

# *Frontier Nicaragua Environmental Research*

## Recommendations and additions to the Management Plan of Estero Padre Ramos Nature Reserve



**UNIVERSIDAD  
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***Frontier Nicaragua Environmental Research***

Recommendations and additions to the  
Management Plan of Estero Padre Ramos Nature  
Reserve

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**Frontier Nicaragua and Darwin Initiative**

**SELVA  
UNAN- León  
Nicaragua**

**Society for Environmental Exploration  
United Kingdom**

**León 2006**

**Universidad Nacional Autonoma de Nicaragua (UNAN)-León**

UNAN is the largest university in Leon, established as a centre for learning and research in the arts and the physical, natural, earth, marine, medical and human sciences. The University is surveying and mapping the flora and fauna of Nicaragua and is conducting research into the maintenance and improvement of the environment and the sustainable exploitation of Nicaragua's natural resources.

**Asociacion SELVA (La Asociacion Somos Ecologistas en Lucha por la Vida y el Ambiente)**

SELVA is a non governmental organisation responsible for Reserva Natural Estero Padre Ramos and has been working in this reserve to establish and facilitate an effective management system for this area.

**The Society for Environmental Exploration (SEE)**

SEE is a non-profit company limited by guarantee, formed in 1989. The Society's objectives are to advance field research into environmental issues and implement practical projects contributing to the conservation of natural resources. Projects organised by SEE are joint initiatives developed in collaboration with national research agencies in co-operating countries.

**Frontier Nicaragua Forest Research Programme (NRF FRP)**

The Society for Environmental Exploration has been conducting research into environmental issues since January 2004 under the title of Frontier Nicaragua. Biological field surveys were conducted in the Volcán Cosigüina Nature Reserve in collaboration with UNAN León and Fundación LIDER.

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## **Estero Padre Ramos Nature Reserve in review**

Nicaragua possesses a system of Protected Areas that shelters a wide range of ecosystems that include thousands of flora and fauna species. With more than 12,000 classified species of flora and 1,400 classified animal species, it is a real biological treasure. However, although Nicaragua has established 76 protected areas which cover more than 2.6 million ha (18% of the national territory), only fifteen of these are currently under active management. Moreover, there are numerous threats facing the protected area system, including the lack of on-site protection and management in most areas; growing colonisation; fires and overuse of mangrove forests; and uncontrolled logging and poaching.

The Estero Padre Ramos Nature Reserve in the Northwest Pacific region is important for biodiversity conservation due to the presence mangrove forests and tropical dry forest, yet there is minimal scientific information as to the flora and fauna. The research conducted by Frontier Nicaragua in 2005 has thus helped provide baseline information on the biological values of the different habitats within the reserve as a basis for management planning and long-term monitoring.

The aim for this report, therefore, is to contribute with recommendations to the existing management plan for the reserve, and to help develop well-informed conservation practices and monitoring programmes to ensure that future generations living in, working in and visiting the area will see it for the beauty that it is today.

### **Valuable biodiversity information**

Estero Padre Ramos Nature Reserve has significant conservation value on local, national and international levels with several critically endangered species inhabiting the reserve. With regard to fauna surveys, the reserve is home to 158 species of birds, reptiles, amphibians and mammals, of which 14 species hold particular interest for their conservation and biological value.

In the terrestrial area of Estero Padre Ramos 126 species of fauna had been identified prior to the FN FRP biodiversity study, including 52 species of birds and 14 reptiles. There is no inventory list included within the management plan on the existing mammal species within the reserve. To date 13 of these have been included on the IUCN Red List (IUCN, 2001), listed as critically endangered, endangered, vulnerable or lower risk with some species having insufficient data to classify them. One of the most important species of fauna in Estero Padre Ramos is the Hawksbill marine turtle (*Eretmochelys imbricata*) which is in danger of extinction (Pers. Comm. M.Martinez, park guard). This species uses the island within the estuary as one of its nesting areas. The hawksbill turtle shares the region with a number of other charismatic species which includes white tail deer (*odocoileus viginanus*), black iguana (*ctenosaura similis*), coyote (*Canis latrans*) and coati (*Nasua narcia*). The region also hosts a number of native and migratory birds.

- **Mammals**

With regards to mammal species, there still exists a lack of information of this taxa within the reserve. Although, FNFRP was able to record 16 mammal species, more research is needed into different areas within the reserve to provide more comparative data. It is recommended to include FN FRP's mammal list in the following management plan.

- **Birds**

In total 110 species of birds (within 37 families) have been recorded at Estero Padre Ramos nature reserve. 58 new species, observed by FN FRP (within 11 families and 1 order), were new records for the reserve. The inventory list for bird species within the Current Management plan is the most extensive compared to the other taxa. Within the limited survey period FN FRP showed that many species of birds had not yet been added to the inventory list. No less than 58 new species within 11 new families for the Estero Padre Ramos Nature Reserve were added. There still exists a lack of research regarding bird species within the area.

- **Herptofauna**

In total 22 reptilian species (within 9 families) and 4 amphibian species (within 3 families) were recorded for the area. 13 reptilian species (within 6 families) can be added to the existing reptilian inventory in the Management plan of Estero Padre Ramos.

FN FRP was able to add the critically endangered Hawksbill turtle (*Eretmochelys imbricata*) to the existing inventory. This will affect future management strategies for coastal zone protection. Although, SELVA already has a sea turtle protection programme in place, the addition of this species will increase the importance of the nesting beach of the reserve. To date, three other sea turtle species have been recorded for the reserve, all registered under CITES appendix 1. More research is needed in the number of nests and nesting females in order to plan effective and efficient conservation management techniques.

Within the current management plan no inventory has been included on Amphibians within the Estero Padre Ramos Nature Reserve. Within the limited time, FN FRP was able to add 4 species (within 3 families) to the management plan.

There still exists a lack of knowledge on herptofauna species within the Estero Padre Ramos Nature Reserve and more research is needed in order to expand inventory lists.

- **Butterflies**

Fermented banana bait proved successful for butterfly families such as Nymphalidae. Sweep netting recorded butterflies within the Pieridae family. No previous data has been collected on butterfly species in the area, therefore all butterfly species can be added to the inventory list of the reserve. The majority of the butterflies identified at the trap sites were identified as belonging to the Nymphalidae family. The reason for this is not clear but may be a reflection of a particularly high abundance of Nymphalidae in the area or a result of the capture methods including bait type.

- **Human disturbance**

Due to the pressure of human populations on Nicaragua's forests, disturbance of natural vegetation is often severe, with a variety of secondary forest formations being found in addition to less disturbed primary forests. Even within protected areas, a patchwork of differing vegetation types is found, and the vegetation study carried out by Frontier Nicaragua in Nicaraguan reserves aims to assess the extent and distribution of different forest types, and the degree to which natural forests have been degraded by human activity.

Observations of human disturbance and resource use were made in each trap site plot and throughout the reserve. This information complements the standard quantifiable methods employed, helping to form a fuller picture of the state of the reserve with regards to human impact.

The biodiversity assessment represents an important contribution to the knowledge of the Estero Padre Ramos Area, as a number of new species were observed during the research undertaken. Some, such as the Hawksbill sea turtle (*Eretmochelys imbricata*), which are CITES 1 listed, were

previously unrecorded in the Estero Padre Ramos area. The results of this survey provide a resource to update the Management Plan for the Estero Padre Ramos Reserve, with the addition of new species to the existing inventories (in particular the inventory of mammals and butterflies, which at present are not listed in the Management Plan).

The absence of certain inventory lists within the Management plan made it impossible to make a historic comparison of species diversity or abundance within the area. Although FN FRP compiled mammal and butterfly inventory lists for future use in the Management plan, more research is needed into the diversity of all taxa within other, less accessible areas of the reserve.

## **Assessment of Protected areas through tracking tools**

In order to assess and evaluate the current state of the management of nature reserves, WWF (World Wildlife Fund) and the World Bank have constructed a tracking tool in the form of an evaluation of these areas to assess whether nature reserves are achieving the objectives for which they were established originally. This site-level management effectiveness tracking tool has been used for three nature reserves in the Northwest Pacific Region of Nicaragua; Isla Juan Venado (2.930 ha), Estero Padre Ramos (9.157 ha) and Volcano Cosigüina (12.420). Evaluation forms were completed by different hierarchic levels within the organization, responsible for the co-management of the area, respectively SELVA (Somos Ecologistas por la lucha de la Vida y el Ambiente), LIDER (Luchadores Integrados al Desarrollo de la Region) and MARENA (Ministry of Environment and Natural Resources).

Although the completion of the evaluation forms was integrated as an exercise within the “Conservation Management” course, conclusions could still be made from the opinions expressed by park rangers, managers and directors. A total of 8 staff members of the Estero Padre Ramos Nature Reserve had completed the hypothetical tracking tool and following the score system (for each category and as a total), it could be determined which score could be appointed to the reserve best and why as well as which problems could be highlighted with possible solutions.

This section will highlight the findings from the exercise, which have been presented as a management tool to the co-managing NGO’s of the previously mentioned nature reserves.

From the total of 95 points, an average of 47 points was scored for the reserve. This showed that certain aspects of the management of the reserve need to be improved in order to comply to a perfect “nature reserve” status. The following aspects need to be addressed:

- Resource inventory
- Research
- Staff numbers
- Personnel management
- Current budget
- Security of budget
- Management of budget
- Local communities
- Commercial tourism
- Fees
- Condition assessment
- Access assessment

The legal status of the reserve and the protected boundary demarcation for effective management (such as patrol) scored high with all staff members.

## Formulating problem areas

Nature reserve personnel working in Estero Padre Ramos Nature Reserve agreed on the following recommendations for some of the aspects which needed to be addressed.

- Information on the critical habitats, species and cultural values of the protected area is sufficient for key areas of planning/decision making but the necessary survey work is not being maintained.

*Recommendation:* More permanent monitoring from the organisations who implement management. More capacity building and means to contribute to the planning process. More information on critical habitats through research. More personnel so there is time available to conduct research.

- There is *some* ad hoc survey and research work

*Recommendation:* More long term monitoring studies. More resources to support initiatives from park personnel

- Staff numbers are inadequate for critical management activities

*Recommendation:* More staff, increased funding, potential co-management from MARENA or other ngo.

- Problems with personnel management constrain the achievement of major management objectives.

*Recommendation:* Better balance between management and ground personnel, improvement of planning process, more environmental education to community members.

- There is no secure budget for the protected area and management is wholly reliant on outside or year by year funding.

*Recommendation:* More long term funding is needed which is not sourced from external aid.

- Budget management is poor and significantly undermines effectiveness.

*Recommendation:* More in-country support, prioritise activities better, greater funding.

- There is little or no contact between managers and tourism operators using the protected area.

*Recommendation:* More contribution from tour operators

- There is *some* ad hoc monitoring and evaluation, but no overall strategy and/or no regular collection of results.

*Recommendation:* Yearly monitoring programmes for marine turtles need to be in place, more involvement of local MARENA authorities.