



Park Profile – Venezuela Laguna de La Restinga National Park

Last on-site evaluation: September 2002

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Location: Nueva Esparta State

Year created: 1974

Area: 18,862 ha

Ecoregion: Araya and Paria Xeric Shrubs, Venezuelan Coastal Mangrove.

Habitat: Xeric shrubs, littoral shrub and grassland, brackish coastal lagoon, mangrove forests.



Summary

Description

La Restinga Lagoon National Park is located in the isthmus that connects Macanao Peninsula and east Margarita Island in the state of Nueva Esparta. It was created in 1974 to protect the island's most important coastal lagoon, mangrove forests and a xeric vegetation zone. Within the lagoon, mangrove forest is the dominant vegetation. Surrounding the lagoon is a semi-desert zone, dominated by cacti and grassland that reaches to the foot of the Macanao mountain range. The park is one of the main tourist attractions on the island. Moreover, both the lagoon and the marine zone are an important source of food for locals. Because of its ecologic and economic value, this area was included in the RAMSAR list of protected wetlands in 1996.

Biodiversity

The park has three main ecosystems: a shallow coastal lagoon, a low energy beach marine zone, and a semi-desert region dominated by xeric vegetation. There are four main types of mangrove species in the lagoon. The mangrove clam *Crassostrea rhizophorae* lives among their roots. The park's xeric zone is home to two endemic species: Margarita's cottontail rabbit (*Sylvilagus floridanus margaritae*) and the white-tailed deer (*Odocoileus virginianus margaritae*). The ocelot (*Felis pardalis*) is the island's only top predator and can also be found in the xeric zone. Of the 107 bird species found in the park, two are endangered; Margarita's blue-crowned parakeet (*Aratinga acuticaudata neoxena*) which is endemic to the park, and the yellow-shouldered Amazon (*Amazona barbadensis*). Four endangered sea turtles nest on park beaches.

Threats

La Restinga Lagoon National Park is affected by a number of threats not readily seen by visitors. In other words, the park appears to be in better condition than it actually is. INPARQUES' current budget crisis threatens the park's ability to function and the only population of the endangered parakeet *Aratinga acuticaudata neoxena* is rapidly disappearing due to illegal commerce. Poaching, exotic species introduction, growth of human populations, illegal fisheries, flora and fauna extraction, pollution, and lack of equipment are among the park's other major threats. This is why La Restinga is classified as critically endangered.

Description

Physical Description

La Restinga Lagoon National Park is located between 10° 58' and 11°05' north latitude and 64° 01' and 64° 17' west longitude, on the isthmus that joins Macanao Peninsula with eastern Margarita in the state of Nueva Esparta. The park is made up of a 2,600 ha lagoon, a marine zone and a semi-desert zone northwest of the lagoon. The 2,600 ha lagoon is shaped like an inverted triangle. A 23 km long, 50 m wide and 2 m high (at most) sand bar separates it from the Caribbean Ocean. This sand bar is the only natural connection between Macanao Peninsula and the eastern section of Margarita Island. In strong rainy seasons, the lagoon breaks through the sand bar towards the east but the bar closes up rapidly during the dry season. The origins of La Restinga and Tacarigua Lagoon are very similar (see Tacarigua Lagoon Park Profile). Constant wave action accumulates sand on one side and mangroves protect the entrance to the lagoon on the other. The lagoon meets with the sea to the south where it reaches a maximum depth of 7 to 8 m. However, unlike Tacarigua Lagoon, this mouth is the only important source of water for La Restinga. The lagoon's high salinity, between 37 and 92 ppm, is caused by low rainfall and the absence of important fresh water influx. The lagoon is generally shallow, over 40% is no deeper than 1 m (Lentino and Bruni 1994).



Littoral Barrier



El Saco



In addition to the lagoon, the park is made up of large sandy beaches and semi-desert zones with xeric vegetation.

Approximately 1058 ha of mangrove forests surround and cover La Restinga national park. Several internal lagoons interrupt these forests creating canals of singular beauty that go off in all directions. These conditions are ideal for the spawning and development of many marine species (Hoyos 1985), as well as for tourism. The semi-desert zone surrounding the lagoon is the least visited part of the park due to the lack of good roads. The park highlands (up to 280 m.a.s.l.) in this area offer a spectacular view to visitors. The streams created during the rainy season cause erosion that drags sediment down to the lagoon (Hoyos 1985).



La Restinga Lagoon is mostly covered by mangrove forests. (Aerial Photograph courtesy of INPARQUES Nueva Esparta).

La Restinga is warm and dry with an average annual temperature of 27 °C. The average annual rainfall in the lagoon is 296.8 mm, though it is a bit higher toward the edges (east: 373 mm and west: 565 mm) (MARN 1994). Even though the rest of island has two rainy season peaks (from June to August and another from November to December); rain in the park and surrounding

areas starts in June and decreases steadily until March when there is almost no rain (< 20 mm) (MARN 1994, PDVSA 1992).



Satellite image of La Restinga Lagoon. The mangrove forest at La Restinga Lagoon can be seen in the center of the image. The semi-desert area surrounding the park has very little human development. The sand bar that separates the lagoon from the ocean towards the north is the only natural bridge between the two sides of Margarita Island (Modified by César Aponte from PDVSA 1992).



Map of La Restinga National Park. (Modified from Ecograph, 1998)

There are two towns located inside the park. The largest one is El Portillo de Leonardo, which is located on the sand bar. This town is the main access point for people visiting the park. Access to the town is by a 3 km long road or by crossing the lagoon in a boat.

Like Cerro El Copey, La Restinga has the advantage of being in the only Venezuelan state where the territorial ordinance plan is strictly followed. Because of this, Nueva Esparta has the best cartography of the country with the whole state mapped to a scale of 1:5,000. Nueva Esparta also has the highest proportion of protected areas in the country. Three natural monuments and two national parks cover 35% of Margarita Island. Of these, the Tetras de María Guevara National Monument is located next to La Restinga National Park.

Biodiversity

Margarita Island is especially important with respect to the numbers of endemic species it harbors. The island was connected to mainland until the Pleistocene. As a result, there is a predominance of typical continental bird families like Tinamidae, Dendrocolaptidae, Formicariidae and Furnaridae (Bisbal 2001), which are for example totally absent from the Antilles. There are 31 mammal species on Margarita, of which La Restinga holds important populations of two endemic subspecies, Margarita's cotton-tailed rabbit *Sylvilagus floridanus margaritae* and the white-tailed deer *Odocoileus virginianus margaritae*.



Dermochelys coriacea hatchlings. This is the most abundant of the four sea turtle species that nest in the park.

Four species of sea turtles nest on beaches located within the park. The most common is the leatherback sea turtle (*Dermochelys coriacea*). The hawksbill (*Eretmochelys imbricata*), the green turtle (*Chelonia mydas*) and the loggerhead (*Caretta caretta*) are also found within the park boundaries (GTTMNE 2002). According to IUCN criteria, the first two are critically threatened with extinction ([CR A1abd](#), [CR A1abd+2bcd](#)), and the latter two are globally threatened ([EN A1abd](#)). In the Red Book of Venezuelan Fauna, the loggerhead is classified as vulnerable and the other three species as endangered (Rodríguez and Rojas-Suárez 1999). During the year 2001, 323 nesting events were recorded on Margarita Island. There were over 8,000 eggs by the end of the season (GTTMNE 2002). Approximately 12% of these nests were laid on park beaches. This year 39 turtles were reported in the park, 32 of which were nesting (Vernet 2001).

Of the 107 species of birds reported from Margarita, 21 are migratory and 15 of these are restricted to Margarita and Trinidad in the Caribbean islands and 16 are restricted solely to Margarita in their Caribbean range (Rojas-Suárez *et al.* 1998). Among the latter, the green-backed heron *Butorides striatus robinsoni* is endemic to Margarita and Trinidad, while another 7 species are endemic only to Margarita: Margarita's ferruginous pygmy owl, *Glaucidium brasilianum margaritae*, the yellow oriole *Icterus nigrogularis helioeides*, the pale-breasted spintail *Synallaxis albescens nesiotis*, Margarita's brown-throated parakeet *Aratinga pertinax margaritensis*, the straight-billed woodpecker *Xiphorhynchus picus longirostris*, the blue-crowned parakeet *Aratinga acuticaudata neoxena* and the clapper rail *Rallus longirostris margaritae* (Rojas-Suárez *et al.* 1998). The last three species are endemic to the park and its surroundings.



Juvenile yellow-shouldered amazon seen in a restaurant in Boca del Río. Illegal commerce and the pet trade keep this species under threat of extinction.

Aratinga acuticaudata neoxena, commonly known as the blue-crowned parakeet, is critically endangered due to poaching for illegal commerce and the pet trade. In 1994, the population was estimated at 180 individuals (Rodríguez and Rojas-Suárez 1999). Because of illegal poaching and habitat destruction, the yellow-shouldered amazon (*Amazona barbadensis*) is endangered in Venezuela (Rodríguez and Rojas-Suárez 1999) as well as threatened globally (IUCN 2002). Silvius (1986) estimated 700 to 800 individuals of this species resided in the area surrounding the park. The only population of the vulnerable clapper rail (*Rallus longirostris margaritae*) in the world is in La Restinga Lagoon National Park (Rodríguez and Rojas-Suárez 1999). Lentino y Bruni (1994) report that flamingos (*Phoenicopterus ruber*) used to visit the lagoon regularly, but have not been sighted since 1983. However, in 2002, five flamingos were seen close to La Restinga, which could mean this species will return to the area.



The park's vegetation is rich in adaptations to the extreme environmental conditions present in the semi-desert zone and the high salinity lagoon.



The Cuica or Palo Verde (*Cercidium praecox*) has a green trunk that allows the plant to photosynthesize after losing its leaves in the dry season.

Three vegetation units are present in the park: the lagoon, the sand bar and the semi-desert zones surrounding the lagoon. Red and black mangroves (*Rhizophora mangle* and *Avicennia germinans*) cover the main body and edges of the lagoon. The first spans approximately 500 ha and the latter about 400 ha in the canals with less circulation. White mangrove (*Laguncularia racemosa*) is found in the western sector of the lagoon and the buttonwood or button mangrove (*Conocarpus erectus*) is on the lagoon edges where there is less water. Because the sand bar substrate is mainly sand and shells it has a special type of vegetation. Mangroves dominate towards the eastern end of the lagoon. In the west, shrubs, creepers (like the introduced Asian species *Calotropis procera*) and other halophilous species such as beachwort (*Batis maritima*) and purslane (*Portulaca oleracea*) dominate. Among the arboreal species are *Cercidium praecox*, *Cordia dentata*, *Cesalpinia coriara*, *Parkinsonia aculeata*, *Bourreria cumanensis* and *Prosopis juliflora*. Individuals of these species are generally dwarfed due to the poor soil. Cacti like *Ritterocereus griseus*, *Subpilocereus repandus*, *Piloerus lanuginosus*, *Pereskia guamacho*, *Opuntia wentiana*, *Opuntia schumanii*, *Opuntia caribea*, *Melocactus caesius* and *Acanthocereus tetragonus*, are also abundant (Hoyos 1985).

Management

La Restinga has been using an ordinance plan and code of use since 1991. Seven use zones are outlined in this ordinance plan, which is currently under revision:

- *Integral protection zone (PI)*: Includes the following areas: a) Areas known as Boca de Tortuga and Tortuga Lagoon, northwest lagoon. b) Part of Macanao where Loma El Chivato and El Taguapiral hills are found. c) An area of tropical desert grasses and flood-lands west of the lagoon. Includes the El Pasadero Lagoon's seasonal sector, the salt flats that surround it between Lucas and Las Maritas streams and El Pasadero Lagoon, and a 250 m stretch of the Boca del Río-Macanao road (park boarder). Access is restricted and only INPARQUES supervised research and monitoring are allowed.
- *Primitive Zone (P)*: Made up of pristine natural environments where moderate use can be tolerated. Spans most of the park and includes the following areas:
 - *Central sector of the lagoon*: made up of mangrove areas, canals and small internal lagoons. Stretches from Caño Grande towards the north (close to the

Boquete de Felipe), to Chite Lagoon. It includes the mangroves that surround El Jiele, Gavilán, Pedro Tomás, Temigosa and Guacuquera lagoons, in addition to La Isleta and La Culebra, Los Caimanes, Las Garzas and Millán lagoons in the south.

- *Western sector of the lagoon*: consists of almost all the mangrove forests and lagoon west of the Laguneta and Chite Lagoon's main canal, with the exception of the integral protection zone.
- *Eastern sector of the lagoon*: Includes the entire lagoon and mangrove area of El Conchal, La Redonda, La Cortadora, El Pato, El Fondo Arpando and Arpano lagoons.
- *Eastern sand bar mangrove area*: Covers an area about 10 km long and an average of 10 m wide from La Restinga swimming area to El Parcial salt flats in the east.
- *Salt flats and flood-lands*: Located close to the lagoon, consists of: part of El Pasadero salt flat sector towards El Balneario, salt flats south of Arapano, and the salt flats found in the western sector of the lagoon and on both sides of the lagoon mouth.
- *Mangrove and lagoon area*: Located on the edges of the mouth. Includes Paso de Caballo, Los Portillos and Punta Los Pargos lagoon sectors.
- *Xeric environment surface*: Includes most of Macanao and the area of the park that stretches from the boarder to the south, southeast and west up to the salt flats.
- *Managed Natural Environment Zone*: Includes central sector lagoon areas that can be navigated and are used for recreational purposes, the 22 km sand bar, Macanao peninsula coasts, the trail from Comején to El Saco, and the road leading to San Francisco of Macanao up to a certain point (defined by coordinates) on La Guardia coast.
- *Natural Recovery Zone*: Made up of areas affected by human activities that must recover to fulfill park objectives. Includes a 3 ha sand extraction area in La Chica riverbed and a 4 ha area next to the bridge over the lagoon mouth.
- *Recreation Zone*: Includes La Restinga swimming area that spans approximately 1,200 m of the central sector sand bar beach, El Rincón del Saco area and INPARQUES' infrastructure outside La Guardia town on the eastern edge of the sand bar.
- *Service Zone*: Made up of INPARQUES' infrastructure at the main entrance to the park (El Indio), the dock, and a nearby service station close to Boca del Río roadway.
- *Special Use Zone*: Includes highly affected sectors of the park where activities and services are located. Space is assigned according to current use and park objectives. Made up by:
 - *La Guardia*: 4 ha area of the town that is inside park limits.
 - *Universidad de Oriente Boca del Río Campus*: Includes this institution's infrastructure located on the western boarder of the lagoon mouth.

The park has ten park guards, one environmental educator and one superintendent (Lic. Anaís Rodríguez). They perform vigilance, monitoring and administrative duties. Some also work in the island's other two recreational parks and three natural monuments.



From left to right: El Indio dock, El Mague park guard post, La Restinga park guard post. El Indio Visitor Center dock and installations were built in 1999 with World Bank funds. Park guard posts are in very good condition though not all are occupied.

We do not know the budget INPARQUES assigns for La Restinga Lagoon management. In 2002 however, Central Administration did not give any money for park management. Personnel are owed salaries and reimbursement for park costs covered out of pocket by the superintendent and park guards.

New administrative and recreational installations were built in 1999. These include a cafeteria, souvenir and craft shop, restrooms, a show room, parking lot, mailbox, bulletin board, administration offices and tourist arrival dock. These additions form part of the strengthening projects of the National Park system financed by the World Bank. In addition, the park has four recently built strategically placed park guard posts. At least one of these (in the semi-desert zone) was still unoccupied during a recent visit by ParksWatch personnel.

Human Influence

Macanao peninsula was isolated from the rest of Margarita until the construction of the bridge over the mouth of the La Restinga Lagoon 1963. This fact, in addition to the dryness of the soils, kept Macanao Peninsula and park surroundings almost uninhabited. A few small villages, fishermen camps and towns, like Boca del Río (the largest of them with 5,000 inhabitants), are the exception. Boca del Río, which is outside park limits, has recently experienced a great deal of growth. The Universidad de Oriente marine research installations and the Marine Museum, an important tourist attraction, are located in this town. San Francisco de Macano is another important town that is also outside park borders. A certain amount of farming has been

successful here because of its piedmont location. Aside from this, almost 100% of the park's terrestrial area is privately owned land that has yet to be bought for the park. The land belongs mostly to a few families that make a living extracting sand for construction. Occasionally the extraction is done inside the park.

Park Inhabitants

Located inside the park is the town of El Portillo de Leonardo, also known as La Restinga, with 32 houses and 190 inhabitants. Most of the inhabitants are members of the same family. Mangrove oyster (*Crassostrea rhizophorae*) extraction, done only by the women of the community, is the main economic activity. There is no fresh water or wastewater treatment service in the town. Until two years ago, there was no solid waste pick up.



The collection and sale of the mangrove oyster is an important economic activity for women from La Restinga.

The community of El Maguey, a fishing camp, is located in the semi-desert zone west of the lagoon. There are no public services, not even running water. The community's 15 people make a living by fishing and illegal activities such as the collection and sale of sea turtle eggs.



El Maguey fishing ranch and a fisherman in the lagoon. Fishing is an important activity in the lagoon as well as in the park's marine zone.

Tourism

Margarita Island is Venezuela's main tourist destination. Over one million people visit each year (MARN 1994) attracted by its beaches, nightclubs and casinos. Despite its exceptional natural beauty, there is not much nature tourism in Margarita. As one of Margarita's major attractions, La Restinga National Park is an exception. In 2001, 62,000 tourists visited the park.

Approximately 93 boat operators offer tours of the lagoon's tunnels and canals to visitors. The tours are up to an hour long and can include a visit to the beach. Boats are available from seven in the morning to five o'clock in the evening. The park offers ample services to tourists: restrooms, shops, mail, parking, restaurants and information. Along the lagoon canals there is a nature trail that does not operate due to lack of maintenance. The park has enough attractions and potential that it could benefit directly from ecotourism plans.



The semi-desert zone's beaches and the lagoon's mangrove canals are a national tourist attraction.



Tourists visit the park each year by the tens of thousands.

Conservation and Research

The Universidad de Oriente has carried out a number of research projects in ecology, marine biology, zoo technology and fisheries management. These have been published in nationally or locally distributed journals. This is probably one of the most studied ecosystems in Venezuela; however, research is rarely applied to problem solving. One applied project currently underway is a floating module mangrove oyster (*Crassostrea rizophorae*) farm. The program's objective is to satisfy growing demand for the product without affecting natural populations.



Floating module for the oyster farm.

Provita, a Venezuelan conservation organization, has worked in the region for many years. They have mostly worked on projects directed towards the recovery of two endangered psittacids: the blue crowned parakeet (*Aratinga acuticaudata*) and the yellow-shouldered amazon (*Amazona barbadensis*). Between 1989 and 2000, they were able to increase the amazon population from 750 to over 2,300 individuals (Silvius 1986). They were also able to actively involve locals in the program thanks to educational campaigns.

A park-wide sea turtle monitoring program is carried out by Pedro Vernet of Provita and Angel González of Grupo de Especialistas en Tortugas Marinas del Estado Nueva Esparta.

Threats

- Human Settlements
- Land ownership
- Poaching and illegal fishing
- Lack of Funds
- Contamination
- Rampant tourism
- Exotic species introduction
- Sand bar reduction

Current threats

Human settlements

The towns inside the park have grown consistently since the park was created. This growth comes from high birth rates and a lack of emigration. This population growth, along with lack of services, has increased contamination of the lagoon and other areas of the park. INPARQUES did not mention the communities in the Ordinance Plan under special zoning nor did they write management plans for the communities.

El Maguey, a 15-person fishing camp in the xeric zone, has no services. The local government trucks in potable water. People from this town illegally collect turtle eggs and hunt amazon parrots and iguanas.



El Maguey fishing camp. There are no services and inhabitants illegally collect turtle eggs and endangered amazons.

El Portillo's 190 inhabitants make a living from fishing and oyster extraction. Only women in the town harvest the oysters. Some fishermen use illegal methods like gill nets, though this problem is not as serious as it is in Tacarigua Lagoon. There is no running water or wastewater treatment in this town, which leads to contamination of the lagoon and nearby areas. There is also a high degree of overcrowding in the 30 existing houses. Garbage is yet another problem. Two years

ago, there was no solid waste pickup. Locals dumped their garbage on the beach and burned it. Now the local government provides garbage service once a week.



Garbage and overcrowding seriously affect town living conditions and park ecosystems.

Park signs are stolen for construction and fishing boat repair. Even though INPARQUES has written a master plan (see Solutions) to improve the town, it has not yet been set in place. INPARQUES and the State government built a concealing wall around the town to diminish the visual impact of the town as they consider that it negatively influences tourism.



In an attempt to visually “improve” town esthetics, a wall was built to visually isolate the town from the park.

Land holding

With the exception of the lagoon, the park’s land is privately owned and the state has yet to compensate the owners for their land. Approximately 750 owners are claiming rights over land inside the park (Rojas-Suárez 1998). Currently MARN cannot pay off the landowners, as potential for tourist or industrial development has increased Macanao Peninsula land prices. Contrary to park objectives, many of these areas are used for farming, landfills or commercial sand extraction. In many other areas access is restricted and owners have fenced in their land.

Poaching and illegal fishing

Park inhabitants and many outsiders visit the xeric zone in order to pursue illegal hunting or poaching activities. Although there are no studies to determine the impact of this activity, the

superintendent believes the iguana (*Iguana iguana*), Margarita's white-tailed deer (*Odocoileus virginianus margaritae*) and the cottontail rabbit (*Sylvilagus floridanus margaritae*) are the preferred game of the hunters, the last two being endemic subspecies. Poaching is done mostly for sport and commercialization, but rarely for food. Keeping deer as pets is a custom among people from Margarita (Rosa Moscarella, pers. comm.).

Among birds, the blue-crowned parakeet is critically threatened due to poaching and the pet trade. In 1994, there were an estimated 180 individuals (Rodríguez and Rojas-Suárez 1999). Presently, there are no more than 20 breeding pairs (Daniel Carillo, pers. comm.). Commercial poaching and habitat destruction have endangered the yellow-shouldered amazon parrot in Venezuela (Rodríguez and Rojas-Suárez 1999), and made it globally vulnerable (IUCN). Sand extraction for construction in Eastern Margarita has caused this habitat destruction. La Restinga National Park protects only part of the yellow-shouldered amazon's distribution in Venezuela. Even though Macanao peninsula had an estimated 2000 adults in 1999, increased poaching in recent years has probably reduced their numbers considerably (Virginia Sanz, pers. comm.).



Hundreds of pelicans, among other bird species, die each year by flying into the power lines that run parallel to La Restinga coast line. Macanao hills can be seen in the background.

The park's pelican population may be threatened due to increased mortality. Recently park guards have reported pelican hunting for consumption by park inhabitants. The high-tension power lines that run parallel to the coast cause additional deaths by collision (Lentino and Bruni 1994, pers. comm.).

A few townspeople use illegal methods (gillnets) to fish in the lagoon. Even though this activity is not as intense as in Tacarigua Lagoon National Park, the La Restinga fish community could be threatened. Women from the community legally extract mangrove oysters. However there is illegal harvesting during the off-season (September 1 to February 28) and by outsiders. According to INPARQUES' statistics one person can harvest 20 dozen oysters a day during the off-season and 30 dozen in open season. It is predicted that oyster populations will be affected in the near future at this rate of extraction. Three shellfish species (*Crassostrea rizophorae*, *Pinctada imbricata* and *Arca zebra*) have just been included in the Red Book of Venezuelan Fauna (Rodríguez and Rojas-Suárez 1999). Overexploitation has decimated oyster populations in other Venezuelan lagoons (Rodríguez and Rojas-Suárez 1999).



Oysters attached to mangrove roots in La Restinga Lagoon. To the right, a picture of Tacarigua, another park with a coastal lagoon. The oysters from this mangrove were annihilated by overexploitation.

Lack of Funds

INPARQUES' current budget crisis threatens to stop national park functioning throughout the country (see news). Most personnel have salaries under 35,000 Bs. a month (US\$20) and must pay for park costs like maintenance and gasoline out of their own pockets. INPARQUES also lacks funds to pay overtime and nightshifts. Employees have lost motivation and this is reflected in their work. Remote area vigilance and nocturnal rounds were stopped. Remote sites in the lagoon, where oysters are illegally extracted, are difficult to guard due to the lack of gasoline and boat maintenance.

In 1998, La Restinga Park received four all terrain vehicles, eight motorcycles, three tow trucks and six motorboats. Currently the park has only two land vehicles and two boats in working order, and these vehicles receive no maintenance. There are seven park guards in La Restinga, however they also fulfill guard duties in the island's other protected areas. Most of the park guards work at El Indio, the park's main post, while fringe posts go unmanned. The combination of all these factors makes it impossible to guard the semi-desert zone west of the lagoon.

Contamination

Although water quality studies have not been performed recently, a 1987 study indicated human activity had already resulted in contamination of the lagoon (Bilbao and Vásquez 1987). The accumulation of trash on the eastern side of the beach compromises the view and contaminates the beach water. ParksWatch Venezuela and a group of local volunteers recently participated in World Beach Day. Over 1.5 tons of solid waste was collected this day in El Saco area and even so there was still waste leftover. Waste disposal is a serious problem in other parts of the park where strong winds makes disperses garbage across a large area.



Truck piled with garbage after World Beach Day.

Contamination of habitat is the main threat to the clapper-rail population of La Restinga (Rodríguez and Rojas-Suárez 1999), which is the only known population of this species in the world.

Uncontrolled tourism

La Restinga is one of the main tourist destinations on Margarita Island. Each year approximately 62,000 tourists visit the park. A few years ago, all terrain vehicle use on the beach or the park's xeric zone became popular. These vehicles create trenches that degrade the soil and vegetation in the xeric zone, and destroy sea turtle nests along the beach. Even though this activity has been reduced considerably in the past year, maintaining constant monitoring is important.

Exotic species introduction

The superintendent informed us that an exotic clam species, *Perna viridis*, is displacing the native *Perna perna*. The accidentally introduced *Perna viridis* is originally from the Pacific. The presence of this species affects local oyster and clam markets (MARN 2001).



Calotropis procera, a species native to Asia, dominates plant cover on the littoral sand bar.

ParksWatch Venezuela found large areas covered by an exotic Asian plant species, *Calotropis procera*. This species covers virtually all the sand bar and salt flats northeast of the lagoon. Park

guards assured us that a group of collared peccaries (*Tayasu tajacu*) was set free close to the park on Macanao peninsula a few years back. However, we were not able to confirm this report.

Future threats

Sand bar reduction

In 2000 a study carried out by MARN and the Universidad de las Palmas, Canary Islands, demonstrated ongoing reduction in sand bar width (especially in the eastern side) due to the advancement of the sea. Lagoon morphodynamic characterization showed sand bar width has decreased three meters a year for the past 25 years (Martinez 2000). The construction of jetties and breakwaters in La Guardia is one of the main causes of sand bar reduction since sediment transport patterns are changed by these structures. If the sand bar disappears, the lagoon system and the mangrove forests will also disappear.

Lagoon desiccation

INPARQUES recently found mangrove die off in certain areas of the lagoon. In these places, lagoon salinity has increased to levels the mangroves cannot tolerate. Among the factors that cause increased salinity are drought, encroachment of mangrove roots into the canals, lack of canal maintenance, which contributes to decreased water flow in selected areas, and increased evaporation. This problem requires attention, though chances are still good that it can be solved in a timely manner.



*Soil affected by drought and increased salinity causing mangrove die off in certain areas of the lagoon.
Courtesy of INPARQUES, Nueva Esparta.*

Recommended solutions

Human settlements, contamination, rampant tourism

INPARQUES currently has a Comprehensive Development Plan (scale 1:25,000) for El Portillo. This plan includes urban remodeling of the town, a beach walkway, a service center, restrooms, the construction of a wastewater treatment plant and a sewer and waterway system. Part of the proposed solution entails including settlers into park tourism development and conservation activities. Three billion bolívars (~\$1,700,000 US) were supposedly assigned to this project in 1999. However, work has not begun because funds were used for assistance during the Vargas mudslide tragedy in December of that year.

If this plan is to provide solutions to the actual problems caused by the town and flood of tourists, the plan must include restrictions on growth of the communities in the park and must curb the potential problems that increased tourism will bring to the area.

Land ownership

As part of a 1998 Park Consolidation Project financed by World Bank, information was compiled on all property ownership and activities carried out on these lands inside the park. Lack of funds has not yet allowed INPARQUES to purchase in holdings in the Park, and this probably will not change in the near future due to the country's current economic crisis. Fortunately, INPARQUES plays an important role in the Nueva Esparta Land Ordinance Committee. Land in the La Restinga is protected because there are no conflicts of interest with the local government's urbanization and development programs. While solutions are being developed, INPARQUES' position in the Committee must be maintained to avoid illegal human settlements in the near future.

Lack of funds

The lack of funds La Restinga and other parks are currently experiencing affects equipment availability, number of employees and the motivation of employees to work. This in turn causes decreased surveillance of La Restinga and an increase in poaching. Budget problems in the area have a long history mainly caused by INPARQUES' political weakness and a lack of environmental interest on behalf of the government. In 2002, INPARQUES accepted an ever-dwindling budget from the government, as they do every year. Imminent actions toward a strike may be the only way to solve this spiral of continually lessening funds. As long as the superintendent and park guards keep paying for park maintenance out of their own pockets, the government will continue to believe that parks can function with continually reduced budgets. Demonstrating that parks cannot function within the current budget may be the only way that INPARQUES can obtain funds that match its importance as an institution.

Poaching and illegal fishing

The most successful project against wildlife poaching and illegal commerce was a yellow-shouldered amazon project, which was carried out in the 1990's by PROVITA. A variety of educational campaigns was able to convert seasoned poachers into conservation allies. These campaigns were aimed at both children and adults. They included folkloric and recreational activities. Several small businesses were formed due to this campaign. They used the yellow-shouldered amazon as a representative emblem. This project idea should be used with other endangered species. However, recent socioeconomic changes in towns surrounding the park must be taken into account to ensure future program success.

Exotic species introduction

While a great number of studies regarding the native flora and fauna of the lagoon and its surroundings already exist, studies on the control and eradication of invasive species are needed. The Ministry of Science and Technology has a National Parks Fund for this purpose, though park superintendents must voice their needs to receive the funding.

Sand bar reduction

Solutions to minimize sand bar reduction are neither trivial nor easy to implement in the short term. Some of the factors causing this problem are global in origin while others are on a local scale. Among the latter are the construction of jetties and breakwaters, which have reduced sediment discharge and require thorough study to reverse this effect. It would be best to take into account the experiences of other countries where these problems have been solved successfully.

Conclusion

Laguna de la Restinga National Park contains ecosystems of impeccable beauty. Since many of these are home to endemic species with restricted distribution, they also have a high value for biodiversity.

The park has high economic value in both cropland and tourism. However, conditions such as lack of funds, endemic species extinctions, private land ownership, and sand bar reduction threaten its value as a park and ability to function as such. We consider Laguna de la Restinga National Park's biological integrity to be **Critically Threatened**.

Links:

[Provita](#)

[Grupo de Trabajo en Tortugas Marinas del Estado Nueva Esparta \(GTTMNE\)](#)

[El convenio RAMSAR para la protección de humedales](#)

[Fondo Nacional de Ciencia, Tecnología e Innovación \(FONACIT\)](#)

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