMPATIBLE USE/ECONOMIC DEVELOPMENT							
Socioeconomic values identified:							
Yes	1	1	1	1	1	1	
No	0	0	0	0	0	0	
Basic human needs met:							
Yes	0	0	0	0	0	0	
No	1	1	1	1	1	1	
Local participation in resource mgmt:							
Yes	1	0	1	1	0	0	
No	0	1	0	0	1	1	
Land tenure stabilized:							
Yes	0	0	1	1			
No	1	1	0	0			
# Local people employed with PIP funds:	0	11	4	3	0	0	18
LONG-TERM FINANCIAL SECURITY							
Long-term financial needs identified:							
Yes	1	1	0	1	0	0	
No	0	0	1	0	1	1	
Funding from external sources:							
Yes	1	1	1	1	1		
No	0	0	0	0	0		
Amount	\$389,902	\$333,000.00	\$439,160.00	\$283,000.00	\$943,000.00		\$2,388,062.00
Funding from Federal/State sources:							
Yes	1	1	1	1	1		
No	0	0	0	0	0		
Amount	\$24,900	\$44,666	\$22,100	\$20,000	\$42,900		\$154,466.00
Funding from local sources:							
Yes	0	0	0	0	1		
No	1	1	1	1	0		
Amount	\$0	\$0	\$0	0.0%	\$75,000		\$75,000.00
Financial plan approved:							
Yes	0	0	0		0	0	
No	1	1	1	0	1	1	

Parks in Peril

1993 Evaluation

Panama

Darien Biosphere Reserve

Panama Canal Watershed

**PARKS IN PERIL PROGRAM
1993 EVALUATION FORM**

PROTECTED AREA NAME: DARIEN BIOSPHERE RESERVE

GENERAL INFORMATION:

Country: Panama

NGO Partner: Asociacion Nacional para la Conservacion de la Naturaleza (ANCON)

Address: Apartado 1387, Panama 1, Republica de Panama

PIP project officer: Carlos Brandaris

Government Agency: INRENARE (Natural & Renewable Resources Institute)

Address: Paraiso, Rep. de Panama

PIP project officer: Roberto Arango, Director of Protected Areas & Wildlife

Conservation objectives of protected area:

- o Conserve representative and/or unique ecosystems.
- o Promote compatible resource use.
- o Provide opportunities for tourism, education, and research.
- o Serve as natural buffer zone to spread of diseases from S. America as potential result of Panamerican Highway Construction.

Is there an NGO/GO agreement to work on this PIP site?
YES, on file at TNC.

Is the TNC/NGO agreement up to date?
YES, on file at TNC.

Is the PIP Work Plan and Budget up to date?
YES, on file at TNC.

Name of evaluator(s): Brian Houseal
Director, Panama Country Program, TNC
Phone:(703) 841-4881 Fax: (703) 841-4100

Carlos Brandaris, Jorge Aranda, Ronda Mosley, Angel Cardenas
ANCON personnel

INTRODUCTION:

The Darien Biosphere Reserve is located in the Darien Province along Panama's border with Colombia. With over 575,000 hectares of virgin rainforest, Darien is the largest protected area in Central America, sheltering an exceptionally diverse range of flora and fauna with many species found only within the reserve's limits. Internationally renowned for its natural and cultural wealth, and serving as a natural barrier to the spread of infectious diseases from South America, this area was declared a World Heritage Site (1981) and a Man and Biosphere Reserve (1983) by UNESCO.

Since 1987, the National Institute of Renewable Natural Resources (INRENARE) and ANCON have been working closely to establish the minimum infrastructure necessary for the protection, conservation and management of the Darien Biosphere Reserve. This plan requires the training and equipping of rangers; the construction of control points, ranger stations, nature trails; the implementation of community development and support programs. However, due to the reserve's large size and inaccessibility, management activities require substantial support to ensure adequate protection and development of programs within the area.

EVALUATION:

The principal conclusions of the Parks in Peril evaluation undertaken for the Darien Biosphere Reserve are listed below. These findings are based on a financial evaluation and site visit by Eric Halperin and extensive interviews with ANCON and INRENARE staff that the evaluator has conducted.

On-site Management:

1. Due to PIP support over the past year, ANCON has made great progress in the protection of the core areas of the Darien BR. In FY 1993, ANCON continued to maintain the boundary trails and all the ranger facilities within the reserve, as well as to provide logistical support to the INRENARE rangers.
2. Despite significant progress in both the core and buffer zones, on-site management for the Darien BR is not complete. Several critical areas remain unmarked and unprotected, including: the Tuira river basin along the proposed route of the Panamerican highway (note: the latest news is that the World Bank will finance the road), and the entire international border with Colombia (note: this area is extremely dangerous due to drug cultivation and trafficking). Although colonization, logging, and mining inside the reserve has been stopped, there are still significant pressures on the remaining forests in the buffer zone from logging and agricultural activities. There is not sufficient operational support for the Reserve from the Panamanian government.
3. Ironically, the principal limitation in not fully achieving on-site management (i.e.,

installation of a radio system, construction of additional ranger stations, etc.) has been the AID Panama Mission's insistence that the AID/MARENA project would provide support and, therefore, ANCON should dedicate its efforts to the buffer zones of the Reserve. As a result, ANCON has only maintained those boundaries and facilities it had installed over past years, but did not extend further in the core protection activities. To date, the MARENA project has not provided support for Darien BR protection activities.

4. The highs and lows in the Darien BR's operational support over the past years indicate the need for a sustainable income stream. A conservation trust fund that provides at least 25% of basic operations, or approximately \$50,000/yr. would improve this situation.

RECOMMENDATIONS:

1. Due to the uncertainty of secure funding from AID/MARENA and the Government of Panama at this time, I do not recommend "graduation" from AID/PIP funds for the Darien this year. TNC should continue to work with both AID/Panama and the Government of Panama to secure the MARENA and NATURA trust funds for the Reserve.
2. I do recommend an additional year of AID/PIP funding for this site to continue trail maintenance and support for basic facilities construction in indicated areas. In addition, I recommend that a small trust fund be established with AID/PIP, TNC/Adopt-an-Acre, and ANCON funds (\$50,000 total) in order to establish and test a mechanism for basic operational support to the reserve over future years.
3. TNC should continue to work closely with ANCON in its efforts to consolidate its activities and develop a strategic plan that includes significant new programs in agroforestry and ecotourism throughout Panama.
4. Due to TNC's long involvement with the Darien BR, and its status as an approved Bioreserve under the Last Great Places campaign, I recommend that we focus on the area and extrapolate the lessons learned. Over the next year, it would be possible to publish an extensive case study that demonstrates the important aspects of PIP/Bioreserve transitions as well as conservation science and stewardship techniques.

PERFORMANCE INDICATORS:

I. ON-SITE PROTECTION AND MANAGEMENT

- A. Have the ecological values of the area been identified?**
YES

size (hectares): 575,000

key ecosystems: cloud forest, montane tropical forest, lowland tropics, rainforest, dry tropical forest, wetlands.

key processes: hydrologic cycle, nutrient recycling.

- B. Have critical threats been located on a map?**
YES

source: habitat conversion, elimination of endangered species (e.g. turtles, crocodiles).

type: uncontrolled colonization (population pressures), logging, and mining in buffer zone, subsistence hunting, drug trafficking.

- C. Are critical boundaries surveyed and posted?**
YES, partially

of kilometers demarcated: 130km [Punta Patiño 40km; Darien BR 70km]

- D. Are rangers trained and equipped?**
YES

of rangers on-site: 11, 8 in Darien BR and 3 in Punta Patiño

type of training received: resource management, biological monitoring, agroforestry, environmental education, construction, trail maintenance, first aid, indigenous issues, basic first aid, radio communications, and community outreach.

- E. Does the personnel have transport and communications equipment?**
YES

and type: boats (5), motors (5), horses (4), trucks (1), and radios (1 radio base and 2 portable)

- F. Have basic protection facilities been constructed on-site?**
YES

location: Cana, old camp site being refurbished; Cruce de Mono Station; Balsas Station; El Real Administrative Station; Balsas Station; Punta Patiño, refurbished existing structure and new facilities are being constructed.

type and size of facilities: Cana remodeled existing facilities 200 square m.; Cruce de Mono Station (constructed in 1991) 100 square m.; Balsas Station (constructed in 1992) 150 square m.; El Real Administrative Station remodeled existing facilities 250 square m.; Punta Patiño remodeled existing facilities 1000 square m.

- G. Does the area have continuous field logistical support?
YES

type of NGO support: ANCON field coordinator, Punta Patiño Caretaker; equipment, materials, training, food, project oversight, community education, construction materials, maintenance, local labor.

type of GO support: INRENARE rangers & limited field support; ranger salaries, fuel, project oversight.

- H. Are ecological carrying capacity studies, baselines and monitoring underway?
YES

type of study: long-term monitoring, REA's on buffer zones areas, periodic overflights. ANCON.CDC has corroborated previous studies, undertaken inventories, & prepared basemaps. REA completed, 9/93.

- I. Has a Management Plan been completed for the area?
YES

year of publication: 1990 - needs revisions.

- J. Are Annual Operations Plans and Budgets completed?
YES

II. COMPATIBLE RESOURCE USE:

- A. Have key social and economic values of the protected area been identified?
YES

key values: ecological barrier to spread of disease from South America - Embera & Kuna indigenous cultures.

- B. Have basic human needs of local communities been satisfied (ie., health, safety, welfare, etc.)?**
YES, partially

key issues: Sanitation, potable water, employment, housing, health, land, and education.

- C. Is there direct community and resource user participation in resource management and allocation decisions?**
YES, indigenous congresses are gaining negotiation power.

key formal mechanisms: Indigenous Congress

- D. Is the land tenure in the area stable?**
NO

land tenure system: indigenous traditional system is in conflict with the colonists Panamanian legal system.

Is local partner protecting land through acquisition?
YES

size and location (buffer): Punta Patiño 29,000 has.; Cana mining rights others on boundary approximately 300 has.; 110 has. Peresenico Agroforestry Demonstration Farm

- E. Are there diverse agricultural and natural resource uses within the carrying capacity of the protected area buffer zone?**
YES

principal land/resource uses: Indigenous agroforestry system adapted to Darien; colonists with cattle, agriculture, and logging practices.

- F. Are local people employed by PIP project funds?**
YES

of men: 25

types of positions: to clean the area for agroforestry. At least 10 or more people will be hired for infrastructure construction.

of women: 10

types of positions: not known

III. LONG-TERM FINANCIAL SECURITY

- A. Have the long-term financial needs of the protected area been identified?
NO

categories and projected budget: more than \$250,000/yr

title and year of document: MARENA/AID PROJECT (1990) DARIEN MASTER PLAN (1988)

- B. Are there local revenues that support the protected area?
YES

type of support and estimated annual US\$ dollar revenue to area:
\$316,000 - Agroforestry and Reforestation.

- C. Are there national budget allocations that support the protected area?
NO, not a yearly allocation

type of support and estimated annual US\$ dollar amount:
Rangers (18) salaries approximately \$90,000/yr.; Field operations approximately \$45,000/yr.

- D. Are there international funds that support the protected area?
YES

type of support and estimated annual US\$ dollar amount:
PIP/AID approximately \$300,000/yr.
WWF/US approximately \$60,000/yr.

- E. Has a Financial Plan been approved for the protected area?
NO, a long-term financial and management plan for the area is currently being drafted.

- F. Is an fiscally responsible administrative system in place to manage the funds?
YES

external NGO audit at TNC? YES

- G. Are financial resource committed to operations of the area?
YES

categories and projected budget: see questions C & D above.

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

I. ON-SITE PROTECTION AND MANAGEMENT:

- A. Has there been a change in the natural vegetation or land cover?
NO INFORMATION**
- B. Has there been a change in the distribution, abundance or status of key species?
NO INFORMATION**
- C. Has there been a change in water quantity or quality?
NO INFORMATION**

II. COMPATIBLE RESOURCE USE:

- A. Have there been changes in the pattern or intensity of land or natural resource use?
NO INFORMATION**
- B. Have there been changes in the social or economic conditions of local residents?
NO INFORMATION**
- C. Have there been changes in the policies or institutions?
NO INFORMATION**

III. LONG-TERM FINANCIAL SECURITY:

- A. Has a trust fund or endowment been established for the protected area?
NO**
- B. Are there diverse sources of funds/revenues for the area?
YES**

type and amount: international sources and local fundraising campaigns.

SOURCES: local fundraising campaigns, and International (WWF, MacArthur, IUCN, Germans) donors.

**PARKS IN PERIL PROGRAM
1993 EVALUATION FORM**

PROTECTED AREA NAME: PANAMA CANAL WATERSHED PROTECTED AREAS

GENERAL INFORMATION:

Country: Panama

NGO Partner: Asociación Nacional para la Conservación de la Naturaleza (ANCON)

Address: Apartado 1387, Panama 1, Republica de Panama

PIP project officer: Carlos Brandaris and Oscar Vallarino

Government agency: INRENARE

Address: Paraiso, Rep. de Panama

PIP project officer: Roberto Arango

Conservation objectives of protected area:

- o Protect hydrologic values of Panama Canal Watershed.
- o Conserve representative flora & fauna.
- o Preserve unique and/or endangered flora & fauna.
- o Provide opportunities for education & research.

Is there an NGO/GO agreement to work on this PIP site?
YES, on file at TNC.

Is the TNC/NGO agreement up to date?
YES, on file at TNC.

Is the PIP Work Plan and Budget up to date?
YES, on file at TNC.

Name of evaluator(s): Brian Houseal
Director, Panama Country Program, TNC
Phone:(703) 841-4881 Fax: (703) 841-4100

Jorge Tovar
Conservation Officer, ANCON

INTRODUCTION

The Canal watershed, or Rio Chagres' old watershed, with an area of 326,225 has, is the most important watershed in Panama. The production storage and housing capacity of Lakes Gatun (32,000 has.) and Alajuela (5,000 has.) control the Canal's operations and provide water to the cities of Panama and Colon.

The Panama Canal watershed is divided in two sections: the high watershed where Lake Alajuela Lake covers an area of 97,533 has. and is located within the boundaries of Chagres National Park; and the low watershed that includes Lake Gatun and covers an area of 228,692. The watershed includes two main National Parks, namely Chagres and Soberania.

EVALUATION

The findings of this evaluation are based on site visits and extensive interviews with ANCON and INRENARE personnel that the evaluator has conducted.

On-site Management

1. Due to PiP support over the past years, ANCON has made great progress in the protection of the core areas of the Soberania and Chagres National Parks, priority protected areas within the Panama Canal Watershed. In FY 1993, ANCON continued to maintain the boundary trails and basic facilities within the two parks, as well as to provide logistical support to the INRENARE rangers.
2. On-site management infrastructure is complete for the Soberania National Park. Despite significant progress in both the core and buffer zones of the Chagres National Park however, on-site management is not complete. Several critical areas remain unmarked and unprotected, including: the Cuango and Mandinga river basins and the boundary with Portobelo National Park on the Caribbean side of the isthmus. Colonization, logging, and mining inside the two parks have been stopped. There are still significant pressures on the buffer zones from urbanization and agricultural activities. There is not sufficient operational support for the watershed from the Panamanian government.
3. The primary limitation in not fully achieving on-site management has been AID Panama Mission's insistence that the AID/MARENA project would provide this support and therefore, ANCON should dedicate its efforts to the buffer zones of the Canal watershed. As a result, ANCON has only helped maintain those boundaries and facilities already installed over past years, but did not extend further in the core protection activities. To date, the MARENA project has not provided appreciable support to Soberania or Chagres National Parks' on-site protection activities.

Compatible Resource Use

1. Over the past year, most activities concentrated principally on buffer zone activities on the 350 hectare Rio Cabuya and Falconette properties acquired by ANCON with partial support from TNC. These properties are contiguous to the Soberania National Park and contain representative samples of tropical rainforest and recuperating cattle lands. ANCON has used PiP funds to build the Chagres Environmental Education Center and to improve an access road, survey and post the boundaries, and to begin agroforestry and ecotourism activities, incorporating the local community of Cabuya into these activities. It is important to note that ANCON's buffer zone programs are extending biodiversity conservation actions beyond the boundary line of the parks and actively demonstrating social and economic benefits at a local level.
2. Local community participation in PiP activities has greatly increased over the past year. At least 50 men and 35 women from the local community have been involved in the construction of the Chagres Center, in boundary demarcation, and agroforestry activities at the Rio Cabuya Station. In addition, ANCON personnel provided environmental education in other adjacent local communities and serve as a bridge to Panamanian social service agencies to address some of the basic human needs identified by the local communities.

Financial Support

1. Local support: Although INRENARE has a growing commitment to the Panama Canal Watershed Protected Areas, to date government allocations have been insufficient to guarantee the basic operations of these reserves (i.e., ranger salaries, boundary and facilities maintenance, fuel, etc.). ANCON has raised over 25% of the operations costs from local sources (e.g., Amigos de ANCON, corporate sponsors, etc.). ANCON has also successfully secured support from other Panamanian organizations for the agroforestry activities in the buffer zones (e.g., Fondo de Emergencia Social, "FESA"). In addition, local community support for the watershed is growing as the communities understand the potential of this area for employment through ecotourism, agroforestry, and other economic alternatives to traditional logging and slash-and-burn agricultural techniques.
2. International support: TNC and AID/PiP are the principal supporters of the Panama Canal Protected Areas at this time. There are proposals pending and good potential sources of support from both bi and multi-lateral donors, including: AID/MARENA, JICA, GEF, UNESCO/MAB, IAF, USDA, and USFS. To date,

3. The scant operational support over the past years indicate the need for a sustainable income stream. A conservation trust fund that provides for at least 25% of basic operations, or approximately \$50,000/yr. would improve this situation.

Recommendations

1. Due to the uncertainty of secure funding from AID/MARENA and the Government of Panama at this time, I recommend that AID/PiP funds continue to support the operations of the Panama Canal Watershed Protected Areas, at this time. TNC should continue to work with AID/Panama Mission and the Government of Panama to secure the MARENA and NATURA trust funds for this area. In addition, I also recommend that a small trust fund be established with AID/PiP, TNC/Adopt-an-Acre, and ANCON funds (\$50,000 total) in order to establish and test a mechanism for basic operational support to these areas over future years.
2. TNC should continue to work closely with ANCON in its efforts to consolidate its activities and develop a strategic plan that includes new programs in agroforestry and ecotourism throughout these parks in Panama.

PERFORMANCE INDICATORS:

I. ON-SITE PROTECTION AND MANAGEMENT

- A. Have the ecological values of the area been identified?
YES.**

size (hectares): 153,000

key ecosystems: primary and secondary forests including cloud forest, montane forest, grasslands, open forests, lowland rainforests, and coastal and marine environments.

key processes: hydrology of Panama Canal watershed.

endemic species: palms on Cerro Jefe.

threatened species: felines, spider monkeys, tapirs.

migratory species: major corridor for neotropical migratory birds.

- B. Have critical threats been located on a map?
YES.**

type: population expansion, change in land use patterns, controlled colonization, and subsistence agriculture.

source: immigration from central provinces according to ANCON, INRENARE, and the Geographical Institute of Panama.

significance: moderate - protection programs are underway.

- C. Are critical boundaries surveyed and posted?
YES.**

of kilometers demarcated: a total of 179 in 3 areas; Chagres (141 km), Soberania (57km) and buffer zones (8km).

- D. Are rangers trained and equipped?
YES.**

of rangers on-site: 38 in 3 areas; Chagres (24), Soberania (8), buffer zones (6) - Personnel is not paid by PiP funds.

type of training received: basic first aid, radio communications, trail maintenance, community outreach, environmental education.

- E. **Does the personnel have transport and communications equipment?**
YES, but it was not purchased with PiP funds.

and type: 4 trucks, 20 horses, 10 boats, 2 base radios, and 16 portable radios.

- F. **Have basic protection facilities been constructed on-site?**
YES.

location: Rio Chagres Environmental Education Center and buffer zone of Soberania National Park covered by PiP funds. Other ranger centers constructed in Chagres National Park funded by other sources are: Cerro Azul, Boqueron, Alejuela, and Cuango

type and size of facilities: New construction of education center is 900 square m.; Cerro Azul (70 square m.), Boqueron (60 square m.), and Alejuela (45 square m.) are all cement houses. Cuango (24 square m.) is constructed using rustic wood.

- G. **Does the area have continuous field logistical support?**
YES.

type of NGO support: permanent ANCON field supervision (2 people in-site); field equipment, ranger training, boundary maintenance, construction materials, local labor, oversight, infrastructure maintenance, food, transportation.

type of GO support: 5 permanent INRENARE Rangers; ranger salaries, project oversight.

- H. **Are ecological carrying capacity studies, baselines and monitoring underway?**
YES.

type of study: Rapid Environmental Assessment, simple biological monitoring.

- I. **Has a Management Plan been completed for the area?**
NO, publication is extremely outdated.

year of publication: 1989 - outdated.

- J. **Are Annual Operations Plans and Budgets completed?** YES.

II. COMPATIBLE RESOURCE USE:

- A. Have key social and economic values of the protected area been identified?
YES.**

key values: watershed protection/Panama Canal, ecotourism.

- B. Have basic human needs of local communities been satisfied (ie., health, safety, welfare, etc.)?
NO**

key issues: land tenure, health, education.

- C. Is there direct community and resource user participation in resource management and allocation decisions?
YES.**

key formal mechanisms: local representatives, community participation

- D. Is the land tenure in the area stable?
NO. In Soberania N.P. & Buffer Zone it is partially stable; the land tenure is not stable in Chagres N.P. & Buffer Zone.**

land tenure system: title and right of possession; very disorganized.

**Is local partner protecting land through acquisition?
YES.**

size and location (core/buffer): Rio Cabuya (64 has), Varcacia (40 has), Rio Chagres (9300 has) all in buffer zone of Soberania National Park.

- E. Are there diverse agricultural and natural resource uses within the carrying capacity of the protected area buffer zone?
YES.**

principal land/resource uses: subsistence agriculture, sub-urbanization, summer homes.

- F. Are local people employed by PIP project funds?
YES.**

of men: 30 (some part-time) in agroforestry activities

types of positions: construction, rangers, planters, cleaners.

of women: 10 (some part-time) Cabaya agroforestry projects.

types of positions: cooks, assistants, planters, cleaners.

III. LONG-TERM FINANCIAL SECURITY

A. Have the long-term financial needs of the protected area been identified?
NO.

B. Are there local revenues that support the protected area?
YES, very limited.

C. Are there national budget allocations that support the protected area?
YES.

type of support and estimated annual US\$ dollar amount: Park Guard salaries about \$77,000/yr.

D. Are there international funds that support the protected area?
YES.

type of support and estimated annual US\$ dollar amount: AID = \$400,000/yr, TNC = \$200,000/yr, Tinker Foundation, CIDA, Model Foundation, Conservation, Food & Health, and Model.

E. Has a Financial Plan been approved for the protected area?
NO.

F. Is an fiscally responsible administrative system in place to manage the funds?
YES.

external NGO audit at TNC? YES.

G. Are financial resource committed to operations of the area?
YES.

categories and projected budget: ANCON field supervisor salary equip/vehicle operations.

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

I. ON-SITE PROTECTION AND MANAGEMENT:

- A. Has there been a change in the natural vegetation or land cover?
YES.**

Soberania N.P. fence line stopped wild-fires/ reduced exotic grass & increased native vegetation.

how was this change measured? personal observation.

cite source(s): Luis Carles (ANCON), Brian Houseal (TNC).

- B. Has there been a change in the distribution, abundance or status of key species?
NO INFORMATION**

- C. Has there been a change in water quantity or quality? ;
NO INFORMATION**

II. COMPATIBLE RESOURCE USE:

- A. Have there been changes in the pattern or intensity of land or natural resource use?
YES.**

how were these changes measured? maps - no more colonization within Soberania N.P.

cite source(s): ANCON reports and personal observation.

- B. Have there been changes in the social or economic conditions of local residents?
YES.**

how were these changes measured? ANCON education and agroforestry programs provided limited benefits to local communities.

cite source(s): ANCON reports and personal observation.

- C. **Have there been changes in the policies or institutions?**
YES.

how were these changes measured? legislation - reforestation incentives local communities active in programs.

cite source(s): ANCON

III. LONG-TERM FINANCIAL SECURITY:

- A. **Has a trust fund or endowment been established for the protected area?**
NO, although NATURA structure in place.
- B. **Are there diverse sources of funds/revenues for the area?**
NO

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Parks in Peril : FY 1993 Evaluation

	Darien	Canal Watershed	Total Panama
ON-SITE PROTECTION & MANAGEMENT			
# Hectares in protected areas:	575,000	353,929	928,929
Management plan completed:			
Yes	0	0	0
No	1	1	2
Operations plan completed:			
Yes	1	1	2
No	0	0	0
Ecological values determined:			
Yes	1	1	2
No	0	0	0
Critical threats/areas located:			
Yes	1	1	2
No	0	0	0
Studies/monitoring underway:			
Yes	1	1	2
No	0	0	0
Radio equip. installed:			
Yes	1	1	2
No	0	0	0
# Radios on-site:	3	18	21
# Personnel:	36	78	114
# Rangers:	11	38	49
# Ranger training events:	8	7	15
# Km demarcated:	110	206	316
# Ranger centers:	7	6	13
Basic transportation:			
Yes	1	1	2
No	0	0	0
Continuous field supervision:			
Yes	1	1	2
No	0	0	0
COMPATIBLE USE/ECONOM. DEVELOPMENT			
Socioeconomic values identified:			
Yes	1	1	2
No	0	0	0
Basic human needs met:			
Yes	1	0	1
No	0	1	1
Local participation in resource mgmt:			
Yes	1	1	2
No	0	0	0
Land tenure stabilized:			
Yes	0	0	0
No	1	1	2
# Local people employed with PIP funds:	25	40	65
LONG-TERM FINANCIAL SECURITY			
Long-term financial needs identified:			
Yes	0	0	0
No	1	1	2
Funding from external sources:			
Yes	1	1	2
No	0	0	0
Amount	\$800,000		\$800,000.00
Funding from Federal/State sources:			
Yes	1	1	2
No	0	0	0
Amount		\$77,000	\$77,000.00
Funding from local sources:			
Yes	1	1	2
No	0	0	0
Amount	\$316,000		\$316,000.00
Financial plan approved:			
Yes	0	0	0
No	1	1	2

Parks in Peril

1993 Evaluation

Paraguay

**Mbaracayu Forest
Nature Reserve**

**PARKS IN PERIL PROGRAM
1993 EVALUATION FORM**

PROTECTED AREA NAME: MBARACAYU FOREST NATURE RESERVE

GENERAL INFORMATION:

Country: PARAGUAY

NGO Partner: Fundación Moisés Bertoni
Avnda. Rodríguez de Franca 770
Asunción, Paraguay

Telephone: (595-21) 44-4253

PIP project officer: Dr. Miguel Morales
Manager, Mbaracayú Forest Reserve

Government agency: Dirección de Parques Nacionales y Vida Silvestre
25 de Mayo 640 Piso 12
Asunción, Paraguay

PIP project officer: Director Oscar Ferreiro

Conservation objectives of protected area:

- o Conservation of the ecological systems of the Reserve and the flora and fauna that they contain through an aggressive protection and management program.
- o Improve the economic and social well being of the local communities adjacent to the Reserve through community outreach programs that promote sustainable development of the land resources.
- o Develop management systems and practices needed for the sustainable utilization of natural forest resources applicable to public and private lands in eastern Paraguay.
- o Demonstration and replication of the sustainable land use practices to other managed areas of Paraguay through training and extension programs based on the Reserve.

Evaluator: Alan C. Randall
Address: The Nature Conservancy
1815 N. Lynn Street
Arlington, VA 22209

Phone: (703) 841-4882
Fax: (703) 841-4880

INTRODUCTION

Operating Agreements

On June 25, 1991 the Government of Paraguay, the Fundación Moisés Bertoni (FMB), The Nature Conservancy and the United Nations Development Program entered into an international agreement to collaborate on the protection and management of the Reserve. This agreement was ratified by Congress and signed into law by the President on December, 1991 (Ley de la Nación 112/91).

The Government of Paraguay and the U.S. Agency for International Development signed an agreement to include the Reserve in the Parks-in-Peril program on March 25, 1992.

The Moisés Bertoni Foundation is currently implementing a PIP work plan and budget for USAID's FY 93 which has been approved by the Conservancy and USAID.

Background

FMB assumed responsibility for the management of the Mbaracayú Forest Nature Reserve on January 26, 1992, just 16 days after the purchase of the property was completed. The eight watchmen of the previous owner were offered continuous employment as reserve guards, subject to a probationary period of three months. Ultimately, only two were retained.

Prior to completing the purchase, FMB began an outreach and public relations program with the local communities in the adjacent area and the village of Ygatamí. Of particular importance were the efforts to explain the purposes for which the Reserve was created to the indigenous Aché community, and to assure them that their rights for subsistence hunting and gathering in the Reserve were confirmed in the legislation that established the protected status of the Mbaracayú.

On February 6, 1992 the initial work plan for the protection and management of the Reserve was approved by AID Washington for inclusion in the "Parks-in-Peril" cooperative agreement with The Nature Conservancy. Subsequently, on March 25, 1992, the U.S. Ambassador in Paraguay and the Minister of Agriculture witnessed the signing of an agreement between the USAID/Mission and the Foundation for the protection of the Mbaracayú. The Reserve was publicly dedicated at a ceremony on the property on April 4, 1992; the President of Paraguay, senior government and military officials, the diplomatic corps, and representatives of the local indigenous groups and communities attended the ceremony.

Management Activities

Upon assuming control of the Reserve, FMB made an appraisal of the infrastructure of the Reserve, with particular attention to the condition of the roads, bridges, and housing control posts occupied by the reserve guards. In addition, the condition of the boundary lines and posts was inspected. The housing was found to be seriously deteriorated, in some cases almost uninhabitable, and the roads and boundary lines showed no sign of recent maintenance. It seems probable that the company contracted to protect the property had reduced its protection program as the negotiations for the sale of the property advanced. Also noted was the absence of a system of communications to the border posts and a lack of supervision and support of the former watchmen. In some cases they had not received provisions for an extended period of time. Consequently, morale was low and it was likely that their diligence in protecting against poaching and other uses of the Reserve was limited.

The initial management priority was to reestablish reserve guards at the critical points on the borders of the Reserve, and to undertake a vigorous protection program. The objective was to demonstrate the priority and firmness of the new administration of the Reserve. The housing of the reserve guards was repaired to make them livable, although it was obvious that all of them would have to be rebuilt or replaced in the coming years. A regular schedule of resupply and rotation of the reserve guards was installed. A second priority was to resurvey and monument the boundary of the Reserve, clear the vegetation to identify property lines, and place signs at 500 meter intervals along the boundaries.

The community relations outreach program and the promotion of sustainable development was expanded as additional resources became available. Eventually, a total of eight agricultural groups participated in the Foundation's program. The culmination of the outreach program was a week long workshop held in Ygatamí from July 6 to 11, 1992. Over 66 persons, representing the local communities, national agencies, and international organizations, took part in this effort to analyze the development potentials of the Reserve and the surrounding watershed and the conservation requirements of the Reserve. The conclusions of the workshop were organized into a three Year operating Plan for the Mbaracayú Reserve and the surrounding area.

A major setback to the management program for Mbaracayú, and the outreach activities in general, was the heavy flooding in 1992 that closed the roads to Ygatamí and Reserve for weeks at a time. The flooding destroyed all bridges on the roads to and in the Reserve, and washed out portions of the roads. The rain also severely destroyed crops in the field, and the lack of transport caused harvested cotton (a principal cash crop) to spoil. The costs of supporting the field staff during this period were unforeseen and expensive in terms of time and operating expenditures. The need to rebuild major portions of the internal road system required the allocation of funds previously scheduled for building construction.

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Evaluation Criteria

Criteria for the specific evaluation of the project are provided by the findings of an initial evaluation of progress completed in August 1992, some five months into the management program. While noting that the unusually heavy rains had delayed implementation of the preliminary Parks-in-Peril work plan, the findings of the evaluation team were quite positive. However the limitations and recommendations noted by the team provide a basis for this present evaluation 10 months later--June 26 to July 2, 1993. The significant deficiencies noted at that first review are summarized: 1. Lack of training of the Reserve Guards; 2. Lack of boundary signs on the Reserve and the at the points of entry; 3. Lack of continuity in the outreach program due to uncertainty of funding for this program. 4. Absence of information on the biological carrying capacity for subsistence hunting; 5. Problems of personal security of Reserve staff; 6. Lack of "all weather" access roads to the Reserve; 7. Lack of adequate infrastructure--no central administrative offices; 8. Undue administrative work required of the field staff; and 9. Uncertainty of long term funding. These limitations are addressed in the evaluation format above.

The Evaluators had summary recommendations on technical and administrative/financial aspects of Reserve management.

1. **Technical - Revision and reorganization of the draft Operating Plan to be more practical and functional. Develop a comprehensive sign system and boundary delimitation program. Implement a training program for the reserve guards. Establish a monitoring system of basic biological information for the Reserve.**
2. **Financial and Administrative- Prepare a long-term financial plan and fund raising strategy for the Fundación and the Reserve. Create an endowment to meet Reserve operational costs. Simplify the financial and administrative procedures to reduce the workload of Reserve staff.**

Findings

FMB has accepted the observations and recommendations of the evaluators for the most part, and at the time of the evaluation, (July 1993), significant progress was evident. Specific actions taken on the technical recommendations include: revising of the draft of the Operating Plan; marking and posting of 60% of the boundary of the Reserve (a task that is continuing); and initiating an in-service training program for the reserve guards. As yet there has not been sufficient time nor resources to plan the systematic survey of wildlife population and carrying capacity. Planning for this survey program has begun and a methodology is being developed.

Financial and administrative improvements include an agreement as to the structure and procedures of an endowed trust fund and a receipt of the first contributions; a fund raising program is in place and a list of potential donors has been identified; a long-term financial

plan has yet to be prepared as there is little cost experience on which to project funding requirements; the addition of an administrator to the Reserve staff.

Recommendations

1. Completion of the boundary survey and marking, including the additional land acquired from IBM, should be completed by September 1994.
2. Once the heavy traffic related to construction is finished, use of the roads should be curtailed during the wet season. The purchase of an off-road vehicle, one with large rubber tires, or a tractor, should be considered for adequate patrolling and resupply of the Reserve during the wet season. This could reduce the impact on the roads from wet weather use, and reduce maintenance costs and the need for costly upgrading and construction.
3. Training of the field staff, particularly the Reserve Guards, both on-the-job and in workshops, should be planned and systematically delivered. Attendance records should be kept. Aché and others who may be employed on a seasonal basis should also receive appropriate training. Joint training with the park guards and other reserve guards should be organized following the current planning for a national system of reserves.
4. Priority should be given to completing the Administrative Headquarters and other facilities at Jejui-mi by September 1994. Likewise the renovation or replacement of the guard posts should be finished prior to building visitor centers and research facilities.
5. The first baseline study of the wildlife population and subsistence hunting should be completed by December 1994.
6. The management fund should be endowed at the \$2 million initial goal by September 1994. A minimum of twenty-five percent of unrestricted funds received for the management of Mbaracayú Reserve should be placed in the endowment trust fund rather than expended for new initiatives.

These recommendations should be considered in developing the evaluation plan at the end of Fiscal Year 1994.

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PERFORMANCE INDICATORS:

I. ON-SITE PROTECTION AND MANAGEMENT

A. Have the ecological values of the Reserve been identified? YES

The ecological values of the Reserves were identified in a preliminary reconnaissance by naturalists of the CDC and Dr. Alwyn Gentry of the Missouri Botanical Garden in August 1987. The importance of the land as a Nature Reserve was confirmed by subsequent surveys by the CDC and the Natural History Museum of Paraguay in March 1991.

size (hectares):

The original size of the Reserve is 62,339 hectares, with an additional 4,624 hectares being added in November 1992. Two hundred and twenty-five square miles in size, Mbaracayú is one of the last large tracts of privately owned dense humid sub-tropical forest in South America. The property contains a range of habitats--dense high forests, low transition forests, grass and wetlands, rivers, and caves.

Key ecosystems:

Initial field surveys have identified 19 natural plant communities and a wide representation of endemic and threatened species. Many plants and animals, now extinct or severely endangered in other regions, are found in the Mbaracayú forest. A study by the Missouri Botanical Garden reported that it contains the most significant remaining example of "Alto Parana", a forest type rich in lianas that includes species once found in the now largely destroyed Atlantic forest of Brazil. Mbaracayú may be the last opportunity we have to protect a unique forest type along with hundreds of endangered and rare species, many as yet not identified by science.

Ecological Significant Species:

Birds: King vulture, Bare-throated bellbird, Large macaws, Bare-faced curassow, Black-fronted piping guan. Mammals: Jaguar, Tapir, Peccary, Giant armadillo, Bush dog, Maned wolf.

B. Have critical threats been located on a map? NO

The critical threats are not point specific, and therefore do not lend themselves to being located on a map. At present timber theft and poaching are the critical threats. The chief sources of poaching are along the northwest boundary, close to roads and settlers, and in the southeast corner where hunters can enter on trails under forest cover. Entry of the Reserve for timber theft is also a threat in the northwest corner where road access is easy.

C. Are critical boundaries surveyed and posted? YES

Since assuming responsibility for the protection of the Reserve the Fundación has contracted for a legal survey of the 150 kilometers and the location of corner and other boundary monuments. The boundary is also being cleared to a width of 2 meters. As of July 1993, approximately 85 kilometers had been surveyed, cleared and posted with boundary markers.

D. Are rangers trained and equipped? YES

The Reserve has a staff of 9 park guards, an administrator, and a Chief of Park Guards, resident on the Reserve. The Reserve Manager, Dr. Miguel Morales, has received training in reserve management through the U.S. Park Service course in Colorado. The Chief of Park Guards, Ramon Villalba, has completed a three month training course for wildlife refuge managers in Mexico taught by Ducks Unlimited. The nine reserve guards, all of whom are literate and speak Spanish as well as Guaraní, are being trained on the job by the Reserve Manager, and other staff of the Fundación Bertoni.

The reserve guards are provided boots, a distinctive uniform and badge, and the field equipment and housekeeping gear needed for their assignment to the dispersed guard posts. Gardening tools and seeds are provided to each guard post to reduce dependence on purchased food.

E. Do personnel have transport and communications equipment? YES

Three motorcycles and a vehicle are permanently assigned to the Reserve. In addition, Fundación Moises Bertoni has a vehicle that makes weekly trips from the capital of Asunción to the Reserve with provisions, fuel, and equipment.

A radio system was installed which will connect the reserve guards to the Reserve Administrative Office as well as to each other. The Reserve office has a separate radio system for communication with Asunción. The construction of a relay station and antennae is necessary to make the radio net fully functional, and is a part of the 1994 work plan.

F. Have basic protection facilities been constructed on-site? YES

At the time of assuming responsibility for the protection of the Reserve, FMB established guard posts at the four corners of the property, and at the sites where the existing roads entered the property. In addition there was an administrative building at the airfield in the center of the Reserve. These facilities were in very poor repair, and in one case had been abandoned, making them unsuitable for occupancy by the reserve guards. First priority was to repair these existing structures to make them habitable, which was done in the first year of management. The plan now is to replace these structures with better housing, to complete an

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administrative building and dormitory for visiting scientists, and a residence for the Chief Reserve Guard on the Reserve.

G. Does the Reserve have continuous field logistical support? YES

FMB is responsible for the management of the Reserve and provides continuous field logistical support of the reserve guards. This includes delivering supplies to the patrol posts and transporting personnel for rotation schedules

Government support is limited to the police function, when available, for the arrest of trespassers and enforcement of legislation. So far the courts have confirmed the legal status of the Reserve as a legally established protected area and have dismissed all conflicting land claims.

H. Are ecological carrying capacity studies, baseline surveys, and monitoring programs underway? NO

Field investigation to identify the occurrence of birds and other animals has been undertaken by various investigators and university groups. In addition, a petroleum company conducted a study of the potential impacts of petroleum exploration on adjacent lands. Carrying capacity studies need to be undertaken to establish a baseline for future animal census on the Reserve. Discussions have begun on the methodology to be used.

I. Has a Management Plan been completed for the Reserve? YES

A three year operating plan for the management of the Reserve (1993-1995) was completed and published in July 1992.

J. Are annual operation plans and budgets completed? YES

Annual operations plans and budgets are prepared to implement the general three year plan based upon the availability of resources.

II. COMPATIBLE RESOURCE USE:

A. Have key social and economic values of the protected area been identified? YES

Mbaracayú is a remnant of the traditional hunting grounds of the Aché, an indigenous tribe of hunters and gatherers only recently (1976) brought into contact with the outside world. The Aché live in two settlements adjoining the Mbaracayú tract and depend on the wildlife, plants, and fruits of the forest for subsistence as they make a transition to agriculture and animal production. The continued traditional uses of the Mbaracayú by the Aché is an important management consideration.

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B. Have basic human needs of local communities been satisfied, i.e. health, safety, welfare, etc.)? YES

The adjacent buffer area of the Mbaracayú is a zone of colonization which began in the late 1970s when the national system of roads was extended into the area. Agricultural reform has titled small lots (20-50 hectares) to "campesinos", but there are issues of squatters entering the area, particularly from nearby Brazil. The pace of settlement has outgrown the ability of the government to provide health and education services. The road that merges with the "all weather" highway system is often closed for weeks at a time during the rainy season. Despite the remoteness of the area, there are schools, a health clinic, and a telephone in the nearby village of Ygatamí. The village has just received a rural electrical system (June 1993), and improvements in the provision of public service are occurring.

key issues:

The key issues are transport of agricultural products during the wet season and dependence on cotton and soya for much of the cash income of the small farmers, problems arising from lack of economic opportunity. Agricultural extensions services and markets for products are restricted, and local credit facilities are unavailable.

C. Is there direct community and resource user participation in resource management and allocation decisions? YES

The three year operating plan for the Mbaracayú Reserve, and the surrounding buffer area was developed through a week long public meeting in June 1992. Thirty-six public agencies and community groups (over 65 people) formed work groups to discuss resource management issues and community needs in relation to the management of Reserve.

Key Formal Mechanism:

The law creating the reserve established a Mbaracayú Reserve Management Council, composed by government agencies, the local Aché community, the Fundación Moisés Bertoni, and other entities to oversee the management of the Reserve in accordance with the law.

D. Is the land tenure in the area stable? YES

The land is titled to individuals, although conflicts in title do occur. The smaller parcels distributed by the agrarian reform agency are well recognized. There are squatters on the larger land holdings that present a social and economic problem. For example, on the land acquired by the Fundación Moisés Bertoni from the agrarian reform institute (IBR), some 30 families were found in supposedly vacant land. IBR has made arrangements to move these squatters to parcels of land which can be titled to them.

Is the local partner protecting land through acquisition? YES

In November 1992 FMB purchased a 4,624 hectare property from the Instituto de Bienestar Rural (IBR), the agrarian reform agency, for inclusion in the Reserve. This tract lies within 400 meters of the east boundary of the original property, and protects the sources of two of the principal tributaries of the Jejuí-mí river flowing through the Reserve. Additional land acquisition is planned through easements, donations, and purchase.

E. Are there diverse agricultural and natural resource uses within the carrying capacity of the Reserve buffer zone? YES

The agricultural land uses of the area comprise grazing of cattle on the large estates, mechanized soya and cotton production on large farms, and mixed cropping and small animal production on the smaller settlements. In addition, there is an increase in citrus and yerba maté permanent agroforestry projects by both small and large landholders. Forest hunting and gathering of wild honey and yerba maté is done on a subsistence basis by the Aché and Guaraní communities in and around the Reserve. Some timber is extracted from private land either legally or otherwise.

F. Are local people employed by PIP project funds? YES

Twelve men work on the Reserve; Reserve Director-Miguel Morales, Chief of Park Guards-Ramón Villalba, an administrative assistant, and nine park guards.

In addition three Aché patrol part-time as needed and work as guides when visitors enter the Reserve. One of the guides, Ramona Tycuarangui, is also the community school teacher who speaks spanish in addition to her native language.

III. LONG-TERM FINANCIAL SECURITY

A. Have the long-term financial needs of the protected area been identified? YES

The long term financial needs for the management of the Mbaracayú Forest Nature Reserve have been identified in the Bioreserve Plan being produced by the Conservancy in consultation with Fundación Moisés Bertoni. This plan is scheduled for review by The Nature Conservancy on November 5, 1993.

B. Are there local revenues that support the protected area? NO

At present there are no local revenues for the support of the Reserve. Visitors, scientists, and tourists are paying the expenses of their visit which is providing some income to local guides retained for that purpose. Private contributions from national sources have been

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received for the Reserve, and there is a significant contribution in-kind received by the Fundación on behalf of the Reserve.

C. Are there national budget allocations that support the protected area? NO

The Reserve is owned by a private foundation, the Fundación Mbaracayú and does not receive any funds directly from the national budget.

D. Are there international funds that support the protected area? YES

In addition to USAID funding through PIP, substantial funding has been received through private donations. The "Adopt-an-Acre" program of The Nature Conservancy has provided over \$575,000 for the acquisition of land, and for protection and management costs. In addition individual donors have contributed amounts in the range of \$15,000 to \$25,000.

E. Has a Financial Plan been approved for the protected area? YES

There is an overall financial plan prepared to cover the estimated costs of establishing and protecting the Mbaracayú Forest Reserve that has been accepted as a starting point. This plan estimates about \$4.7 million needed over the coming 10 years. It is expected that the plan will be approved in November 1993.

The 10 year budget estimates are:

Personnel	\$1,900,000
Operations	700,000
Services	200,000
Capital Improvements	1,200,000
Miscellaneous + Inflation	200,000
Administration	<u>500,000</u>
Total	\$4,700,000

Source of Funds:

Trust Fund Income	\$2,000,000
USAID Parks in Peril	500,000
Adopt-an-Acre	600,000
UNDP-GEF	800,000
European Donors	300,000
Private donors and revenue	<u>500,000</u>
Total	\$4,700,000

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F. Is a fiscally responsible administrative system in place to manage the funds? YES

The financial system of FMB was designed and installed by Coopers and Lybrandt in 1989. The same firm is responsible for completing the annual external audit of FMB, and the audit reports are on file at the Conservancy.

G. Are financial resource committed to operations of the area? YES

Operations on the Reserve are the main principle cost element of the Fundación Moisés Bertoni, and all funds received for management are committed to on-going work on the Reserve.

Proposed Budget for Calendar Year 1994

Personnel	\$93,000
Training	20,000
Operations	72,900
Capital Investment	293,700
Studies and Services	25,000
Administration	39,000
Contingencies	36,400
Audit	<u>3,000</u>
Total	\$558,100

This budget will be financed by \$265,900 from USAID Parks-in-Peril Funding through The Nature Conservancy and by \$292,200 from other contributions including the Adopt-an-Acre program.

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

I. ON-SITE PROTECTION AND MANAGEMENT:

A. Has there been a change in the natural vegetation or land cover? NO

Interpretation of 1992 satellite imagery compared with 1986 imagery, monthly aerial reconnaissance and the weekly inspection of reserve guards walking the boundaries and roads have not detected any change in the natural vegetation or forest cover of the Reserve.

B. Has there been a change in the distribution, abundance or status of key animal species on the Reserve? NO INFORMATION.

At the present time (July 1993) the natural forest cover has been maintained and there is no indication of change in habitat. With the introduction of the reserve guards of the Fundación Moisés Bertoni, hunting pressure has been greatly reduced though it is probable that poaching still continues.

Continuing reconnaissance studies by investigators, specialists in birds, reptiles, and mammals such as the bush dog and maned wolf have recorded the occurrence of species previously not known to inhabit the Reserve. What is lacking is a comprehensive study of population densities as well as a monitoring system to identify changes in numbers.

As the Aché continue subsistence hunting on the Reserve it is particularly important to determine the carrying capacity of those species of animals, largely monkeys, to support this use. Likewise, information on the populations of rare and endangered species is necessary in order to encourage the Aché to avoid taking these animals.

C. Has there been a change in water quality or quantity? NO INFORMATION

The Reserve contains the source and headwaters of the Jejuí-mí River and protects the associated gallery forests. A potential source of contamination of the water would be agricultural chemical runoff from upstream land uses.

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II. COMPATIBLE RESOURCE USE:

A. Have there been changes in the pattern or intensity of land or natural resource use? NO INFORMATION

Agriculture continues to be the main economic activity in the area with cotton, citrus, and mixed crops produced for subsistence and cash. The sustainable development outreach program of FMB consists of promoting the planting of yerba mate and citrus through the eight community groups organized in the area of the Reserve. The raising of pigs and chickens is being promoted within the Aché community to reduce reliance on hunting for subsistence. Bee keeping to produce honey for sale is an economic activity that the Aché are developing to reduce the destructive collection of wild honey in the forest.

The long-term goal of these activities is to increase the productivity and income of existing agriculture and to reduce pressures by shifting cultivation to new areas.

B. Have there been changes in the social or economic conditions of local residents? NO INFORMATION

It is too early for the sustainable development outreach program of FMB to produce measurable changes in the social and economic conditions of the local residents.

C. Have there been changes in public policies or institutions? YES

The publicity and political support of the President of Paraguay for the Reserve and his visits to the area have been a stimulus to both public and private agencies to direct more resources to the area. One example is the placement of an ambulance in the area and the increased presence of public service agencies.

III. LONG-TERM FINANCIAL SECURITY:

A. Has a trust fund or endowment been established for the protected area? YES

An endowed trust fund has been established to meet the recurrent costs of management of the Reserve. The initial funding goal for the fund is \$2 million of which \$1.5 million has been pledged, and some \$75,000 has been received from individual donors. The terms of the trust agreement are to retain earnings and continue fund raising until the initial goal is achieved.

The endowment will be managed by the Conservancy as a discrete account within its fund portfolio. Anticipated income when the initial endowment is reached is 5% per year, or about \$100,000 annually. This sum is the minimum needed for the maintenance of reserve guards salaries and support. It is intended to finance the capital costs of infrastructure and construction of roads and bridges through the USAID grant and other one time donations.

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B. Are there diverse sources of funds/revenues for the area? YES

The Moises Bertoni Foundation is conducting an aggressive program of fund raising for the Reserve outreach program of sustainable development activities. Until recently, this priority activity has had difficulties finding a continuing source of funding to meet recurring costs of the community organization and technical assistance.

By November 1993, a major line of credit is expected from the Small Project Facility of the Inter-American Development Bank. The Fundación Bertoni is expected to receive \$140,000 for community development services and extension work, and a \$500,000 soft loan with which to provide agricultural credit to the 8 communities with which it works. Administration of the credit program will be contracted out to a local credit cooperative in the region.

Additional funding for the community outreach program has been requested from European bilateral donor agencies as well private foundations both in Europe and the United States.

Parks in Peril : FY 1993 Evaluation

	<u>Mbaracayu</u>	<u>Total Paraguay</u>
ON-SITE PROTECTION & MANAGEMENT		
# Hectares in protected areas:	62,339	62,339
Management plan completed:		
Yes	1	1
No	0	0
Operations plan completed:		
Yes	1	1
No	0	0
Ecological values determined:		
Yes	1	1
No	0	0
Critical threats/areas located:		
Yes	0	0
No	1	1
Studies/monitoring underway:		
Yes	0	0
No	1	1
Radio equip. installed:		
Yes	1	1
No	0	0
# Radios on-site:		
# Personnel:	12	12
# Rangers:	9	9
# Ranger training events:	3	3
# Km demarcated:	150	150
# Ranger centers:	5	5
Basic transportation:		
Yes	1	1
No	0	0
Continuous field supervision:		
Yes	1	1
No	0	0
COMPATIBLE USE/ECONOMIC DEVELOPMENT		
Socioeconomic values identified:		
Yes	1	1
No	0	0
Basic human needs met:		
Yes	1	1
No	0	0
Local participation in resource mgmt:		
Yes	1	1
No	0	0
Land tenure stabilized:		
Yes	1	1
No	0	0
# Local people employed with PIP funds:	12	12
LONG-TERM FINANCIAL SECURITY		
Long-term financial needs identified:		
Yes	1	1
No	0	0
Funding from external sources:		
Yes	1	1
No	0	0
Amount	\$1,000,000	\$60,000
Funding from Federal/State sources:		
Yes	0	0
No	1	1
Amount	\$0	\$0
Funding from local sources:		
Yes	0	0
No	1	1
Amount	\$0	\$0
Financial plan approved:		
Yes	1	1
No	0	0

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Parks in Peril

1993 Evaluation

Peru

**Pampas del Heath
National Sanctuary**

**Yanachaga-Chemillen
National Park**

**PARKS IN PERIL PROGRAM
1993 EVALUATION FORM**

PROTECTED AREA NAME: PAMPAS DEL HEATH NATIONAL SANCTUARY

GENERAL INFORMATION:

Country: Peru
NGO Partner: Fundación Peruana para la Conservación de la Naturaleza
Address: Amador Merino Reyna # 255, Lima 27
PIP project officer: Francisco Estremadoyro
Government agency: INRENA
Address: Calle Diecisiete #355
Urb. El Palomar, Lima 27
PIP project officer: Ricardo Gutierrez

Conservation objectives of protected area:

- o To protect the only sample of humid tropical savanna in Peru
- o To protect a sample of humid subtropical forest
- o To protect endangered fauna species which in Peru can only be found in the Pampas del Heath National Sanctuary: Marsh deer (Odocoileus dichotomus) and Maned Wolf (Chrysocyon brachyurus).

Is there an NGO/GO agreement to work on this PIP site?

YES

Is the TNC/NGO agreement up to date?

YES

Is the PIP Work Plan and Budget up to date?

YES

Name of evaluator(s): Francisco Estremadoyro, Fernando Rubio
Address: Amador Merino Reyna #255, Lima 27
Phone: 5114 424796/426616/422149
Fax: 5114 427853

I. INTRODUCTION

A. Description of the area

The Pampas del Heath National Sanctuary protects the only sample of humid tropical savanna in Peru (approximately 8,000 hectares), which is generally considered to be one of the best preserved in South America. The Sanctuary covers 102,109 hectares and is located in the Amazon llano, on the border with Bolivia. The pampas, as they are known locally, protect fauna and flora species that are unique in Peru. Among these are the Marsh deer (Blastocerus dichotomus), the maned wolf (Chrysocyon brachyurus), seventeen bird species, among them two psittacids (Graham et al., 1980) and at least 28 newly registered lepidopterans (Lamas, 1993). It also protects native fruits which are wild varieties of the domestic pineapple and guayaba.

Characteristic of the area are wooded islands between the savanna and the marsh areas. The climate is of the continental type, with precipitation varying between 500 and 1,200 mm. and average annual temperature between 20 and 23 degrees C. The physiography is flat, with small undulations, and poorly drained alluvial soil.

There is no human population inside the Sanctuary, while the adjoining areas are sparsely inhabited, mainly by indigenous groups of the Ese'Eja ethnic group. The indigenous population enters the Sanctuary for traditional hunting and fishing activities, that are not for commercial but for subsistence purposes. Settlers are not allowed to hunt or fish within the Sanctuary area.

Contracts for the exploitation of Brazilian nut within the Sanctuary existed until this year. These concessions have now lapsed and the Ministry of Agriculture has not renewed any of them. Nevertheless, there is strong pressure from the people who had contracts before to continue their operations on Sanctuary territory.

B. Evaluation Team

The evaluation team was formed by Fernando Rubio, Head of the Pampas del Heath National Sanctuary and Francisco Estremadoyro, Parks in Peril coordinator of the Peruvian Foundation for the Protection of Nature (FPCN), who worked in close coordination with Len West, Protected Areas Specialist, and Dennis McCaffrey, Senior Project Manager, both from The Nature Conservancy (TNC).

The entire group of park rangers attended the field visit, working closely with the evaluation team.

C. Evaluation's Work Plan

Several meetings took place to establish the overall evaluation process between Len West and Francisco Estremadoyro, Dennis McCaffrey and Fernando Rubio. As a result, it was possible to establish evaluation objectives, a methodology, a timetable, and the format of the evaluation reports.

A second phase covered the revision of all documents pertinent to the evaluation, including the 1992 and 1993 Work Plans, the Letter of Understanding between TNC and FPCN, the Letter of

Understanding between DGFF (which is now INRENA) of the Ministry of Agriculture and FPCN, the 1991 and 1992 evaluation reports, the quarterly technical reports, etc. This phase also included interviews with people concerned with the subject.

The field visit took place September 3 to 7, 1993. The trip included a visit to key places within the Sanctuary, and visits with the indigenous population around it. The complete itinerary is included in the attachments.

D. Key individuals and institutions

The evaluation's key institutions were FPCN, the National protected Areas and Wildlife Directorate (DGAPFS) of INRENA, and TNC.

FPCN provides technical and administrative assistance to the Sanctuary. The areas Chief and the park rangers are employees of FPCN. The latter raises funds for the Sanctuary, maintains liaison with TNC and coordinates activities in the area with DGAPFS.

DGAPFS gives political support to the area, provides official recognition to the Sanctuary's staff, provides technical support for certain activities, and integrates the work done in this protected area with the rest of the Protected Areas National System, in particular with the neighboring Tambopata Candamo Reserve.

TNC provides financial and technical assistance to the Sanctuary through FPCN. It also helps FPCN raise funds for the Sanctuary.

The following people were contacted during the evaluation process:

Fernando Rubio, Head of the Sanctuary
Rosa Chavez, NSPH's Administrative Assistant
Mario Baudoin, Sustainable Development Ministry, Bolivia
Antonio Morizaki, Director General, DDGAPFS
Hernán Gutierrez, Protected Areas Director, DGAPFS
Ricardo Gutierrez, DGAPFS
Carlos Ayala, Environmental Officer, USAID/Peru
Gustavo Suarez de Freitas, Executive Director, FPCN
Eulogio Herrera, Projects Director, FPCN
Elda Rodas, PIP Projects Administrator, FPCN
Daniel B. Quinn, Peru country Program Director, TNC
Len West, Protected Areas Specialist, TNC
Dennis McCaffrey, Senior Project Manager, TNC

II. TECHNICAL EVALUATION

A. Achievements

Trained and motivated staff

The Sanctuary's staff is composed of a Chief (Head) and ten park rangers. The staff is very identified with its mission, is a very stable staff, and very motivated to perform its work. The Sanctuary's Chief and the rangers have a good knowledge of the area and its problems. The Chief has adequate training for the job and has taken a course on protected areas stewardship in Colorado State University this year. Each one of the rangers has received some kind of training, some have taken specialization courses and others informal basic training within the Sanctuary.

Staff appropriately equipped

The Sanctuary is equipped with boats allowing operation during the dry season as well as during the rainy season. In Puerto Maldonado there is a 125cc motorcycle that is used for transportation.

There are three radios installed and in excellent working order within the Sanctuary. This year, the rangers have received new uniforms, and camping equipment consisting of a tent, compass, backpack, binoculars, an altimeter, etc.

Adequate facilities

The Sanctuary's offices in Puerto Maldonado, the San Antonio and Palma Real control stations are all very comfortable and well equipped.

During the past period, the emphasis has been on the Sanctuary's infrastructure, which is now almost complete. The Palma Real control station is 90% complete, with only a few finishing touches left. The Sanctuary thus has permanent control on the two entrances to the area: the Heath and the Palma Real Rivers.

Good patrolling, control and surveillance work

Control and surveillance activities are performed very efficiently. The rangers patrol constantly and produce reports that are useful to ward off possible difficulties by acting ahead of time. As a result of the rangers' control activities clandestine hunting has diminished drastically.

With help from the indigenous population, the northern boundary has been pushed forward, but the demarcation work is not completed yet.

Active participation in the planning process of the neighboring Tambopata Candamo Reserve (ZRTC)

The ZRTC is a temporary protected area located around the Sanctuary, that includes the source of the Heath River. From the beginning of the project, FPCN and the Sanctuary's management have

been pushing for the extension of the Sanctuary to include the Heath River source, as shown in the preliminary version of the extension proposal presented by the management to INRENA.

In a recent Forum that took place in Puerto Maldonado, and in which the management of the Sanctuary took an active part, the zoning of ZRTC was approved. The Heath sources were declared strict protection areas, which could be very favorable to the Sanctuary's extension project.

Good relations with the indigenous population in the immediate area

The Sanctuary maintains very productive relations with the indigenous communities of Palma Real and Sonene, its most important neighbors. The Sanctuary's management forbids entrance to the area by settlers and commercial hunters. The traditional users of the area benefit from this, because it brings less competition for the area resources.

The indigenous groups have supported the Sanctuary in many ways, such as confiscating lumber, setting Sanctuary boundaries, and weaving palm leaves to be used for the control stations roofs.

The Sanctuary helps in facilitating public health for the area

Through an agreement between FPCN and the Madre de Dios Health Ministry, the Sanctuary's management gives periodical boat transportation to medical personnel who provide free medical care to the area's settlers and indigenous community. It would be very difficult to obtain this kind of public service in this remote area without the cooperation of the Sanctuary.

Good coordination with the regional government

The management maintains close and productive coordination with local governmental organizations. As proof of this is the fact that the Brazilian nut contracts have not been renewed. Also, Sanctuary personnel and Madre de Dios Ministry of Agriculture's personnel have participated jointly in confiscating lumber in the adjoining Tambopata Candamo reserve. Part of the confiscated lumber was used in the construction of the Palma Real control station.

B. Limitations

Indiscriminate logging on the Bolivian side of the Heath

Sanctuary personnel have been able to confirm that small diameter cedar trees (Cedrella odorata) have been marked to be felled on the Bolivian bank of the Heath, with no regard to the need for seed dispersion to maintain the health of the forest. The Bolivians working in that area provided the information that, as soon as the river is high enough, logging tractors would be shipped in to proceed with the cutting.

Lack of long term management planning

The Sanctuary has not done any management planning. Activities are done on a yearly operative basis, without an actual written plan.

Lack of scientific investigation

The Sanctuary does not have an established research program, to support its management activities, particularly on the key fauna species living within the Sanctuary. This year the management has prepared a research proposal that was presented to the Biodiversity Support Program, unfortunately it was not accepted.

C. Recommendations

Improve patrolling activities

Control and surveillance of the area are very effective and have cut down considerably on clandestine hunting. Nevertheless, the planning of patrolling activities is not quite appropriate to respond to the pressure to use Sanctuary resources, which changes seasonally. From May to November, the strongest pressure is on the Heath River area for hunting and turtle egg collecting. From December to April, pressure shifts on the Palma Real River for the exploitation of Brazilian nut. Patrol scheduling and ranger assignment for both control stations should take these variations into account.

Increase coordination with Bolivian authorities

It is imperative to increase contacts with the Bolivian authorities on the other side of the Heath River to coordinate the management of the watershed, because every single activity undertaken there has an effect on the conservation of the Sanctuary in Peru.

The latest reports on non-sustainable forest exploitation in the area are very alarming. This is the appropriate moment to develop a line of action in the frame of recent contacts developed by TNC and FPCN with Bolivian nongovernmental organizations, and also because of the recent creation of the Bolivian Sustainable Development Ministry.

Establish a research and monitoring program

It is urgent to establish a monitoring program for the key species in the Sanctuary. The area management has designed a registration card to be filled by the park rangers during their patrolling tasks. This card should be improved and the collection of data should be made more systematic.

Design a management plan for the Sanctuary

It is urgent to proceed with the planning of the areas conservation needs and research on the local species. Measurable goals and objectives must be established for a five year period. On that basis priorities must be set and resources obtained to organize future activities. This plan must take into consideration the relationship with the indigenous community users of Sanctuary resources, exploitation of the Brazilian nut and the areas potential and limitations to establish ecotourism activity.

III. FINANCIAL EVALUATION

A. Achievements

Basic Management Funding

From the time it was officially established as a protected area in 1983, until 1990 when the project to support the Sanctuary was initiated, this area had no personnel, no infrastructure, nor equipment. There was no budget for its operation. It has been possible to start operation thanks only to the PIP financing obtained for the Sanctuary. The area and its natural wealth are now protected through conservation activities.

It is estimated that US\$100,000 are needed per year, to maintain the present level of activity, without any change or improvement, no purchase of vehicles or equipment liable to wear out, etc. An annual budget of US\$140,000 to US\$150,000 would allow to maintain operations at the present level, and would provide for a measured increase in equipment and operations.

The transfers of funds from TNC to FPCN and from FPCN to the Sanctuary are handled without major delays, and fulfill the needs in the field.

V. RECOMMENDATIONS SUMMARY

Technical

- Work in coordination with Bolivian authorities to ensure the protection of the entire Heath watershed.
- Prepare a five year management plan for the Sanctuary.
- Establish a monitoring program for key species, and monitoring of the indigenous population's use of the Sanctuary.
- Improve patrolling patterns and personnel assignment to control stations.

Financial

- Maintain support to the Sanctuary by including it in a new period of PIP.
- In conjunction with TNC and FPCN continue searching for long term financing opportunities.

Administrative

- Standardize administrative procedures to adapt them to new tributary regulations in Peru.

**Supervision of Pampas del Heath National Sanctuary Project
FY 1993**

Field Inspection Visit Itinerary

Date	Activity	Observations
9/3/93	Lima - Puerto Maldonado Pto Maldonado - Palma Real station (F. Estremadoyro)	By air Meeting with Fernando Rubio By Sanctuary's craft Overnight in Palma Real station
9/4/93	Palma Real Station - San Antonio Station	By Sanctuary's craft Overnight in San Antonio station
9/5/93	San Antonio station - Juliaca Shelter Juliaca - Pampas - Shuyo campsite - Juliaca Juliaca - San Antonio station	By Sanctuary's craft Hike By Sanctuary's craft Overnight in San Antonio station
9/6/93	San Antonio station - Sonene- Puerto Maldonado (Sanctuary's office)	By Sanctuary's craft Overnight in Puerto Maldonado
9/7/93	Puerto Maldonado-Lima	By air

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PERFORMANCE INDICATORS:

I. ON-SITE PROTECTION AND MANAGEMENT

- A. Have the ecological values of the area been identified?
YES.**

size (hectares): 102,109

key ecosystems: Humid tropical savanna

key processes: vegetal succession savanna to forest

threatened species: Marsh deer, Maned Wolf, Giant otter (Pteronura brasiliensis)

- B. Have critical threats been located on a map?
YES.**

type: scale 1:100,000

source: CDC - Peru

- C. Are critical boundaries surveyed and posted?
YES.**

of kilometers demarcated: 20 km.

- D. Are rangers trained and equipped?
YES.**

of rangers on-site:

1 Chief(Head), 10 park rangers, 1 administrative assistant

type of training received:

Chief: Short course on Protected Areas Management in CSV;

Course on Maintenance and Repair of outboard motors in Iquitos;

Park Rangers: Internal informal training and Soil Management course.

- E. Do the personnel have transportation and communications equipment?
YES.**

and type: 1 motorcycle, 2 wooden boats with 16HP motors, 1 HF radio.

- F. Have basic protection facilities been constructed on-site?
YES.**

location:

Palma Real Grande River

type and m2 size of facilities: Control station approx. 120 m2

G. Does the area have continuous field logistical support?

YES.

type of NGO support: Whole area operation

type of GO support: Administrative support

H. Are ecological carrying capacity studies, baselines and monitoring underway?

YES.

type of study: Studies have started on fire use in relation with savanna - forest succession.

I. Has a Management Plan been completed for the area?

NO.

J. Are Annual Operations Plans and Budgets completed?

YES.

II. COMPATIBLE RESOURCE USE:

A. Have key social and economic values of the protected area been identified?

YES.

key values:

Fauna, Brazilian nut, wild pineapple

B. Have basic human needs of local communities been satisfied?

(ie., health, safety, welfare, etc.)

YES.

key issues:

Support with medical services, transportation, education (school units).

C. Is there direct community and resource user participation in resource management and allocation decisions?

YES.

key formal mechanisms:

Meetings with neighboring indigenous communities

D. Is the land tenure in the area stable?

YES.

land tenure system: State

Is local partner protecting land through acquisition?

NO.

E. Are there diverse agricultural and natural resource uses within the carrying capacity of the protected area buffer zone?

YES.

Principal land/resource uses:

Brazilian nut, timber, agriculture, hunting and fishing.

There is evidence of carrying capacity overuse:

On the Bolivian side of the Heath Watershed (Timber exploitation)

F. Are local people employed by PIP project funds?

YES.

of men 11

types of positions: Area Chief (Head), park rangers

of women 1

types of positions: Administrative assistant

III. LONG-TERM FINANCIAL SECURITY

A. Have the long-term financial needs of the protected area been identified?

YES.

B. Are there local revenues that support the protected area?

YES.

type of support and estimated annual US\$ dollar revenue to area:

minimal income derived from visits to the area

C. Are there national budget allocations that support the protected area?

YES.

type of support and estimated annual US\$ dollar amount: personnel, infrastructure
US\$19,100

D. Are there international funds that support the protected area?

YES.

type of support and estimated annual US\$ dollar amount:
personnel, administration US\$47,060

E. Has a Financial Plan been approved for the protected area?

NO

F. Is a fiscally responsible administrative system in place to manage the funds?

YES.

external audit at TNC? YES.

G. Are financial resources committed to operation of the area?

YES.

categories and projected budget:

amount governmental commitment: US\$ 19,100

amount commitment NGO: US\$ 47,060

amount commitment other sources: US\$ 79,100

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STRATEGIC INDICATORS:

-----As
a result of Parks in Peril project activities...

I. ON-SITE PROTECTION AND MANAGEMENT:

- A. Has there been a change in the natural vegetation or land cover?
YES.

how was this change measured? Field inspection

cite source(s): local indigenous groups, park rangers, RAP Team (CI)

- B. Has there been a change in the distribution, abundance or status of key species?
No information

- C. Has there been a change in water quantity or quality?
No information

II. COMPATIBLE RESOURCE USE:

- A. Have there been changes in the pattern or intensity of land or natural resource use?
YES.

Restrictions in fauna and Brazilian nut exploitation.

how were these changes measured? Direct observation and confirmation.

cite source(s): Agricultural Ministry authorities, Sanctuary personnel, local population

- B. Have there been changes in the social or economic conditions of local residents?
YES.

cite source(s): local population

- C. Have there been changes in the policies or institutions?
YES.

how were these changes measured?

Contracts for exploitation of Brazilian nut were not renewed

cite source(s): Ministry of Agriculture in Madre de Dios

How was the project affected? Reinforced influence of the Sanctuary's management

III. LONG-TERM FINANCIAL SECURITY:

- A. Has a trust fund or endowment been established for the protected area?
NO.

**PARKS IN PERIL PROGRAM
1993 EVALUATION FORM**

PROTECTED AREA NAME: YANACHAGA-CHEMILLEN NATIONAL PARK

GENERAL INFORMATION:

Country: Perú

NGO Partner: Fundación Peruana para la Conservación de la Naturaleza
Address: Amador Merino Reyna 255, Lima 27

PIP project officer: Francisco Estremadoyro

Government agency: INRENA
Address: Los Petirrojos No. 355
Urbanización El Palomar, Lima 27

PIP project officer: Ricardo Gutierrez

Conservation objectives of protected area:

- o Preserve a representative sample of the ecosystems of the Andes and western Amazonian regions.
- o Preserve the high basins of the Palcazu and Huancabamba rivers to guarantee the sustainable production in the adjacent valleys, avoid natural catastrophes due to erosion of the protected areas, keep the quality of the waters and preserve the panoramic view.

Is there an NGO/GO agreement to work on this PIP site?

yes

Is the TNC/NGO agreement up to date?

yes

Is the PIP Work Plan and Budget up to date?

yes, on file at TNC

Name of evaluator: Francisco Estremadoyro, P. Aguilar, D. McCaffrey
Address: Amador Merino Reyna 255, Lima 27

Phone: (5114) 422-796/426-616/422-149

Fax: (5114) 427-853

I. INTRODUCTION

A. Area Description

Yanachaga-Chemillén National Park is located in the central jungle of Peru, in the eastern basins of the Andes mountains. It covers an extension of 122,000 hectares above the Yanachaga massif which separates the valleys of Huancabamba-Pozuzu and Palcazu.

The Park protects an area of upland tropical forest with altitudes that range from 460 masl. in the eastern portion of the Park to 3,900 masl in the Santa Barbara area located in the western portion. The rainfall varies between 6,000 mm in the eastern region and approximately 2,000 mm in the western region of the Park. The great topographical variation in short lateral distance together with a high rainfall account for a very high biological biodiversity.

The water of the streams originated in the Park feed the hydroelectric plants that provide energy to Oxapampa, the most important city of the surroundings and where the offices and tourist center are located.

Human intervention in the Park has been limited and most of the area is still primitive. There are no people living permanently in the Park, nor evidence of deforestation has been found due to human activity. The affected zones are limited to some sectors in the western boundary of the Park. Some deforested areas have been found but due to natural causes such as landslides linked to the high slopes, strong rains and to shallow soils.

B. Assessment Team

The assessment team was formed by Pedro Aguilar, Chief of the Yanachaga-Chemillén National Park, Francisco Estremadoyro, PIP Coordinator from the Fundación Peruana para la Conservación de la Naturaleza (FPCN), and Dennis McCaffrey, Senior Project Manager of The Nature Conservancy (TNC). In addition, and during the field trip, Romel Trejo Morales, Technical Director of the Special Project Pichis-Palcazú (PEPP), and Alfredo Gaviria Guedes, Forestry Supervisor of the PEPP were also part of the assessment team.

All the park rangers were present during different steps of the evaluation.

C. Evaluation Work Plan

The first aspect of the work was focused on the planning of the evaluation. There were meetings between Dennis McCaffrey/Francisco Estremadoyro, and between Estremadoyro/Pedro Aguilar. As a result of these meetings, the objectives of the evaluation were established as well as the methodology, schedule and the evaluation formats.

A second phase covered the review of all the documents related to the evaluation including the FY 93 Work Plan, Agreement of Understanding between TNC/FPCN, Memorandum of Understanding

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between INRENA (former DGFF)/FPCN, 1992/1991 evaluation reports, quarterly technical reports, Park Master Plan, and others. This phase also included interviews with persons related with this topic.

The field visit took place on August 20-26, 1993. This visit included a reconnaissance flight over the Park, a visit to specific places within the Park, and to the sectors of greater human pressure within the boundaries of the Park, as well as interviews with key persons. The complete schedule is included in the attachments.

D. Individuals and Key Institutions

The key institutions of the evaluation were: FPCN, Dirección General de Areas Protegidas y Fauna Silvestre (DGAPFS) of the INRENA, and TNC.

FPCN provides technical and administrative assistance to the Park. The area officer and the park rangers are employed by FPCN. FPCN fund raises for the Park, keeps in touch with TNC, and coordinates any action in the area with DGAPFS.

DGAPFS provides political support to the area, gives official acknowledgement to the Park personnel, provides technical support to some action and activities and incorporates the work of this protected area with the rest of the Protected Areas of the National System.

The Nature Conservancy provides financial support and technical assistance to the Park through FPCN and helps FPCN to raise funds for the Park.

The persons contacted during the evaluation process were as follows:

Pedro Aguilar, Chief of the Park
Antonio Morizaki, General Director, DGAPFS
Hernan Gutierrez, Protected Areas Director, DGAPFS
Ricardo Gutierrez, DGAPFS
Carlos Ayala, Environmental Officer, USAID/Peru
Romel Trejo, Technical Director, PIP
Alfredo Gaviria, Forestry Supervisor, PIP
Edgar Quispe, Substitute, Oxapampa office, PRONAMACHS
Gustavo Suarez de Freitas, Executive Director, FPCN
Eulogio Herrera, Project Director, FPCN
Elda Rodas, Project Administrator PIP, FPCN
Daniel B. Quinn, Peru Country Program Director, TNC
Dennis McCaffrey, Senior Project Manager, TNC
Len West, Protected Areas Specialist, TNC

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II. TECHNICAL EVALUATION

A. Achievements

Full-time, capable and motivated personnel

The park has one superintendent and seven park rangers. All personnel identify with their job and are well motivated to perform their work. During group and individual interviews with the rangers, they stated their satisfaction with the work they do and their wish to keep working for the park for a long time. The superintendent as well as the guards have a good knowledge of the area and its problems. The superintendent of the area is well trained for the position he holds, having taken training courses, specifically one four-month course in New Zealand in 1989/90. All the other guards have received some kind of training and most of them have participated in the training courses provided in 1991 by DGAPFS together with FPCN.

Adequate equipment of the Park, good maintenance of the equipment

The park has a pick-up truck 4x4 and three 185 cc motorcycles. One of these motorcycles was bought this year. The other vehicles have received adequate maintenance and are in good shape.

For transportation to the eastern sector, the Park has two boats and three outboard engines out of which one was bought during this period. This engine (40 hp) replaces the one bought in 1987, therefore, out of the three engines only two are in good condition.

The three HF radios found in the Park are in good condition. During this year the guards have received new uniforms and field equipment such as tents, compasses, and backpacks.

Proper Accommodations

The Park offices in Oxapampa, tourist center, and the biological station in Paujil are very comfortable and appropriate for the area management.

During this period, a great advance in the accomplishment of the infrastructure of the Park has been made. The roof and the exterior of the Paujil station has been painted, and purchase of furniture has been completed. In the tourist center and Oxapampa office the bathrooms have been furnished, roof and walls have been painted, a covered parking space for the motorcycles has been built, a full bathroom for the park rangers has been built as well as a carpentry workshop. Nevertheless, there are some details missing like the placement of parquet in the tourist center and the design and panel installation and other materials to equip this center and put it in operative shape for the tourists.

Patrolling, signaling, and boundary delimitation

The control and surveillance is carried on with great efficiency. The guards frequently patrol and generate reports that allow them to identify problems and develop immediate solutions.

A good job to consolidate the boundaries of the Park in the western sector has been done by working with the neighbor landowners, establishing formal documents regarding the boundaries of the Park, although, this work has not been completed.

The Park has good signposts, mainly in the key sectors of the western area.

Appropriate coordination with governmental organizations

The boundary delimitation of the western sector of the Park has been done in coordination with the Centro de Desarrollo (Development Center) of Oxapampa which has allowed to give adequate legal support to this activity.

The Special Project Pichis-Palcazu (PEPP) has stated its intention to support the Public Use of the Park Program. This idea was evident with the participation in this evaluation of the Technical Director and of the Forestry Supervisor from PEPP. PEPP has volunteered to build a shelter within the Park in the Abra Esperanza area and an overlook close to Paujil station. The building of the shelter will start, if the rainy season allows, during the quarter of September - December of this year. Furthermore, PEPP wishes to support visits to the San Alberto sector in the western area of the Park.

A research project has started in Paujil

As a result of coordination with research institutions, and thanks to the great improvement in the safety conditions in the region, the first researchers from the National Museum of History "Javier Prado" have arrived to the Paujil station. These researchers gathered birds and mammals in the area close to the Yanasha Reserve during last year.

Some foreign researchers have stated their wish to visit Paujil. It is expected that as soon as the safety conditions of the area are consolidated, the research in the Park will increase greatly.

Good diffusion and educational activities

A course on conservation and ecology was organized for teachers of the Oxapampa Campus of the National University Daniel Alcides Carrión. In the schools at Grapanazu and Agua Salada, tree nurseries have been started.

During the past period, the Park has produced a printed pamphlet, that has been widely distributed locally. Nevertheless, given the fact that the visitors center is not yet operative, the feasibility to provide conservation education to the community is rather limited.

B. Limitations

The western boundary has not been consolidated. The park's management has somewhat advanced the field demarcation on the Oxapampa side, but this must be carried on more actively.

As a result of the peace now more prevalent in the area, there is an increasing flux of economic activity. Some families who had left the area for security reasons, are now returning. Therefore, it is particularly urgent now to proceed with the demarcation, particularly in the critical areas already identified.

Limited interaction with yanesha native communities

There is presently a good level of coordination with the authorities on the western side of the park, but not so on the Palcazú side, particularly not with the Yanesha communities. The projected construction of a Yanesha community center has not been undertaken.

The area's master plan has not been updated

The park's management plan was prepared in 1987, but for political and social reasons it has not been fully implemented. The plan's design is no longer adequate for today's conditions.

Projected road construction through the park

The mayor of Huancabamba is again pushing for the construction of a road that would go through the Yanachaga gorge all the way to the Palcazú. The mayor, has proceeded to open a rough path with machetes with the help of municipal workers. The initiative behind this road project does not seem genuine, but rather seems to reflect the undeclared intention to extract timber from the park area.

C. Recommendations

Complete demarcation of critical areas

Certain segments along the boundary of the park urgently require demarcation because they are subject to existing or potential pressure. Priority areas requiring immediate attention are: San Daniel, Grapanazú, Purumayo, Rayantambo, and Palmazú. Boundary demarcation would consist of locating and marking the boundaries in the field. This should be done in the presence of and with the agreement of landowners whose lands adjoin the Park. It is important to establish dialogue with the people who are neighbors to the Park to encourage their support for conservation. As has been done in the past, these actions should be carried out in coordination with the Oxapampa Rural Development Center.

Encourage publicity and more public use of the park

The visitors center of Oxapampa should be completed in 1994. All kinds of conservation education activities could then be started, that kept being postponed in recent years.

Visits to the area should be encouraged, by establishing programs with local schools and universities. The obvious choice to initiate these visits would be the San Alberto path, which is very close to the town of Oxapampa. For this purpose it is necessary to issue pamphlets and other interpretative material. The park's management is coordinating activity with PIP for this purpose.

Give support to the preparation and accomplishment of a management plan of the adjacent Yanesha Community Reserve

This activity should not only contribute to a better use of the area's fauna resources, but should also allow for the Park's consolidation and enhance its image in the eyes of the local population.

Update the park's management plan

An effort must be made to update the master plan of this area, which should include a revision of the boundaries, in accordance with the consolidation of the western boundary, and a restatement of the management programs in accordance with the actual conditions existing in the Park and its area of influence.

III. FINANCIAL EVALUATION

A. Achievements

Short term financing has stabilized the Park

Minimum appropriate personnel, infrastructure and equipment has been provided. As a result, the park's operation is adequate and it performs very well its task of conserving the area's natural wealth.

About US\$80,000 are required to maintain the park's operation at its present level, without any expansion of activities, replacement of vehicles or other equipment. An annual budget of US\$120,000 to US\$125,000 would allow the maintenance of present level of activity and consider the possibility of measured growth in equipment and operations.

B. Limitations

Long-term financing has not been obtained

The present period of PIP's support commitment will end september 1993. There is no immediate possibility of support, unless the Park is again included in a new PIP support period.

The Park is included in a list of the first areas to receive support from the National Fund for Natural Areas Protected by the government (FONANPE), nevertheless this Fund has not been made available yet and will not be available in the short term. Debt-for-nature swap operations could be a good formula to obtain long-term financing, but the Peruvian government is not very interested in this at the moment. The FPCN has prepared financing proposals for the area, which have been submitted to European funding sources. This could be an interesting possibility for the medium-term.

C. Recommendations

Maintain at least present level of support to this area

Taking into consideration the new social conditions in the region, it is important and urgent to continue giving support to this protected area, and maintain it at least at the present level.

TNC and FPCN should explore jointly alternative funding sources to ensure the area's financial stability in the long term.

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IV. ADMINISTRATIVE EVALUATION

A. Achievements

Administrative procedures in place

The administrative procedures established for both field personnel and administrative and accounting personnel for the Yanachaga Chemillén Project seem to work reasonably well. The technical reports on project progress and the economic reports on budgetary progress seem to fulfill the USAID requirements. These are executed on time within prescribed deadlines.

Financial transfers from TNC to FPCN and from FPCN to the Park are done without major delays and seem to fulfill field requirements.

B. Limitations

New tax regulations in Peru are not flexible enough to facilitate field work

The most important administrative limitation is external to the organizations involved with the Park. The Peruvian government has recently established regulations on tax accounting documents (invoices, receipts). These regulations are applicable to city businesses but not very flexible to field operations.

Goods and services providers are not registered with the Superintendency National Tax Administration (SUNAT) because they are located in a place distant from the city. Therefore, they cannot provide documents that are acceptable to the central administration which puts limitations and delays on some of the project's administrative operations.

C. Recommendations

Standardize administrative procedures to adapt them to new tax regulations

The information on new regulations and restrictions must be communicated to all concerned parties, and new administrative procedures must be adapted to conform with those regulations.

V. RECOMMENDATIONS SUMMARY

Technical

- Accelerate field demarcation of the western boundary, starting with the most critical sectors.
- Start operating the Oxapampa visitors center as soon as possible.
- Promote visits to the Park, particularly on the Oxapampa side. Prepare pamphlets and other interpretative material.
- Support the preparation and execution of a management plan for the Yanesha Community Reserve
- Review the Park's management plan, updating it according to present conditions.

Financial

- Maintain support to the Park by including it in a new PIP period.
- Continue searching for long term financing possibilities and sources, together with TNC and FPCN.

Administrative

- Standardize administrative procedures to adapt them to new Peruvian tax regulations.

**SUPERVISION OF THE YANACHAGA CHEMILLEN NATIONAL PARK
FY 1993**

FIELD INSPECTION VISIT ITINERARY

Date	Activity	Observations
8/20/93	Lima - San Ramón (F. Estremadoyro)	By interprovincial bus Meeting with P. Aguilar and PIP staff Overnight in San Ramón
8/21/93	San Ramón - Iscozacin	Local small plane Park's boat Overnight in Paujil
8/22/93	Hike Paujil - Mirador, follow trail to Pescado river	Overnight in Paujil
8/23/93	Paujil - Iscozacin Iscozacin - Oxapampa	Park's boat Local small plane
8/24/93	Visit to critical areas: Yanachaga, Purumayo, Rayatambo	Overnight in Oxapampa
8/25/93	Visit to San Alberto, interpretive trail, Abra Esperanza	Overnight in Oxapampa
8/26/93	Oxapampa - La Merced La Merced - Lima	By Park's station wagon Interprovincial bus

PERFORMANCE INDICATORS:

I. ON-SITE PROTECTION AND MANAGEMENT

A. Have the ecological values of the area been identified? YES.

size (hectares): 122,000

key ecosystems: Cloud forest, yunga, low jungle, puna

key processes: Hydrological processes

endemic species: Lamon (Bothrops chloromelas)
Anolis (Anolis boettgari)

threatened species: Harpy Eagle (Harpia harpyia)
Black Spider Monkey (Ateles paniscus)
Giant otter (Pteronura brasiliensis)
Jaguar (Felis onca)

migratory species:

B. Have critical threats been located on a map? YES

type: farmers invasion
source: park staff observation

significance: threat to the Park boundaries

C. Are critical boundaries surveyed and posted? YES.

of kilometers demarcated:
Approximately 50 km near Oxapampa, Cañon del Rio
Huancabamba, and near San Juan de Cocazú

**D. Are rangers trained and equipped?
YES.**

of rangers on-site: 7 rangers

1 area officer

type of training received:

through the area officer and through the exchange between

sectors of Oxapampa and Palcazu.

**E. Do the personnel have transportation and communications equipment?
YES.**

and type: 1 motorcycle 185 cc; 1 boat 40 hp

**F. Have basic protection facilities been constructed on-site?
YES.**

location: Oxapampa, Paujil

**G. Does the area have continuous field logistical support?
YES.**

type of NGO support: Complete management of the area

type of GO support: Political

**H. Are ecological carrying capacity studies, baselines and monitoring underway?
YES.**

type of study:

Inventory of bird and mammal species.

Universidad Mayor de San Marcos

**I. Has a Management Plan been completed for the area?
YES.**

year of publication: 1985

**J. Are Annual Operations Plans and Budgets completed?
YES.**

II. COMPATIBLE RESOURCE USE:

- A. Have key social and economic values of the protected area been identified?
YES.**

key values:

Water production for electricity generation. Soil stability.
Environmental education.

- B. Have basic human needs of local communities been satisfied?
(ie., health, safety, welfare, etc.)
NO.**

- C. Is there direct community and resource user participation in resource
management and allocation decisions?
NO.**

- D. Is the land tenure in the area stable?
NO.**

land tenure system:

Governmental. The western boundary of the Park is being settled.

**Is local partner protecting land through acquisition?
NO.**

- E. Are there diverse agricultural and natural resource uses within the
carrying capacity of the protected area buffer zone?
YES.**

principal land/resource uses: hunting, fishing, agricultural activity.

- F. Are local people employed by PIP project funds?
YES.**

of men: 8

types of positions: Area officer, Park ranger

of women 0

III. LONG-TERM FINANCIAL SECURITY

- A. Have the long-term financial needs of the protected area been identified?
YES.**

categories and projected budget: \$115,000.00/year

title and year of document:

Conservation and Development in the central jungle of Peru, FPCN, 1993

- B. Are there local revenues that support the protected area?
NO.**

type of support and estimated annual US\$ dollar revenue to area: See annual budgets.

- C. Are there national budget allocations that support the protected area?
YES.**

type of support and estimated annual US\$ dollar amount: \$8,500 in 1992, \$6,500 in 1993.

Support staff, operations.

- D. Are there international funds that support the protected area?
YES.**

type of support and estimated annual US\$ dollar amount: TNC: \$37,900.00

- E. Has a Financial Plan been approved for the protected area?
NO.**

- F. Is a fiscally responsible administrative system in place to manage the funds?
YES**

external audit at TNC? YES

**G. Are financial resource committed to operations of the area?
YES.**

research	categories and projected budget:	Personnel, training, building, operations,
		Government: \$6,500.00
		NGO: FPCN/TNC \$37,900.00
		AID: \$75,300.00

STRATEGIC INDICATORS:

As a result of Parks in Peril project activities...

I. ON-SITE PROTECTION AND MANAGEMENT:

**A. Has there been a change in the natural vegetation or land cover?
YES.**

In the western area of the buffer zone, agricultural activity decreased in 1991 and 1992 probably because of pressure of terrorism, but increased in 1993 as political/social conflict subsided.

how was this change measured? Direct observation

cite source(s): park staff observation

**B. Has there been a change in the distribution, abundance or status of key species?
No information.**

**C. Has there been a change in water quantity or quality?
No information.**

II. COMPATIBLE RESOURCE USE:

**A. Have there been changes in the pattern or intensity of land or natural resource use?
YES.**

how were these changes measured? Direct observation: see I A.
cite source(s): PRONAMACHS

- B. Have there been changes in the social or economic conditions of local residents?
YES.**

Security situation improves. Terrorism level decreases.
how were these changes measured? Direct observation

- C. Have there been changes in the policies or institutions?
YES.**

Greater interest in supporting the area.

how were these changes measured?

cite source(s): PEPP (Special Project Pichis Palcazú)

Offer to finance the infrastructure and activities of the Park.

Constructions: a) Overlook in Paujil
b) Shelter in Abra Esperanza

Public use activities/area interpretation

III. LONG-TERM FINANCIAL SECURITY:

- A. Has a trust fund or endowment been established for the protected area?
NO.**

- B. Are there diverse sources of funds/revenues for the area?
NO.**

A long-term financial security proposal has been presented before european sources.

	<u>Pampas del Heath</u>	<u>Yanachaga</u>	<u>Total Peru</u>
ON-SITE PROTECTION & MANAGEMENT			
# Hectares in protected areas:	102,109	122,000	224,109
Management plan completed:			
Yes	0	1	1
No	1	0	1
Operations plan completed:			
Yes	1	1	2
No	0	0	0
Ecological values determined:			
Yes	1	1	2
No	0	0	0
Critical threats/areas located:			
Yes	1	1	2
No	0	0	0
Studies/monitoring underway:			
Yes	1	1	2
No	0	0	0
Radio equip. installed:			
Yes	1	0	1
No	0	1	1
# Radios on-site:	1	0	1
# Personnel:	12	8	20
# Rangers:	10	7	17
# Ranger training events:			0
# Km demarcated:	20	50	70
# Ranger centers:	1	2	3
Basic transportation:			
Yes	1	1	2
No	0	0	0
Continuous field supervision:			
Yes	1	1	2
No	0	0	0
COMPATIBLE USE/ECONOMIC DEVELOPMENT			
Socioeconomic values identified:			
Yes	1	1	2
No	0	0	0
Basic human needs met:			
Yes	1	0	1
No	0	1	1
Local participation in resource mgmt:			
Yes	1	0	1
No	0	1	1
Land tenure stabilized:			
Yes	1	0	1
No	0	1	1
# Local people employed with PIP funds:	11	8	19
LONG-TERM FINANCIAL SECURITY			
Long-term financial needs identified:			
Yes	1	1	2
No	0	0	0
Funding from external sources:			
Yes	1	1	2
No	0	0	0
Amount	\$47,080	\$37,900	84,980
Funding from Federal/State sources:			
Yes	1	1	2
No	0	0	0
Amount	\$19,100	\$15,000	34,100
Funding from local sources:			
Yes	1	0	1
No	0	1	1
Amount		0	0
Financial plan approved:			
Yes	0	0	0
No	1	1	2