



OECS Protecting the Eastern Caribbean Region's Biodiversity (PERB) Project

Contributing to the Mitigation of Threats to Biological Diversity

Component 2 of the PERB Project focuses on biodiversity conservation at the site level and seven sites have been earmarked for support:

Project Sites

Wallings Forest and Watershed Area, Antigua

Biological Significance

The Wallings Forest and Watershed Area is characterized by moist semi-evergreen forest, which consists of a wide diversity of tropical tree species, shrubs, lichens, ferns and orchids. Although the forest is secondary in growth, it supports a wide range of fauna which includes over 31 species of resident and migratory birds. The Wallings Forest receives an annual average of 10,000 cruise and stay over visitors, along with local individuals and groups. While such a forest area is not rare from a regional stand-point, it is rare for Antigua and is one of the best "intact" watersheds on the island.

The watershed flows into coastal areas comprising coral reefs, mangroves and other wetlands, and thus, likely plays a critical role in maintaining the health of these coastal systems.

Threats

Threats to the area appear relatively low and mainly stems from deforestation by fishers, who use the timber for fish trap material, and uncontrolled ecotourism activities such as canopy tours. But the potential threat from physical development (tourism developments by private investors) is a cause for concern given that there has been some interest to develop these lands.

However, political support for conservation of the area is viewed as good and is measured by a land exchange exercise that has taken place in the area, aimed at preserving and conserving these forest resources. Also, forested areas in Antigua are afforded general protection under the Forestry Act.

Codrington Lagoon, Barbuda

Biological Significance

The Codrington Lagoon is the largest wetland in the State of Antigua and Barbuda. It is also recognized as the nesting site for the second largest colony of Magnificent Frigate Birds in the western hemisphere. The island of Barbuda has the potential to be a substantial tourist destination, but it is recognized that its pristine beaches, lagoon and bird sanctuary constitute some of the most environmentally sensitive areas of Antigua and Barbuda. Consequently, the Codrington Lagoon was declared a National Park on 3rd March 2005, giving this area special protection.

Threats

Sewage from the Codrington Village has resulted in eutrophication within the lagoon and these conditions pose a serious threat to biodiversity within the area. Other threats include fishing of juveniles and sand mining.

Further, the Frigate Birds appear to be moving their nesting area further inland, deeper into mangrove wetland, as opposed to being on the seaward fringing of the wetland. The reason for this shift is unclear, but speculations include impacts of disturbances within the lagoon.

While a management plan has recently been developed for this protected area, there is need to put infrastructure in place to facilitate day to day operations of the protected area.

Levera Mangrove Wetland, Grenada

Biological Significance

The Levera mangrove system is one of the largest mangrove wetlands on the island. This ecosystem is a basin mangrove which is highly productive and an important habitat for many important aquatic species as well as various species of birds including the Scarlet Ibis. The wetland forms part of a complex system of coastal resources, which includes nearshore coral reefs and beaches. The wetland is also part of a wider proposed protected area, namely the 450-acre Levera National Park.

Coconut palms, cactus and woody scrub vegetation occupy the drier upland areas adjacent to the mangrove swamp. The area provides habitat for many species of indigenous wild life, including the iguana and land crabs. The adjacent white sand beaches are important nesting grounds for turtles and the nearshore area is comprises coral reefs and sea grass beds, which provide food and shelter for lobsters and many other reef fish species.

Threats

Threats to this mangrove system mainly stem from physical development of adjacent lands which threaten to encroach into the mangrove system and/or negatively impact on the system's hydrological regime. Lands adjacent to the wetland have been earmarked for tourism development. However, efforts are underway to create an MOU between the Developer and the Department of Forestry to ensure that wetland systems are not heavily impacted by the proposed development. Further, efforts are underway to declare the wetland area protected under the Forestry and National Parks legislation. Interest also exists in having the site nominated as the island's Ramsar Site.

The area is currently advertised widely (on tourism websites) as part of a broader national park, which includes the beach and other coastal area systems. It is generally accepted that the area, termed 'Levera National Park' is protected despite the fact that it has not been legally declared. Impacts from uncontrolled tourism related and other activities also pose a threat to the system.

Sandy Island/Oyster Bed Marine Protected Area (SIOBMPA), Carriacou

Biological Significance

The SIOBMPA comprises an area of 787 hectares on the southwest coast of Carriacou. The area contains an extensive reef system, mangroves and seagrass beds. The mangroves are renowned as a critical habitat for a large population of mangrove oysters, and also serve as nursery grounds for several reef species. The SIOBMPA supports 2 species of sea turtles, namely the hawksbill turtle (*Eretmochelys imbricata*), which is classified as critically endangered and the green sea turtle (*Chelonia mydas*), which is classified as endangered by the *IUCN Red List of Threatened Species*. Protection of the mangroves also protects the Grenadian Bank Tree Boa (*Corallus grenadensis*), locally called the serpent, which is also endemic to Grenada and the Grenadines.

Threats

Threats arise from potential development and uncontrolled use of the area. However, threats are considered relatively low at present, but have the potential to heighten if management measures are not put in place in the near to medium term. In addition, threats from natural disasters, such as storms, also pose a risk and there is current evident from past storm damage.

A management plan has recently been developed for this protected area; however, there is need to put the necessary infrastructure and institutional arrangements in place to facilitate implementation of this management plan.

Nevis Peak, Nevis

Biological Significance

The Nevis Peak proposed protected area ascends from the shoreline to 3232ft, the tip of Nevis Peak. The proposed protected area includes the watershed and springs in the north east and descends via Camps Ghaut and surrounding wetlands into the nearshore reef system. The area is home to a number of bird and other species. The nearshore reefs and seagrass beds serve as a nursery area for juvenile Caribbean spiny lobster and a foraging area for the Caribbean queen conch. The beaches within the low reaches of the coastal shed are nesting areas for sea turtles, including the endangered hawksbill turtle. This proposed protected area presents an excellent opportunity for integrated watershed and coastal area management.

Threats

The current threat level to the upper levels of this area appears low. There is no immediate threat from physical development, agriculture or tourism activities. However, it should be noted that there is some harvesting of some species for use as medicines, *inter alia*, and harvest levels are largely unchecked.

The lower reaches of the area are threatened by physical development, such as the proposed airport and hotel development. Consequently, it is essential to establish a baseline on existing biodiversity in the area and develop an appropriate management plan, one that can strike a balance between development and conservation needs.

Millet Nature Trail, Saint Lucia

Biological Significance

This protected area is contiguous with the Central Forest Reserve and forms part of the water catchment area for the Roseau Dam, the largest in the eastern Caribbean. The lands were historically farm lands which were acquired to protect the dam. Restoration efforts have been successful and the area is now considered to be tropical rainforest. The area is home to a number of the island's endemic birds, including the Saint Lucian parrot, Saint Lucian Pewee and Saint Lucian Oriole.

Threats

Threats from human activities appear to be relatively low given the current status of protection and the daily presence of the management authority. However, since the area is used for eco-tours, it is important that appropriate infrastructure and an effective management system are in place to ensure that these activities do not negatively impact on biodiversity.

Natural disasters also pose a threat to the area as was observed during the passage of storms in the past. Thus, there is a need to ensure that arrangements are put in place to ensure that the systems within this protected area remain healthy, and subsequently, more resilient against such natural disasters.

King's Hill, Saint Vincent

Biological Significance

The King's Hill Forest Reserve is located on the south-eastern part of Saint Vincent and occupies a total area of 20 hectares (52 acres) on a sugarloaf hill reaching a maximum elevation of 600 ft. It protects one of the oldest intact climax semi-deciduous coastal forest types in the Caribbean. The top of the hill is characterized by an almost closed canopy 60 feet above the ground, formed by trees with flat spreading crowns. The canopy is matted with vines and numerous large rope-like vines trailing to the ground. Epiphytes are abundant in the crowns of the large trees and include several species of fern, orchids and bromeliads. The prickly palm (*Aiphanes erosa*) is a feature of the lower layer. The reserve is also home to a number of the island's endemic vegetative species, endemic reptiles and micro-faunal species such as spiders and scorpions.

Threats

The degree of threat faced by this protected area is relatively high. The system is surrounded by agricultural and physical developments which threaten to encroach further into the protected area's boundaries and the system stands to be lost entirely. Due to the small size (52 acres) of the area, any further encroachment could result in a collapse of the system. Consequently, there is a need to clearly define and implement management interventions aimed at protecting this system.

Project Interventions

Under the PERB project, several interventions have been identified to mitigate the aforementioned threats. These interventions are targeted at the local, national and regional levels and include the following:

Biodiversity Inventory and Status Assessments

In the absence of baseline data, it is not possible to directly measure changes in biodiversity over time. Some baseline data exists for some of the aforementioned sites; however, a more comprehensive dataset will be acquired via biodiversity inventories and assessments to be conducted under the PERB Project.

In support of this baseline dataset, a web-based OECS Biodiversity Database will be developed. It is envisaged that countries, along with the OECS Secretariat, through its Environment and Sustainable Development Unit, will continue to update this database long after the PERB project has been completed.

Site Management Plans

With the exception of the Codrington Lagoon, none of the other sites have management plans in place. In order to begin to address threats facing biodiversity within the project sites, there is a need to ensure that a plan is in place to effectively manage resources within these sites. These management plans will aim to mitigate threats by clearly identifying the boundaries of the protected areas, defining institutional arrangements, detailing rules and regulations governing the area and articulating arrangements to guide use and user management, research and education, surveillance and enforcement, and administration.

Notably, these management plans will also give direction to the development of ongoing monitoring programs for each site.

Public Awareness

To ensure long term sustainability, the project supports increasing national institutional capacities, and levels of public support for biodiversity conservation and sustainable management of biological diversity through education, training and awareness activities. The component, therefore, seeks to enhance national capacities and increase public support for biodiversity conservation and sustainable

management of protected areas through the production of education and awareness materials. These materials include:

- The production of four 5-minute television features on biodiversity, four 30-second PSAs for radio, and four 30-second PSAs for television. These products are based on a creative concept “I am Caribbean,” which seeks to stimulate the audience by appealing to the conscience and sense of personal responsibility for ensuring care of biodiversity. The campaign endeavors to generate a sense of pride attached to traditions of nature, based on the notions of “I am Caribbean.” The messages enshrined in the PSAs include the definition of biodiversity, linkages of biodiversity with socio-economic structures of the OECS islands and their dependency on biodiversity for everyday activities, and a call to action to protect biodiversity.
- The development of a booklet on the ecological, social and economic significant of biological diversity, along with 3 thematic posters on biological diversity.
- The production of secondary learning modules that include biodiversity themes. These modules will be tied to CXC curriculum (specifically geography, biology, integrated sciences and agricultural sciences).

Infrastructure

In support of activities to be conducted under the management plans, some infrastructure is planned and includes signage at all sites and interpretation centers at the Millet Nature Trail (Saint Lucia), Codrington Lagoon National Park (Barbuda) and Walling Forest (Antigua).

To address the threat of biodiversity loss within the Codrington Lagoon (Barbuda) from poor sewage treatment and disposal, a sewage needs assessment is planned for the Codrington Village and will include the establishment of a pilot sewage treatment system for the proposed interpretation centre and several adjacent buildings.

Improvements in Biodiversity Related Legislation

Notably, Antigua and Barbuda, and Saint Vincent and the Grenadines are also directly benefiting from Component 1 of the PERB Project, whereby consultants have been hired to begin to harmonize national legislation related to biodiversity conservation.

In the case of Antigua and Barbuda, the consultant will undertake a review of relevant legislation and make recommendations for improving legislation in support of biodiversity conservation. In addition, the existing environmental bill will be updated and requisite regulations will be drafted.

A national policy on protected areas will be drafted for St. Vincent and the Grenadines. In addition, regulations and orders under the existing National Parks Act will be drafted and the OECS Environment Framework Legislation will be adapted to suit national needs.

As a consequence of improving such legislation, the countries’ efforts aimed at biodiversity conservation will result in more fruitful outcomes. Further, recommendations arising from these undertakings will also serve as to guide future actions towards harmonization of biodiversity related national legislation.

Private Sector Involvement

Sites of biodiversity significance tend to be attractive to visitors, and are thus marketed for eco-tours. If not managed appropriately, such activities can have the potential to impact negatively on biodiversity contained in these sites. Given the limited resources available to the various public sectors to manage these sites, management is best pursued in collaboration with private sector involvement. To address this, the Organization of American States (OAS) has been contracted to examine the relationship between tourism and biodiversity and to define the stewardship role for that sector towards biodiversity conservation.

Table 1 summarizes the threats and project interventions at the site level.

Table 1. Summary of Threats and PERB Project Interventions

Site (Location)	Threats	Interventions
Codrington Lagoon (Barbuda)	<ul style="list-style-type: none"> Threats from poor sewage treatment and disposal Fishing of juvenile fish Sand mining 	<ul style="list-style-type: none"> Conduct a biodiversity inventory and status assessment Develop infrastructure to enhance sustainable use of area (interpretation centre , signage and surveillance posts)
Wallings Forest (Antigua)	<ul style="list-style-type: none"> Deforestation by fishers, who use the timber for fish trap material Uncontrolled ecotourism activities such as canopy tours Physical development (tourism developments by private investors) 	<ul style="list-style-type: none"> Conduct a biodiversity inventory and status assessment Develop a management plan Develop infrastructure to enhance sustainable use of area (interpretation centre , signage and surveillance posts)
Levera Wetland (Grenada)	<ul style="list-style-type: none"> Physical development (tourism developments) 	<ul style="list-style-type: none"> Conduct a biodiversity inventory and status assessment Develop a management plan Develop infrastructure to enhance sustainable use of area (boardwalk and bird watch tower)
Sandy Island Marine Reserve (Carriacou)	<ul style="list-style-type: none"> Physical development Uncontrolled use of the area Natural disasters, such as storms 	<ul style="list-style-type: none"> Conduct a biodiversity inventory and status assessment Develop infrastructure to enhance sustainable use of area (addition to site office, signage and mooring system) Develop and implement a communication strategy for the site
Nevis Peak (Nevis)	<ul style="list-style-type: none"> Harvesting of some species for use as medicines Physical development (tourism developments and other infrastructure) 	<ul style="list-style-type: none"> Conduct a biodiversity inventory and status assessment Develop a management plan Conduct tour guide training
Millet Nature Reserve (Saint Lucia)	<ul style="list-style-type: none"> Natural disasters, such as tropical storms Overuse of area 	<ul style="list-style-type: none"> Conduct a biodiversity inventory and status assessment Develop a management plan Develop infrastructure to enhance sustainable use of area (interpretation centre and signage) Enhance public awareness:

Site (Location)	Threats	Interventions
		<ul style="list-style-type: none">○ Develop training manual for community persons (vendors, artisans, etc.) to build capacity in small business management and sustainable livelihoods.○ Conduct training activities with relevant community persons in keeping with the training manual.
King's Hill Forest Reserve (St Vincent	<ul style="list-style-type: none">▪ Encroachment by surrounding development▪ Uncontrolled use of the area	<ul style="list-style-type: none">▪ Conduct a biodiversity inventory and status assessment▪ Development of a management plan▪ Develop and implement a communication strategy for the site

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