

BARBADOS

INTRODUCTION

based on information provided by Maurice B. Hutt

Barbados, the most easterly of the Caribbean islands, lies about 150 km east of the Lesser Antillean island arc and 300 km NNE of Trinidad. With an area of only 430 km² and a population of about 300,000, Barbados is one of the most densely populated islands in the world. A British Colony from 1627, the island achieved independence within the Commonwealth in 1966.

The climate is tropical, but because of the cooling influence of the NE Trade winds, temperatures rarely exceed 32°C. The average annual rainfall varies from about 1,150 mm on the coast to 1,900 mm in the hills; most falls during the rainy season from June to November. The topography is rolling, with hills rising to 338m, and much of the land is under cultivation, particularly for sugar cane. Tourism is extremely important in the island's economy, and there are extensive tourist developments on the south and west coasts. Native vegetation is now more or less confined to a few small patches in the hills and along the exposed east coast which has remained relatively undeveloped.

There are extensive offshore coral reefs and sea-grass beds, but very few natural wetlands on the island. These include several small permanent and seasonal brackish to saline coastal lagoons and three patches of mangroves. However, each year the island's wealthier hunters create shallow impoundments of up to 2 ha in extent on agricultural land, to attract migratory shorebirds which pass over the island in large numbers during the autumn migration season (mid July to mid October). In the early 1960s, as many as twenty such ponds, or "trays" as they are known, were created each year. Since then the number has decreased to about eight or ten.

Very few species of waterfowl breed on the island and only *Bubulcus ibis* is common. However, the endangered nominate race of the Yellow Warbler *Dendroica petechia petechia* is endemic to the island, and almost confined to the mangrove swamps. Many species of waterfowl occur on passage and in winter, particularly Ardeidae and shorebirds, but numbers are generally small except during adverse weather conditions in autumn, when large numbers of shorebirds may be grounded.

Institutional Base for Wetland Conservation and Research

The governmental statutory body responsible for the natural environment is the National Conservation Commission, formerly the Parks and Beaches Commission established in 1970. This is primarily concerned with administering the one national park and a number of public recreation areas and beaches.

There are several non-governmental bodies in Barbados with interests in conservation.

Caribbean Conservation Association (CCA). This international organization with fifteen member states in the wider Caribbean has its headquarters in St. Michael, Barbados. It was created in 1967 to ascertain the conservation needs of the Caribbean area and to coordinate conservation activities throughout the region. The CCA has programmes related to environmental education, environmental legislation, museums and historic sites, and natural area management, and publishes a bulletin "Caribbean Conservation News" in English, Spanish and French.

Barbados National Trust. This was created in 1961 and incorporated by Statute in 1962; its objectives are the preservation and conservation of the country's cultural and natural heritage, and it has been particularly active in preserving sites of historical interest. The Trust was instrumental in revising the Schedule to the Wild Birds' Protection Act in 1979.

Barbados Wildlife Protection Association. This was launched in August 1983 to campaign for the protection of wildlife, especially migratory shorebirds, and for the preservation of wildlife habitats of all description.

University of the West Indies. The Department of History at UWI in Barbados provides assistance in raising the level of public consciousness of environmental issues, and is embarking on a programme of environmental studies.

Progress in Wetland Conservation

The Marine Areas (Preservation and Enhancement) Act of 1976 provides the legal basis for the establishment of coastal and marine parks and reserves. One small marine reserve was created in 1980 on the west coast of the island, and there is a proposal dating from 1979 to create a national park of about 5,000 ha on the east coast. This would include a strip of land up to 2 km wide stretching for 34 km along the coast from Archer's Bay to Ragged Point and incorporating Long Pond, one of the three most important wetlands on the island. One of the other two important wetlands, Graeme Hall Swamp, is partly protected as a no-hunting area, while the other, Chancery Lane Swamp, has been proposed for the establishment of a wildlife sanctuary.

The Wild Birds' Protection Act first became law in 1907, and at that time gave protection to only eleven species, mainly resident birds believed to be beneficial to agriculture. A revised Schedule to the Act giving protection to 46 species including all Ardeidae and four uncommon shorebirds was passed in 1979. Subsequent proposals for revisions giving complete protection to migratory shorebirds have met with considerable opposition.

Major Threats to Wetlands and Waterfowl

The major threats to wetlands in Barbados are urban expansion and development for tourism. The Government is proposing to construct a sewage disposal plant at Graeme Hall Swamp, and there are housing developments planned or in progress at this swamp and Chancery Lane Swamp. There is also some pollution at Graeme Hall Swamp.

Heavy hunting pressure, particularly during the autumn migration season, causes a considerable amount of disturbance to waterfowl populations, and takes a significant toll of the shorebirds visiting the island. In the early 1960s, when some twenty ponds were managed specifically for hunting, as many as 40,000 shorebirds were shot in a single season. Although the number of ponds has decreased in recent years, the use of diesel pumps to maintain optimum water levels and the use of decoys, whistles and amplified tape-recordings to attract birds continue to ensure large bags, and up to 4,000 birds can still be shot at a single pond in a good year. The predominant species in the hunters' bags are *Tringa flavipes* (50%), *Calidris melanotos* (25%) and *Pluvialis dominica* (10%). Other species commonly shot include *Pluvialis squatarola*, *Limosa haemastica*, *Numenius phaeopus*, *Tringa melanoleuca*, *Catoptrophorus semipalmatus*, *Arenaria interpres*, *Limnodromus griseus*, *Calidris alba* and *Micropalama himantopus*.

WETLANDS

Site descriptions based on data sheets provided by Maurice B. Hutt. (For map, see Anguilla.)

Graeme Hall Swamp (1)

Location: 13°04'N, 59°34'W; 5 km east of Bridgetown, Christchurch Parish.

Area: 31.6 ha.

Altitude: 0-2m.

Province and type: 8.41.13; 07 & 08.

Site description: A large brackish pool, up to 4m deep, a small brackish pond, and a brackish sedge marsh and mangrove swamp dissected by parallel drainage channels; separated from the sea by a main road and narrow strip of built-up land. The water level varies by up to 40 cm according to rainfall.

Principal vegetation: One quarter of the area is a mangrove swamp with *Laguncularia racemosa* and *Rhizophora mangle*; most of the remainder is a sedge marsh, with some clumps of *Pluchea carolinensis* and *Leucena leucocephala*.

Land tenure: 20 ha are state owned; the remainder is privately owned and up for sale.

Protection: No habitat protection. All hunting has been prohibited on the area owned by the state since 1980, and no shooting is allowed on the privately owned land.

Land use: A considerable amount of fishing, cattle grazing in the sedge marsh, some grass-cutting for cattle feed, and recreation (model boat racing) on the main pond.

Waterfowl: The main breeding area for *Bubulcus ibis* in Barbados, with a colony of over 5,000 birds, and the main breeding site for *Gallinula chloropus* (10-15 pairs). *Butorides virescens* also breeds. An important area for a wide variety of passage and wintering waterfowl. Wintering birds include *Nycticorax nycticorax*, *Nyctanassa violacea*, *Egretta caerulea*, *E. tricolor*, *E. thula*, *E. alba*, *Ardea herodias*, *Porzana carolina* and *Tringa solitaria*. Common passage migrants include *Anas discors*, *Charadrius semipalmatus*, *Tringa melanoleuca*, *T. flavipes*, *Calidris pusilla* and *C. minutilla*. Many other Nearctic shorebirds occur regularly in small numbers, and a wide variety of species have been recorded as vagrants.

Other fauna: The swamp is the stronghold of the nominate race of the Yellow Warbler *Dendroica petechia petechia*, an endangered subspecies confined to Barbados.

Threats: There is an increasing amount of pollution from the adjacent coast road. The Government is proposing to construct a sewage disposal plant on its land, and the privately owned lands are up for sale to developers wishing to construct condominiums.

Research and conservation: The only permanent wetland of its type in Barbados, and particularly interesting floristically. As a relatively unspoiled wetland ecosystem in a heavily populated island, the swamp has great potential for educational purposes, and clearly merits protection. Hutt has recently made a detailed proposal for the establishment and management of a wildlife refuge and ecological reserve.

References: Putney (1982); Hutt (1983).

Source: Maurice B. Hutt.

Criteria for inclusion: 2a, 2b & 3a.

 Chancery Lane Swamp (2)

Location: 13°04'N, 59°30'W; 1 km south of Grantley Adams International Airport, and 14 km east of Bridgetown, Christchurch Parish.

Area: 16 ha.

Altitude: 0-5m.

Province and type: 8.41.13; 05, 07 & 08.

Site description: A seasonal brackish lagoon and saline marshes, separated from the sea by a 120m wide belt of sand dunes. The lagoon floods with rain water during the rainy season (July to December), and dries out in February or March. Old earth banks separate the flooded area into several shallow pools. The swamp is bordered inland by limestone coral cliffs.

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Principal vegetation: Halophytic vegetation; some *Conocarpus erectus*; and sand plant communities.

Land tenure: Owned by a syndicate of hunters.

Protection: None.

Land use: Waterfowl hunting during the open season (15 July to 15 October).

Waterfowl: An important area for migratory shorebirds; the commonest birds in shooting bags are *Tringa melanoleuca*, *T. flavipes*, *Arenaria interpres*, *Calidris alba* and *C. melanotos*. A variety of Ardeidae and shorebirds occur in small numbers in winter.

Other fauna: The endangered nominate race of the Yellow Warbler *Dendroica petechia petechia* breeds.

Threats: There is a considerable amount of disturbance from hunting during the autumn migration season, and from the nearby international airport. There are housing developments on two sides of the wetland, and a hotel may be constructed on pastureland to the southeast.

Research and conservation: Putney has identified the wetland as a site with multiple resource values, and Hutt has proposed the establishment of a wildlife sanctuary and ecosystem reserve. The plant communities in the sand dunes are of great botanical interest, and the whole area clearly merits protection.

References: Putney (1982).

Source: Maurice B. Hutt.

Criteria for inclusion: 2a, 2b & 3a.

Long Pond (3)

Location: 13°16'N, 59°34'W; on the east coast, north of Bathsheba, St. Andrew Parish.

Area: 4 ha.

Altitude: 0-3m.

Province and type: 8.41.13; 02, 05, 07 & 10.

Site description: A shallow brackish lagoon with a muddy margin, separated from the sea by a sand bar. The lagoon lies in the estuary of the Scotland River, a small stream draining the northeastern part of the island. During storms and high tides, the sand bar breaks through, allowing the ingress of sea water.

Principal vegetation: No information.

Land tenure: Privately owned.

Protection: None.

Land use: Livestock grazing and occasional hunting; some cultivation of coconuts nearby.

Waterfowl: An important area for passage shorebirds, notably *Charadrius semipalmatus*, *Numenius phaeopus*, *Tringa solitaria*, *Actitis macularia*, *Arenaria interpres*, *Calidris alba*, *C. pusilla* and *C. minutilla*. *Egretta caerulea* and *Ardea herodias* occur in winter.

Other fauna: No information.

Threats: The lagoon is used as an unofficial rubbish tip, and sand is extracted from the dunes to the south.

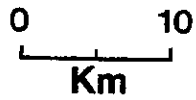
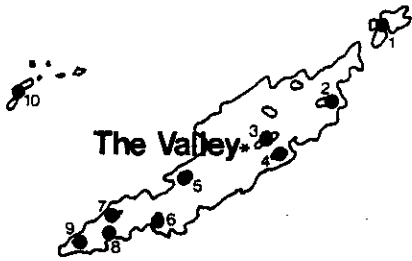
Research and conservation: A proposal for the establishment of a national park along the east coast of the island and including Long Pond is currently under consideration. All hunting and exploitation of sand would be prohibited in the park.

References: Hutt (1979).

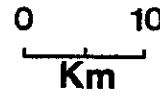
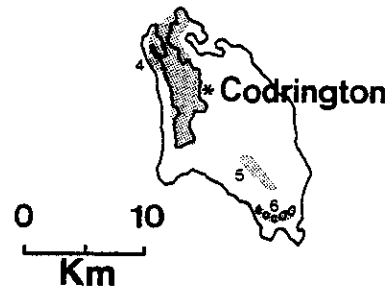
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Criteria for inclusion: 2b & 3a.

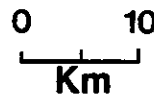
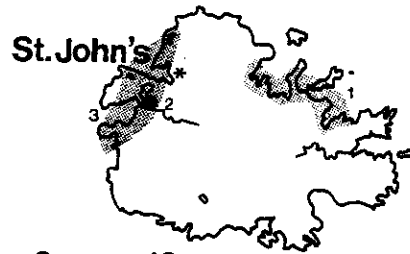
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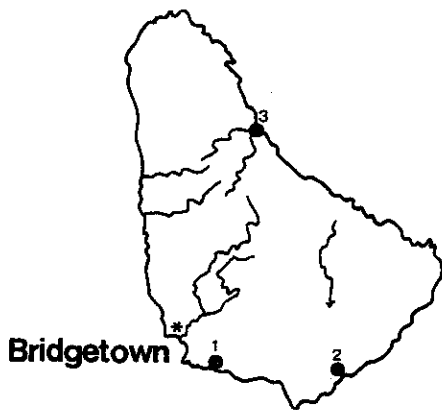
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