

HAITI

INTRODUCTION

based on information provided by Joseph Felix, Rony Kavanaght, James O. Keith, Paul Paryski, James J. Talbot and Charles A. Woods

The Republic of Haiti occupies the western third of the island of Hispaniola and has a population of over 5.5 million. With an area of 27,750 sq. km and coastline of 1,500 km, it is the third largest state in the Caribbean after Cuba and the Dominican Republic. The land area includes several large islands, La Gonave (680 sq. km), La Tortue (180 sq. km), Ile-a-Vache (52 sq. km) and the Cayemites (45 sq. km), as well as a number of smaller islands and cays. The topography is extremely rugged, with three mountain ranges extending from east to west across the country and rising to peaks of up to 2,674m. The climate is tropical, tempered by sea breezes; temperatures in coastal regions range from 20°C to 35°C, and the main rainfall occurs during the summer months. Due to the mountainous topography, the annual rainfall shows great regional variations, from less than 300 mm in the northwest to over 4,000 mm in the mountains of the southwest. The economy is based to a large extent on agriculture, with coffee, sugar and sisal as the main export crops.

The dense human population, intensive agriculture and heavy reliance on charcoal for fuel have resulted in extreme degradation of terrestrial environments, and very little natural vegetation now remains intact except in some of the remotest mountain regions. The aquatic ecosystems have, however, fared rather better. Extensive tracts of freshwater marsh, particularly on the floodplain of the Artibonite River and in the Forte Liberte area, have been converted into rice paddies, but the country's largest inland lake, Etang Saumatre, and most of the 22,000 ha of coastal mangrove swamps have remained almost undisturbed. The fishing industry is poorly developed and remains predominantly artisanal, but there are many aquaculture projects involving tilapia and carp, and some mariculture projects have recently been proposed.

Institutional Base for Wetland Conservation and Research

The main governmental agencies concerned with environmental conservation are as follows:

Ministere de l'Agriculture, des Ressources Naturelles et du Developpement Rural (MARNDR); the ministry concerned with agriculture, fisheries, forestry, soil conservation, wildlife protection and rural development. Within this ministry, the Service des Ressources en Peches is concerned with marine and freshwater fisheries and aquaculture, the Service des Ressources Forestieres et Protection de la Faune with forestry and wildlife protection (including the establishment of hunting regulations), and the newly created Service Protection Environment et Faune (Direction des Ressources Naturelles) with national parks and the preservation of the environment.

Institut de Sauvegarde du Patrimoine National (ISPAN). Founded in 1979 to protect Haiti's cultural and natural heritage, ISPAN was responsible for developing a national parks programme with the assistance of the U.S. Agency for International Development (US-AID). However, in 1983 it became a division of the newly created INAHCA, and its responsibilities were restricted to the administration of La Citadelle National Park, a tiny national park in the north of the country.

Institut National Haitien de la Culture et des Arts (INAHCA). This new institute, created in 1983 under the patronage of President Duvalier's wife, has taken over the National Parks Programme from ISPAN, and is responsible for the conservation of Haiti's natural heritage. It is currently setting up a new Museum of Natural Sciences in Port-au-Prince.

There are no non-governmental bodies directly concerned with conservation in Haiti, and indeed there is little concern or support for conservation amongst the general public. There is, however, a local Natural History Society and an Audubon Bird Club in Port-au-Prince with some support from well educated Haitians.

Progress in Wetland Conservation and Research

Haiti has a considerable amount of environmental legislation dating back to the Rural Code of 1826, which prohibited unauthorized cutting of trees. The Convention on the Protection of the Flora, Fauna and National Sceneries of the American Continent was approved in 1941, and the Decree of March 1963 on National Parks and Natural Areas provided the legal basis for the establishment of protected areas. Other relevant legislation includes a decree of 1978 and law of 1979 concerning fisheries and marine resources, which prohibit the cutting of mangroves.

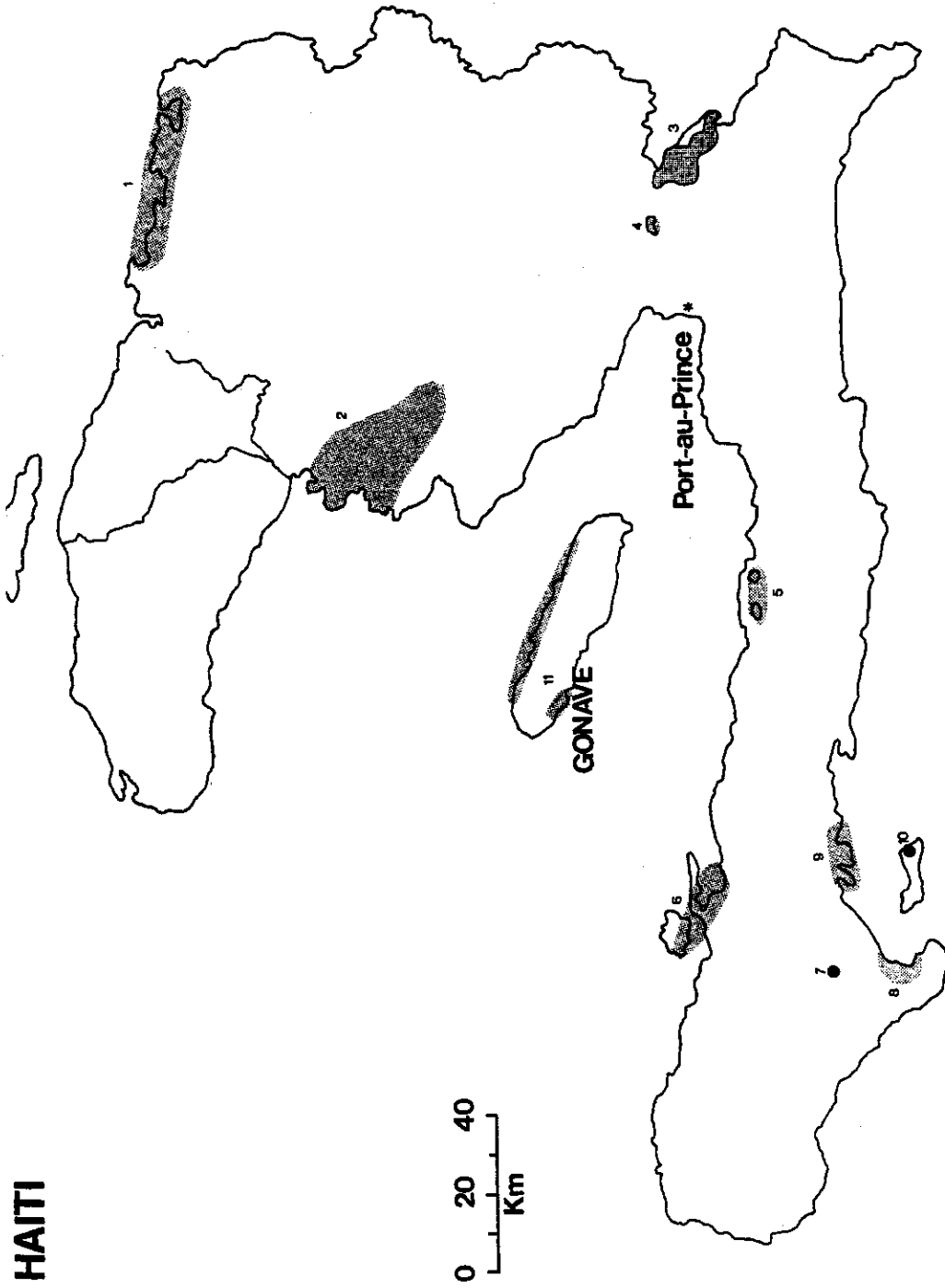
No wetlands are under protection. However, there are several small National Parks, including La Citadelle Henri Christophe (La Citadelle La Ferriere), and in 1983 two new National Parks, both of 2,000 ha, were created in the mountains of the southwest (Parc National La Visite and Parc National Macaya). The emphasis of these large National Parks is watershed conservation and the protection of endemic fauna and flora.

The Service Protection Environment et Faune has issued a list of protected animals and plants including forty-three species of birds. The hunting regulations issued by the Service des Ressources Forestieres et Protection de la Faune set open seasons and bag limits for Anatidae and some other waterfowl, but law enforcement is very poor and bags in excess of 100 ducks per day have been reported. However, there are only about one hundred licensed hunters in the country.

Very little research has been conducted on wetlands or wetland fauna. Rony Kavanaght at the Section d'Aquaculture et d'Hydrobiologie in the Service des Ressources en Peches, MARNDR, has conducted some studies on sea turtles and also a little work on inland wetland systems. Charles A. Woods and colleagues at the Florida State Museum with the support of US-AID have been conducting research on Haitian wildlife for over fifteen years and are currently initiating a major inventory of biological resources throughout Hispaniola. Although most of the research to date has focussed on the montane forest fauna, particularly the endemic mammals, the work has included a detailed study of the population of *Crocodylus acutus* at Etang Saumatre (by John Thorbjarnarson), and a survey of the status of the manatee *Trichechus manatus* in Haitian waters (by Galen B. Rathbun, Charles A. Woods and Jose A. Ottenwalder). The Country Environmental Profile carried out by US-AID in early 1985 stresses the importance of Haiti's coastal mangroves and marine resources, suggests several potential sites for marine reserves, and includes information collected by Mara A. McDonald and Tom Greathouse on the wetlands and their waterfowl.

Major Threats to Wetlands

The only serious threats to wetlands in Haiti at the present time are continued conversion of freshwater marshes to rice growing areas and drainage for other forms of cultivation. Some mangroves are cut for charcoal, and pollution from domestic sewage may be a problem locally, but pesticides are not widely used and there is relatively little disturbance from hunting and fishing activities.



WETLANDS

Site descriptions based on information provided by James O. Keith, Jose A. Ottenwalder, Paul Paryski, James J. Talbot, John Thorbjarnarson and Charles A. Woods.

The Caracol area and Baie de Forte Liberte (1)

Location: 19°45'N, 71°56'-72°12'W; east along the coast from Cap Haitien to the border with the Dominican Republic.

Area: 12,500 ha.

Altitude: 0m.

Province and type: 8.40.13; 01, 05, 07, 08 & 17.

Site description: A large sea bay east of Cap Haitien, with extensive mangrove swamps and offshore coral reefs; and an almost entirely enclosed sea bay (Baie de Forte Liberte) with mangrove swamps and adjacent sandy beaches to the east. There is extensive rice cultivation inland.

Principal vegetation: Mangrove swamps; rice fields.

Land tenure: No information.

Protection: None.

Land use: An important rice growing area.

Waterfowl: No information.

Other fauna: The manatee *Trichechus manatus* occurs in the area.

Threats: No information.

Research and conservation: The US-AID Country Environmental Profile identifies Baie de Forte Liberte (Labadie and Cadrasse) as a potential site for a marine reserve.

References: Rathbun *et al* (1982).

Source: James O. Keith and James J. Talbot.

Criteria for inclusion: 3a.

The floodplain and delta of the Artibonite River (2)

Location: 19°15'N, 72°40'W; south of Gonaives, 90 km NNW of Port-au-Prince.

Area: 47,500 ha.

Altitude: 0-5m.

Province and type: 8.40.13; 02, 07, 08, 09 & 17.

Site description: The lower Riviere de l'Artibonite, with extensive brackish coastal lagoons, mangrove swamps and saline flats in the delta, and large areas of rice cultivation inland. Most of the marshes of the floodplain have been converted to rice paddies. The bays and reefs along the coast of the delta have an abundance of marine vegetation.

Principal vegetation: Mangrove swamps; rice fields.

Land tenure: No information.

Protection: None.

Land use: There is an important fishery in the delta; the floodplain is an important rice growing area; and there is some cutting of mangroves for fuel.

Waterfowl: One of the most important wetlands for waterfowl in Haiti. Species recorded include *Podilymbus podiceps*, *Phalacrocorax auritus*, *Pelecanus occidentalis*, *Nycticorax nycticorax*, *Nyctanassa violacea*, *Egretta rufescens* (rare), *Plegadis falcinellus* (common), *Anas bahamensis*, *A. discors*, *Oxyura jamaicensis*, *Rallus longirostris*, *Fulica caribaea*, *Jacana spinosa*, *Charadrius wilsonius*, *Larus atricilla* and *Gelochelidon nilotica*. 600-700 *Phoenicopterus ruber* were present in May 1982, and 150-200 in May 1983.

Other fauna: There is a small population of the manatee *Trichechus manatus* in the delta.

Threats: The wetlands of the floodplain continue to be converted into rice paddies.

References: Rathbun *et al* (1982).

Source: James O. Keith, Jose A. Ottenwalder, Paul Paryski and James J. Talbot.

Criteria for inclusion: 2a & 3a.

Etang Saumatre (3)

Location: 18°35'N, 72°00'W; 35 km east of Port-au-Prince.

Area: 11,300 ha.

Altitude: 15m.

Province and type: 8.40.13; 13 & 14.

Site description: A large permanent brackish lake, up to 30m deep, with sparse aquatic vegetation; much of the shoreline is narrow and sandy, but there are extensive areas of shallow lagoons and mudflats along the eastern and western shores, and some freshwater springs with small marshes. The salinity of the lagoon is about 10 p.p.t. The water level fluctuates annually by about 50 cm, but there are longer term fluctuations of at least 2m with periods of drought and increased rainfall.

Principal vegetation: Only several species of algae in the lagoon itself; some fringing *Conocarpus erectus* thickets, and fresh to brackish marshes with *Typha domingensis*. In a region of dry subtropical forest.

Land tenure: The eastern shore is state owned; most of the western shore is privately owned.

Protection: None.

Land use: Fishing on a small scale, some duck hunting in winter and, locally, intensive cutting of *Conocarpus erectus* for charcoal.

Waterfowl: A very important breeding, passage and wintering area for a wide variety of waterfowl. There is a breeding colony of 300-400 pairs of Ciconiiformes at the east end of the lagoon, with *Nycticorax nycticorax*, *Nyctanassa violacea*, *Bubulcus ibis*, *Egretta caerulea*, *E. tricolor*, *E. thula*, *E. alba*, *Eudocimus albus* and *Plegadis falcinellus*. Other breeding species include *Podilymbus podiceps*, *Ixobrychus exilis*, *Butorides virescens*, *Gallinula chloropus*, *Jacana spinosa*, *Charadrius vociferus*, *Himantopus himantopus* and probably *Sterna albifrons*. Up to 300 *Phoenicopterus ruber* have been recorded as non-breeding visitors, and *Dendrocygna arborea* and *Fulica caribaea* occur regularly. Large numbers of Anatidae and shorebirds occur in winter, mainly *Anas americana*, *A. discors* (abundant), *Pluvialis squatarola*, *Charadrius wilsonius*, *Tringa melanoleuca*, *T. flavipes* and *Actitis macularia*. Other common migrants include *Larus atricilla*, *Hydroprogne caspia*, *Sterna maxima* and *S. hirundo*.

Other fauna: *Pandion haliaetus* is present year round, *Falco peregrinus* occurs on passage, and *Ceryle alcyon* is a common winter visitor. There is a large viable population of the American Crocodile *Crocodylus acutus*, and the freshwater turtle *Chrysemys decorata* and iguana *Cyclura cornuta* are common.

Threats: The *Conocarpus* thickets are being cut down for charcoal, and there is some hunting of flamingos and Anatidae.

Research and conservation: Basic faunal and floral inventories have been carried out, and Thorbjarnarson has conducted a detailed study of the *Crocodylus acutus* population.

References: Wiley & Wiley (1979); Thorbjarnarson (in prep).

Source: John Thorbjarnarson and Jose A. Ottenwalder.

Criteria for inclusion: 123.

 Lac Caiman (4)

Location: 18°38'N, 72°08'W; 20 km NNE of Port-au-Prince.

Area: 2,500 ha.

Altitude: 12m.

Province and type: 8.40.13; 07 & 12.

Site description: A permanent, shallow, slightly brackish lake of 750 ha with extensive fresh to brackish marshes to the east, and some marshes and muddy areas at the west end.

Principal vegetation: Extensive marshes with *Typha domingensis*.

Land tenure: No information.

Protection: None.

Land use: Fishing on a small scale; agriculture and livestock grazing in surrounding areas.

Waterfowl: An important area for waterfowl, particularly in winter. Breeding birds include *Podilymbus podiceps*, *Gallinula chloropus* and a large population of *Fulica caribaea*. A variety of Ardeidae, *Plegadis falcinellus* and *Phoenicopterus ruber* are regular non-breeding visitors; 50 *P. ruber* and 150 *P. falcinellus* were present in March 1984. Wintering species

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include a variety of Anatidae, notably *Anas americana* and *A. discors*, many shorebirds, *Larus atricilla*, *Gelochelidon nilotica* and *Hydroprogne caspia*.

Other fauna: No information.

Threats: No information.

Source: James O. Keith and Derek A. Scott.

Criteria for inclusion: 2b & 3a.

Miragoane Lakes (5)

Location: 18°24'N, 73°03'W; between Miragoane and Petit Goave, 75 km west of Port-au-Prince.

Area: 4,500 ha.

Altitude: 10m.

Province and type: 8.40.13; 12.

Site description: Two small freshwater lakes with extensive surrounding marshes, near the south shore of the Canal du Sud. The larger lake, Etang Miragoane, is very deep.

Principal vegetation: Marshes with *Typha* sp; in the subtropical moist forest life zone.

Land tenure: No information.

Protection: None.

Land use: No information.

Waterfowl: No information.

Other fauna: No information.

Threats: No information.

Source: Paul Paryski and James J. Talbot.

Criteria for inclusion: 0.

Cayemite Islands and Baie des Bararderes (6)

Location: 18°32'N, 73°40'W; 140 km west of Port-au-Prince.

Area: 11,000 ha.

Altitude: 0m.

Province and type: 8.40.13; 01 & 08.

Site description: Extensive mangrove swamps along the south side of the Cayemite Islands and in the Baie des Bararderes. There are shallow reefs offshore.

Principal vegetation: Mangrove swamps; abundant marine vegetation offshore.

Land tenure: No information.

Protection: None.

Land use: No information.

Waterfowl: No information.

Other fauna: The manatee *Trichechus manatus* may occur in the area.

Threats: No information.

Research and conservation: The US-AID Country Environmental Profile identifies the Cayemite Islands as a potential site for a marine reserve.

References: Rathbun *et al* (1982).

Source: Paul Paryski and James J. Talbot.

Criteria for inclusion: 0.

Lakes above Les Cayes (7)

Location: 18°19'N, 73°50'W; in the hills 19 km northwest of Les Cayes.

Area: c.300 ha.

Altitude: c.180m.

Province and type: 8.40.13; 12.

Site description: A group of three small freshwater lakes with fringing marshes in the foothills of the eastern slopes of the Massif du Sud. The only significant mountain lakes in Haiti.

Principal vegetation: No information.

Land tenure: No information.

Protection: None.

Land use: No information.

Waterfowl: No information.

Other fauna: No information.

Threats: No information.

Source: Paul Paryski.

Criteria for inclusion: 0.

Les Cayes Marshes (8)

Location: 18°11'N, 73°49'W; west of the town of Les Cayes.

Area: 7,000 ha.

Altitude: 0-5m.

Province and type: 8.40.13; 01, 05, 13 & 17.

Site description: A complex of small pools, marshes and wet arable land with numerous canals, adjacent to a shallow sea bay with sandy beaches (Baie des Cayes).

Principal vegetation: No information.

Land tenure: No information.

Protection: None.

Land use: No information.

Waterfowl: The marshes are known to be very important for waterfowl, but no census data are available. Species recorded include *Pelecanus occidentalis*, *Bubulcus ibis*, *Butorides virescens*, *Egretta caerulea*, *E. tricolor*, *E. thula*, *E. alba*, *Ardea herodias*, *Eudocimus albus*, *Pluvialis squatarola*, *Charadrius wilsonius*, *C. vociferus*, *Tringa solitaria*, *Actitis macularia*, *Arenaria interpres*, *Calidris alba* and *Gelochelidon nilotica*.

Other fauna: The manatee *Trichechus manatus* may occur in the bay.

Threats: No information.

References: Rathbun *et al* (1982).

Source: James O. Keith, Paul Paryski and James J. Talbot.

Criteria for inclusion: 0.

Baie d'Aquin (9)

Location: 18°14'N, 73°23'W; 35 km east of Les Cayes.

Area: 9,600 ha.

Altitude: 0m.

Province and type: 8.40.13; 01, 03, 04, 07 & 08.

Site description: A brackish lagoon with extensive mangrove swamps to the west; and a large sea bay with small offshore islands, mangrove swamps and rocky sea shores.

Principal vegetation: Mangrove swamps.

Land tenure: No information.

Protection: None.

Land use: No information.

Waterfowl: A variety of Ardeidae were observed during an aerial survey in May 1983.

Other fauna: The manatee *Trichechus manatus* may occur in the bay.

Threats: No information.

References: Rathbun *et al* (1982).

Source: Paul Paryski and Jose A. Ottenwalder.

Criteria for inclusion: 0.

Eastern Ile-a-Vache (10)

Location: 18°04'N, 73°35'W; 20 km southeast of Les Cayes.

Area: 1,700 ha.

Altitude: 0m.

Province and type: 8.40.13; 01 & 08.

Site description: Extensive mangrove swamps at the eastern end of Ile-a-Vache, with coral reefs offshore in the Canal de l'Est.

Principal vegetation: Mangrove swamps.

Land tenure: No information.

Protection: None.

Land use: No information.

Waterfowl: No information.

Other fauna: The manatee *Trichechus manatus* may occur in the area.

Threats: No information.

Research and conservation: The US-AID Country Environmental Profile identifies the area as a potential site for a marine reserve.

References: Rathbun *et al* (1982).

Source: Paul Paryski and James J. Talbot.

Criteria for inclusion: 0.

Wetlands of Ile de La Gonave (11)

Location: 18°55'N, 73°00'W; on the north and southwest coasts of Ile de La Gonave.

Area: At least 5,000 ha.

Altitude: 0m.

Province and type: 8.40.13; 07 & 08.

Site description: A chain of coastal lagoons, mangrove swamps and brackish marshes stretching along the north coast of the island, and one large lagoon and marsh on the southwest coast.

Principal vegetation: Mangrove swamps and brackish marshes.

Land tenure: No information.

Protection: None.

Land use: No information.

Waterfowl: Known to be an important area for waterfowl, but few data are available. Small breeding colonies of Ardeidae (*Bubulcus ibis*, *Egretta caerulea*, *E. thula* and *E. alba*) were located at La Cayenne and Gros Mangle during an aerial survey in May 1982, and small flocks of *Phoenicopterus ruber* have been observed (37 birds in May 1982, and 50-60 in May 1983).

Other fauna: *Columba leucocephala* occurs in the mangroves.

Threats: No information.

Source: Jose A. Ottenwalder and Charles A. Woods.

Criteria for inclusion: 0.