

# Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7, as amended by Resolution VIII.13 of the Conference of the Contracting Parties.

Note for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers are strongly urged to provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of maps.

**1. Name and address of the compiler of this form:**

**UK Overseas Territories Conservation Forum**

102 Broadway

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With assistance from Cayman Islands Dept. Environment.

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Designation date

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Site Reference Number

**2. Date this sheet was completed/updated:**

11 November 2004

**3. Country:**

**UK (Cayman Islands)**

**4. Name of the Ramsar site:**

**Central Mangrove Wetland, Little Sound, Ponds and associated Marine Zones**

**5. Map of site included:**

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps.

a) **hard copy** (required for inclusion of site in the Ramsar List): yes  -or- no

b) **digital (electronic) format** (optional): Yes

**6. Geographical coordinates (latitude/longitude):**

Central Mangrove Wetland 19 20 13.5 N 81 16 22.2 W

Malportas Pond 19 20 40.1 N 81 12 09.9 W

Meagre Bay Pond 19 17 42.9 N 81 13 57.4 W

Pease Bay 19 17 23.4 N 81 14 34.6 W

**7. General location:**

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

**Nearest town/city:** George Town, Grand Cayman

**Administrative region:** Grand Cayman, Cayman Islands

**8. Elevation (metres):**

Min. -27m (max depth Marine Park)

Max. 2

Mean No information available

**9. Area (hectares):**

Primary zone 6380

Secondary zone 1659

Total 8039

**10. Overview:**

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The Central Mangrove Wetland is a 98% pristine mangrove wetland covering ca 3,430 ha (30% of the total area of Grand Cayman). The primary site for designation includes some 1770 ha of mangrove and includes Meagre Bay pond (41 ha – a designated Animal Sanctuary), Pease Bay Pond (6 ha), Malportas pond (57 ha) and a mangrove islet, Booby Cay. The ponds are included in this site, although separated from the Central Mangrove Wetland, because West Indian Whistling-duck breed in the mangrove fringe and a Government funded feeding station is located on the edge of the Malportas pond.

Site includes Little Sound and a protected portion of North Sound (Environmental Zone, Replenishment Zone, and Bowse Bluff Marine Park); a dish-shaped, shallow (ca. 3-4m) marine bay, extending to a diameter of some 10km, out to coral reef at the northern extremity.

**11. Ramsar Criteria:**

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

**1, 2, 3, 4, 5, 6, 7, 8**

**12. Justification for the application of each Criterion listed in 11. above:**

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

- 1 A large, almost pristine mangrove wetland growing on autochthonous peat sediments, draining into subtidal aquatic beds, including extensive seagrass beds, bounded along the northern extent by coral reef.
- 2 Breeding and roosting habitat for the *vulnerable* West Indian Whistling duck *Dendrocygna arborea*, and *near-threatened* Grand Cayman parrot *Amazona leucocephala caymanensis*. Feeding habitat for *endangered* herpetiles Green turtle *Chelonia mydas* and Hawksbill turtle *Eretmochelys imbricata*.
- 3 Mangrove swamp, interspersed with seasonal areas of open water, and “dry cays”, the latter supporting dry forest species. Biome species include *Quiscalus niger bangsi*, *Melanerpes superciliaris caymanensis*, and *Tyrannus caudifasciatus caymanensis*. The only breeding site for Grand Cayman’s resident population of ca.600 Snowy egrets *Egretta thula*. Biodiversity representative of ecological continuum from terrestrial wetland to coral reef.
- 4 This site is important for the recruitment of the severely depleted stocks of Spiny lobster *Panulirus argus*, and possibly Queen conch *Strombus gigas* conch (currently subject to research by DOE). Refuge for marine species during adverse weather conditions.
- 5 2000 West Indian Whistling duck, ca.5000 herons, ca.5000 migrants in spring and fall, ca.3000 migrant ducks in spring and fall, min. 5000 shorebirds in year-round migration
- 6 West Indian Whistling duck >1% of the population, (ca. 2000 individuals). Total population est. 15,000 (not including Cuban population).
- 7 Important roles as a refuge for marine species, maintenance of reef biodiversity and preservation of coral through aggregation of suspended materials.
- 8 Important nursery and feeding area for local reef fish.

**13. Biogeography** (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

**a) biogeographic region:**

Caribbean

**b) biogeographic regionalisation scheme** (include reference citation):

**14. Physical features of the site:**

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Soil & geology	Ironshore Formation, typically friable, poorly consolidated reef limestones, calcarenites and oolitic limestones cemented by calcite. (Pleistocene)
Geomorphology and landscape	Coastal, enclosed coast, aquatic beds, sand apron, reef, extensive pristine mangrove wetland and associated pools.
Nutrient status	
pH	
Salinity	Saline, mixosaline, hypersaline. Little Sound seawater ca.19gm/l, however, slow mixing resulting in great variation under influence by rainfall 10-28gm/l.
Soil	Mainly organic, biogenic sediments.
Water permanence	Tidal, seasonal and permanent.
Summary of main climatic features	Average annual rainfall: 1350 mm Mean annual temperature: 23–30° C Mean tidal range (-29.1cm to +49.4cm)

**15. Physical features of the catchment area:**

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

Extensive swamp reclamation along the Western peninsula, in combination with dredging (causing siltation) and heavy marine traffic (causing resuspension and turbidity) in basin to west of Little Sound. Central forest is surrounded on northern and eastern boundaries by low intensity agricultural land, pristine dry forest, and some residential and commercial development. Development is more significant along the southern extent of the forest.

Average tidal amplitude around Grand Cayman is 26cm.

Climate type: sub-humid tropical, with distinct seasonal variation (wet season May-Nov). During summer months, easterly-bound low-pressure systems may develop into tropical storms and hurricanes. Restricted air temperature range (max 36.5°C, min 11.2°C), strongly moderated by sea temperature.

**16. Hydrological values:**

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Sediment trapping, groundwater recharge, flood control, shoreline stabilization. Evapotranspiration contributes ca. 25% of rainfall in Western districts of Grand Cayman.

## 17. Wetland types

Code	Name	% Primary Area
A	NORTH SOUND: Permanent shallow marine waters	4
B	NORTH SOUND: Marine subtidal aquatic beds	65
C	NORTH SOUND: Coral reefs	1
I	CMW: Intertidal forested wetlands	28
Q	PONDS: Permanent saline / brackish / alkaline lakes	1
R	PONDS: Seasonal / intermittent saline / brackish / alkaline lakes & flats	1

## 18. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site.

The vegetation is predominately mangrove and Buttonwood, varying in zones from dwarf monospecific Red mangrove on the edge of North Sound to monospecific Black mangrove forest on the outer southern boundary. There are many seasonal areas of open water, interspersed throughout, with “dry cays” supporting dry forest species.

A major site for wintering and resident water birds (Bradley 1986).

Site includes extensive seagrass beds and temporary water bodies, identified as underrepresented wetland habitats - Resolution VIII.11 (2002). The coral reefs and marine biology of Cayman is described in the UNEP/IUCN Directory of coral reefs.

The Central Mangrove Wetland contributes significant hydrological and climatic roles within Grand Cayman’s terrestrial and marine systems.

## 19. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Small population of endemic plant *Agalinis kingsii*, otherwise known only from population in the Salina Reserve, Grand Cayman.

Dominant species include Black mangrove *Avicennia germinans*, White mangrove *Laguncularia racemosa*, Red mangrove *Rhizophora mangle*, and Buttonwood *Conocarpus erectus*.

Floral communities of North Sound are described by Raymont *et al.* (1976b). Aquatic beds comprise seagrass beds of Turtle Grass *Thalassia testudinum*, Manatee Grass *Syringodium filiforme*, Shoal Grass *Halodule wrightii*. Also, green algae, predominantly *Halimeda*, *Penicillus* and *Rhizocephalus*.

## 20. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Avian interest includes *Dendrocygna arborea* (ca. 1500 individuals) and *Amazona leucocephala caymanensis* (ca.300 birds, about 5% of the global population).

Twenty-two taxa breed including, in a mixed heronry, 500 pairs *Egretta thula*, *E. caerulea* and *E. tricolour*; *Butorides virescens* and *Nyctanassa violacea* breed throughout and colonies of *Patagioenas leucocephala*, *Zenaida asiatica* and *Quiscalus niger (caymanensis)*, pairs of *Melanerpes superciliaris*

(*caymanensis*), *Colaptes auratus (gundlachi)*, *Tyrannus caudifasciatus (caymanensis)*, *Elaenia martinica (caymanensis)*, *Myiarchus sagrae*, *Tyto alba*, *Coereba flaveola (sharpei)*, *Dendroica petechia*. Max. counts on Meagre Bay, Pease Bay and Malportas ponds are 55 pairs of *Sterna antillarum*, 11 pairs of *Podilymbus podiceps*, 32 pairs of *Butorides virescens*, 6 pairs *Fulica americana*, 700+ *Gallinula chloropus* (breeding and migrant), 143 pairs of *Himantopus mexicanus*, and 5 pairs of *Catoptrophorus semipalmatus*.

A major wintering site for up to 75 *Ardea herodias*, 233 *Ardea alba*, 1200 *Egretta thula*, 800 *Anas discors*, 25 *A. clypeata*, 38 *A. americana* and 40 *Aythya affinis*, 377 *Fulica americana*, and 180 + *Tringa melanoleuca* and *T. flavipes* and flocks up to 200 *Calidris pusilla*. Migrant raptors include *Pandion haliaetus*, *Falco columbarius* and *F. peregrinus*. Regular migrant land birds include *Sphyrapicus varius*, *Dumetella carolinensis*, *Vireo griseus*, *V. flavifrons*, and 21 species of warbler, most commonly *Parula americana*, *Dendroica tigrina*, *D. cornata*, *D. dominica*, *D. palmarum*, *D. discolor*, *Mniotilta varia*, *Setophaga ruticilla*, *Seiurus aurocapillus*, *S. noveboracensis*.

Faunal communities of North Sound are described by Raymond *et al.* (1976a).

Habitat for the Mangrove Tree crab *Aratus pisonii* (in Cayman, otherwise only known from Barkers area).

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## 21. Social and cultural values:

e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

North Sound is a popular marine recreation area, including yachting, power boating and other water sports. Large-scale dive operations exist in the vicinity. Proposed areas for designation in North Sound and Little Sound already enjoy some degree of protection under the Marine Conservation Law.

The Central Mangrove Wetland is largely pristine, with formal ownership of land determined as recently as 1974. Since this time, significant losses of mangrove have occurred in Grand Cayman, as wetland areas are dredged and filled for residential / commercial development and marine access.

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## 22. Land tenure/ownership:

Ownership category	On-site	Off-site
National Trust	+	+
Crown, protected (Marine Park, Replenishment Zone & Environment Zone)	+	
Crown, unprotected	+	
Private	+	+

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## 23. Current land (including water) use:

Activity	On-site	Off-site	Scale
Recreational boating and tourism	+	+	Large
Diving, fishing, snorkelling		+	Large
Residential / commercial		+	Increasing

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## 24. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

Activity	On-site	Off-site	Scale
Road construction – interrupting natural drainage patterns (PO)		+	Unknown

Dredging in adjacent North Sound waters (PA, PR, PO)		+	Large
Siltation smothering turtle grass (PA, PR, PO)	+	+	Moderate
Encroachment of commercial and residential development (PO)		+	Unknown
Dredging / mining (PA, PR, PO)	+	+	Large
Ingress of feral cats and dogs (PA, PR, PO)	+	+	Unknown

The *Avicennia* forest that forms the outer vegetation zone is the major breeding habitat for *near-threatened* Grand Cayman parrot *Amazona leucocephala* and *endangered* West Indian Whistling duck *Dendrocygna arborea*, and its removal for development would be a major threat to both species. Four areas have already been cleared for marl mining pits. Additional threats are destruction of parrot nest sites during illegal trapping and shooting of parrots as a crop pest on the northern boundary of the wetland.

## 25. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

Conservation measure	On-site	Off-site	Area (ha)
Marine Park	+		59
Environmental Zone	+		1108
Replenishment Zone	+		3338
Mangroves - <i>National Trust</i>	+		220
Mangroves - <i>Buffer</i>	+		468
Crown (unprotected)	+		215
Ponds – Animal Sanctuary	+		41
Remainder of Primary Area and whole of Secondary Area is in private ownership and unprotected	+	+	2590

Other relevant legislation includes:

**Animals Law No. 8 (1976):** this protected iguanas and all non-domestic birds, except those listed as game birds, from hunting, collection and egg taking

**Animals (Protection) Regulations (1989):** this legislation significantly amended the above, reducing the list of game (unprotected) birds to three species.

**Marine Conservation Law (1978):** legislation allowed for designation of restricted marine areas, and protection to certain marine species.

**Marine Conservation (Turtle Protection) Regulations (1978)**

**Marine Conservation (Marine Parks) Regulations (1986):** specifies three categories of designation (*Environment Zone* – no removal of marine life, use of anchors, entry into the water. Speed < 5 knots. *Replenishment Zone* – Restricted fishing methods. Removal of conch and lobster prohibited). *Marine Park Zone* - Marine life protected and anchoring restricted).

**National Trust for the Cayman Islands Law (1987):** established the National Trust.

**National Conservation Law (pending 2004)**

## 26. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

Proposed as a Ramsar site since 1986, this site is threatened by proposed road development and urban expansion. The Government removed all conservation zones from the 2001 Development Plan for

Grand Cayman. The National Trust considers the long-term protection of this wetland to be one of the fundamental requirements for the well being of the future generations in the Cayman Islands’.

2004 - Site features in Cayman Islands Important Bird Areas (*in press*).

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### 27. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Monitoring of the North Sound is undertaken by Cayman Islands Government, Department of the Environment, through enforcement of Marine Protection Laws and various biological and hydrological studies.

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### 28. Current conservation education:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

The Central Mangrove Wetland was featured in a major National Trust fundraising and awareness campaign in 1998. Supporting information is available through the National Trust website: [www.nationaltrust.org.ky](http://www.nationaltrust.org.ky).

Information on the Marine Parks is available through the Dept. Environment website [www.doe.8m.com](http://www.doe.8m.com)

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### 29. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

North Sound is a popular marine recreation area, including yachting, power boating, snorkeling and other water sports. Large-scale dive operations are in operation in the vicinity.

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### 30. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

#### Cayman Islands Government

Ministry of Tourism, Environment, Development and Commerce

(Administration Building - TEL: (345) 244-2401. FAX: (345) 945-4131)

#### The Department of the Environment

(Marco Giglioli Building - TEL: (345) 949-8469. FAX: (345) 949-4020)

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### 31. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

The Department of the Environment

(Marco Giglioli Building - TEL: (345) 949-8469. FAX: (345) 949-4020)

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### 32. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 13 above), list full reference citation for the scheme.

#### Site-relevant references

Bangs, O. 1916. A collection of birds from the Cayman Islands. *Bull. Mus. Comp. Zool.* 60(7): 303-320.

Bond, J. 1956. *Check-list of Birds of the West Indies*. 4th Edition. Academy of Natural Sciences of Philadelphia, Philadelphia.

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Bradley, P. E. 1986a. A Census of *Amazona leucocephala caymanensis*, Grand Cayman and *Amazona leucocephala hesternus*, Cayman Brac. *C.I. Gov. Tech. Pub. No. 1*, George Town, Grand Cayman.

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- Bradley, P. E. 1995. *Birds of the Cayman Islands*. Photographs by Y-J. Rey-Millet. 2nd edition. Caerulea Press, Italy.
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# Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7, as amended by Resolution VIII.13 of the Conference of the Contracting Parties.

Note for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers are strongly urged to provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of maps.

## 1. Name and address of the compiler of this form:

**UK Overseas Territories Conservation Forum**

102 Broadway

Peterborough PE1 1DG

UK

Email: [pienkowski@cix.co.uk](mailto:pienkowski@cix.co.uk)

With assistance from Cayman Islands Dept. Environment.

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DD MM YY		
Designation date		

Site Reference Number							

## 2. Date this sheet was completed/updated:

11 November 2004

## 3. Country:

**UK (Cayman Islands)**

## 4. Name of the Ramsar site:

**Little Cayman Crown Wetlands and Marine Parks**

## 5. Map of site included:

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps.

a) **hard copy** (required for inclusion of site in the Ramsar List): yes  -or- no

b) **digital (electronic) format** (optional): Yes

## 6. Geographical coordinates (latitude/longitude):

Little Cayman (wetlands general)	19 41 25.1 N	80 02 17.1 W
Bloody Bay Marine Park	19 41 05.3 N	80 04 53.3 W
Preston Bay Marine Park	19 39 22.6 N	80 05 36.7 W

## 7. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

**Nearest town/city:** South Town (Blossom Village), Little Cayman

**Administrative region:** Little Cayman, Cayman Islands

## 8. Elevation (average and/or max. & min.) (metres):

Min.	-27m (max depth Marine Park)
Max.	5m

## 9. Area (hectares):

Marine Parks	249
Wetlands	652
<b>TOTAL</b>	<b>901</b>

**10. Overview:**

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The pristine Crown wetlands of Little Cayman cover some 1094 ha (40% of the island), incorporating seasonally dry freshwater and brackish ponds and one large (236 ha) permanent pond complex - Tarpon Lake. This site incorporates Little Cayman's two Marine Parks, Bloody Bay on the north coast, and Preston Bay on the south coast, comprising shallow lagoon, fringing reef, rock pavement, shallow terrace reef, sand plain and deep terrace reef to deep water drop off.

Recent development in Grand Cayman has accounted for significant loss of wetland habitat. Little Cayman is fortunate in retaining a majority of intact wetland. However, development on this small island is accelerating, and may be expected to increase on completion of the new airport facility.

**11. Ramsar Criteria:**

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

**1, 2, 3, 4, 6, 7**

**12. Justification for the application of each Criterion listed in 11. above:**

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

- 1 Representative pristine mangrove, brackish herbaceous and temporary freshwater wetlands, accounting for some 40% of the island's total area. Representative marine profiles from shore to deep terrace reef.
- 2 Supports *vulnerable* West Indian Whistling duck *Dendrocygna arborea*, and *endangered* reptiles, including Sister Isles Rock iguana *Cyclura nubila caymanensis*. Reefs support *endangered* marine turtles and Nassau grouper *Epinephelus striatus*. Little Cayman is important for Hawksbill Turtle (foraging), Green (nesting and foraging) and Leatherback (nesting and foraging). The numbers are low but high as percentages of population, and important too as the potential for restoration.
- 3 *Floral Diversity*: Representation of four different wetland types.  
*Faunal Diversity*: Significant bird populations, include 16 breeding species and 111 species of migrants. Endangered and endemic reptiles.  
*Marine*: Parks include biologically diverse reef habitat, such as Bloody Bay Wall.
- 4 An important feeding area for resident and migratory herons, and passage and wintering Nearctic shorebirds.
- 6 300 individuals, 135 pairs of the global population West Indian Whistling duck (> 1%).
- 7 Pristine reef is representative of wetland benefits and values. Little Cayman is renowned for its clearwater diving, the primary tourist attraction for the island.

**13. Biogeography** (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

**a) biogeographic region:**

Caribbean

**b) biogeographic regionalisation scheme** (include reference citation):

**14. Physical features of the site:**

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Soil & geology	Ironshore Formation, typically friable, poorly consolidated reef limestones, calcarenites and oolitic limestones cemented by calcite. (Pleistocene)
Geomorphology and landscape	Reef, coral sand beach, ponds, mangrove swamp
Nutrient status	
pH	
Salinity	Hypersaline, brackish and freshwater
Soil	
Water permanence	Seasonal , intermittent and permanent
Summary of main climatic features	Average annual rainfall: 1174 mm Mean annual temperature: 23–30° C

**15. Physical features of the catchment area:**

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

Ironshore formation limestone overlain by beach ridge vegetation, mangrove swamps and saline coastal lagoons. Moderate residential and commercial development, mostly along the south coast of the island. Low intensity agriculture.

Climate type: sub-humid tropical, with distinct seasonal variation (wet season May-Nov). During summer months, easterly-bound low-pressure systems may develop into tropical storms and hurricanes. Restricted air temperature range (max 36.5°C, min 11.2°C), strongly moderated by sea temperature.

**16. Hydrological values:**

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Sediment trapping.

**17. Wetland types**

Code	Name	% Area
C	Coral reefs	28
I	Intertidal forested wetlands	28
R	Seasonal brackish pools	13
Ts	Seasonal freshwater pools	<1
Q	Permanent saline brackish pools	3
W	Shrub-dominated wetlands	28

**18. General ecological features:**

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site.

A selection of ponds of varying salinity and vegetation

- (i) On the north and south coasts, mangrove wetlands, each associated with a hypersaline lagoon: Easterly pond (3 ha), Rosetta Flats pond (2 ha), Sandy Point pond (3.5ha), Tarpon Lake complex (236 ha), Spot Bay pond (5 ha), Jackson's pond (9 ha) and Grape Tree pond (10 ha).

- (ii) In the southwest, Preston Bay westerly ponds (8.4 ha) are brackish herbaceous wetlands on pavement Ironshore.
- (iii) An inland wetland on the eastern bluff, Charles Bight pond (8.5 ha) with monospecific *Conocarpus* sp.
- (iv) A temporary freshwater wetland, Coot Pond (0.1ha), on the southeast coast; the vegetation is *Conocarpus* and grassland.

The coral reefs and marine biology of Cayman is described in the UNEP/IUCN Directory of coral reefs. Site includes underrepresented wetland habitats - Resolution VIII.11 (2002) - temporary water bodies and (sparse) seagrass beds.

### 19. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

The fringing vegetation of differing combinations of the four mangrove species - Red Mangrove *Rhizophora mangle*, White mangrove *Laguncularia racemosa*, Black mangrove *Avicennia germinans* and Buttonwood *Conocarpus erectus*, mixed with *Cordia sebestena*, *Thespesia populnea* and *Rhaddadenia biflora*. Brackish herbaceous wetlands additionally support *Acrostichum aureum*, herbaceous species, *Sesuvium portulacastrum*, *Salicornia bigelovii*, *Ruppia maritime*, *Rhachiallis americana* and monospecific *Conocarpus* sp. and grasslands.

### 20. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Supports to 135 pairs of the vulnerable *Dendrocygna arborea*, with the largest subpopulations at Jackson's pond, Grape Tree pond and Charles Bight pond.

Sixteen avian taxa breed: *Patagioenas leucocephala*, *Zenaida asiatica*, *Dendroica petechia* and *Quiscalus niger bangsi*- this race is confined to Little Cayman having become extirpated on Cayman Brac c. 1945). The migrant *Chordeiles gundlachii* on pond edges. Mixed heronry of max 250 pairs of *Egretta thula* and *E. tricolour* on Jackson's Pond; *Nyctanassa violacea* and *Butorides virescens* breed throughout. Max. counts are 16 pairs *Podilymbus podiceps*, 55 pairs *Sterna antillarum*, 10 pairs *Catoptrophorus semipalmatus*, 16 pairs *Fulica americana*, *Gallinula chloropus*, and 250 pairs *Himantopus mexicanus*.

A major wintering site for up to 1500 *Anas discors*, 60 *A. clypeata*, 32 *A. americana*, 64 *Aythya affinis*, 300 *Fulica americana*, 83 *Ardea herodias*, 160 *Ardea alba*, 360 *Tringa melanoleuca* and *T. flavipes*, 250 *Calidris pusilla* and *C. minutilla*. *Porphyryla martinica*, *Porzana carolina* and *Gallinago delicata* occur on Coot pond and the Preston Bay westerly ponds. Migrant raptors include *Pandion haliaetus*, *Falco columbarius* and *F. peregrinus*. Other common migrant land birds, include *Parula americana*, *Dendroica coronata*, *D. dominica*, *D. palmarum*, *D. discolor*, *Mniotilta varia*, *Setophaga ruticilla*, *Helminthos varia*, *Seiurus aurocapilla*, *S. noveboracensis* and *Oporornis trichas*.

Endemic reptiles include *Anolis mayardi*, races of *Sphaerodactylus argivus bartschi*, *Tropidophis caymanensis parkeri* and *Alsophis cantherigerus ruttyi* and the endangered *Cyclura nubila caymanensis* (Appendix 1 CITES). Also found, *Cardisoma guanhami* and *Barbouria caymanensis*.

Reefs support *endangered* marine turtles and Nassau grouper *Epinephelus striatus*.

**21. Social and cultural values:**

e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc.  
Distinguish between historical/archaeological/religious significance and current socio-economic values.

The historic value of terrestrial wetlands has mostly been that of hunting grounds. However, modern day value is more geared to potential development value, which threatens the growing potential of the site as an economic resource in the form of a nature tourism attraction (e.g. Bird watching). Clearwater diving has long been the primary foundation of Little Cayman's tourism economy.

**22. Land tenure/ownership:**

Ownership category	On-site	Off-site
Crown protected	+	
Crown unprotected	+	+
Private		+

**23. Current land (including water) use:**

Activity	On-site	Off-site	Scale
Diving	+	+	Large
Fishing	+	+	Moderate

**24. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:**

Activity	On-site	Off-site	Scale
Development of circum-island road 1994. (PA, PR)	+	+	Moderate
Residential and commercial development (PA, PR, PO)		+	Accelerating
Feral cat population (PA, PR, PO)	+	+	Unknown
Pending land claims (PO)	+		Unknown

**25. Conservation measures taken:**

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

Conservation measure	On-site	Off-site
Ten raised observation platforms on the major ponds, toward passive protection through education and enhancement of nature-tourism value. FCO funded avitourism project (1999).	+	
Marine Park designation extends to 80ft contour of deep terrace reef, includes <i>Bloody Bay</i> (157 ha), <i>Preston Bay</i> (92ha)	+	

Other relevant legislation includes:

**Animals Law No. 8 (1976):** this protected iguanas and all non-domestic birds, except those listed as game birds, from hunting, collection and egg taking

**Animals (Protection) Regulations (1989):** this legislation significantly amended the above, reducing the list of game (unprotected) birds to three species.

**Marine Conservation Law (1978):** legislation allowed for designation of restricted marine areas, and protection to certain marine species.

**Marine Conservation (Turtle Protection) Regulations (1978)**

**Marine Conservation (Marine Parks) Regulations (1986):** specifies three categories of designation (*Environment Zone* – no removal of marine life, use of anchors, entry into the water. Speed < 5 knots.

*Replenishment Zone* – Restricted fishing methods. Removal of conch and lobster prohibited). *Marine Park Zone* - Marine life protected and anchoring restricted).

**Marine Conservation (Marine Parks) (Amendment) Regulations (1986):** designates marine protected areas in Cayman Brac and Little Cayman.

**National Conservation Law (pending 2004)**

**26. Conservation measures proposed but not yet implemented:**

e.g. management plan in preparation; official proposal as a legally protected area, etc.

Concerns that the Crown may accept pending land claims which would release many hectares of the wetlands for development.

**27. Current scientific research and facilities:**

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

None.

**28. Current conservation education:**

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

Several sites feature interpretative signage and observation platforms.

Information on the Marine Parks is available through the Dept. Environment website

[www.doe.8m.com](http://www.doe.8m.com)

**29. Current recreation and tourism:**

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Several sites feature interpretative signage and observation platforms.

**30. Jurisdiction:**

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Cayman Islands Government

Ministry of Tourism, Environment, Development and Commerce

(Administration Building - TEL: (345) 244-2401. FAX: (345) 945-4131)

The Department of the Environment

(Marco Giglioli Building - TEL: (345) 949-8469. FAX: (345) 949-4020)

**31. Management authority:**

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

The Department of the Environment

(Marco Giglioli Building - TEL: (345) 949-8469. FAX: (345) 949-4020)

**32. Bibliographical references:**

Scientific/technical references only. If biogeographic regionalisation scheme applied (see **13** above), list full reference citation for the scheme.

**Site-relevant references**

Bradley, PE (1986): The Cayman Islands. In: *A directory of Neotropical wetlands*, ed. by DA Scott & M Carbone, 469-482. IUCN, Gland & Cambridge

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- Johnston, D. W., Blake, C. H. & Buden, D. W. 1971. Avifauna of the Cayman Islands. *Quart. J. Florida Acad. Sci.* 34(2): 141-156.
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- Woodroffe, C. D., Stoddart, D. R. & Giglioli, M. E. C. 1980. Pleistocene Patch reefs and Holocene swamp morphology, Grand Cayman Island, West Indies. *J. Biogeog.* 7: 649-652.

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Please return to: **Ramsar Secretariat, Rue Mauverney 28, CH-1196 Gland, Switzerland**  
 Telephone: **+41 22 999 0170** • Fax: **+41 22 999 0169** • email: **ramsar@ramsar.org**

# Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7, as amended by Resolution VIII.13 of the Conference of the Contracting Parties.

Note for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers are strongly urged to provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of maps.

---

**1. Name and address of the compiler of this form:**

**UK Overseas Territories Conservation Forum**

102 Broadway

Peterborough PE1 1DG

UK

Email: [pienkowski@cix.co.uk](mailto:pienkowski@cix.co.uk)

With assistance from Cayman Islands Dept. Environment.

FOR OFFICE USE ONLY.

DD MM YY		

Designation date

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Site Reference Number

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**2. Date this sheet was completed/updated:**

11 November 2004

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**3. Country:**

**UK (Cayman Islands)**

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**4. Name of the Ramsar site:**

**Salina Reserve**

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**5. Map of site included:**

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps.

a) **hard copy** (required for inclusion of site in the Ramsar List): *yes*  -or- *no*

b) **digital (electronic) format** (optional): *Yes*

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**6. Geographical coordinates (latitude/longitude):**

19 20 38.2 N                      81 07 52.4 W

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**7. General location:**

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

**Nearest town/city:**                      George Town, Grand Cayman

**Administrative region:**                      Grand Cayman, Cayman Islands

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**8. Elevation** (average and/or max. & min.) (metres):    **9. Area** (hectares): *252*

Min.                      3

Max.                      20

Mean                      No information available

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**10. Overview:**

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

This pristine site overlies the northern margin of the largest fresh water lens in eastern Grand Cayman. It comprises inland temporary freshwater herbaceous wetland bounded by a mosaic of sedges, and dry forest to the north. The severe terrain makes the area largely inaccessible to both people and feral invasives, and thus constitutes a valuable refuge for species sensitive to disturbance. 100% privately owned and protected by the National Trust as a Category I. Nature Reserve / Scientific reserve.



**11. Ramsar Criteria:**

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

1, 2, 3

**12. Justification for the application of each Criterion listed in 11. above:**

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

- 1 Undisturbed sedge and buttonwood swamp mosaic with dry shrubland and forest.
- 2 Natural release site for *critically endangered* Grand Cayman Blue Iguana *Cyclura lewisi*. *Endangered* endemic plant *Agalinis kingsii*, the only large population known anywhere in the world.
- 3 Mosaic of wetland and dry habitats contributes to high overall diversity of animal and plant life.

**13. Biogeography** (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

**a) biogeographic region:**

Caribbean

**b) biogeographic regionalisation scheme** (include reference citation):**14. Physical features of the site:**

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Soil & geology	Cayman Formation, fabric-retentive micro-crystalline dolostone (Oligocene-Pliocene)
Geomorphology and landscape	
Nutrient status	
pH	
Salinity	
Soil	Mainly organic.
Water permanence	Seasonal / intermittent
Summary of main climatic features	Average annual rainfall: 1107mm Mean annual temperature: 23–30° C

**15. Physical features of the catchment area:**

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

Climate type: sub-humid tropical, with distinct seasonal variation (wet season May-Nov). During summer months, easterly-bound low-pressure systems may develop into tropical storms and hurricanes. Restricted air temperature range (max 36.5°C, min 11.2°C), strongly moderated by sea temperature.

**16. Hydrological values:**

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Groundwater recharge. Sediment trapping.

## 17. Wetland types

Code	Name	% Area

## 18. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site.

This pristine wetland lies over the northern margin of the largest fresh water lens in eastern Grand Cayman. Comprising inland temporary, fresh water herbaceous wetland (125 ha) bounded by a mosaic of sedges, *Typha sp.* and *Conocarpus* shrubland with 135 ha of dry forest on the northern boundary, where *Swietenia mahagoni* is dominant. The area dries in the winter, leaving a crust of desiccated algae resembling salt-producing Salinas in other parts of the West Indies. The severe terrain makes this area effectively inaccessible.

## 19. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.

In the northern portion, the old growth dry forest supports many rare hardwood trees. Further south, extensive Buttonwood wetlands and sedge zone are interspersed with "dry cays" (small islands of higher land within the wetland), which support their own distinctive vegetation - including at least three distinct variants of Cayman's characteristic semi-deciduous dry forest community.

On the southern fringes of the large sedge and saw grass wetland, growing primarily on the perimeter of the dry cays, *Agalinis kingsii* is a plant unique to Grand Cayman. In the world, it is known only from the Salina and parts of the Central Mangrove Wetland. Also, the endemic plant *Tadarida brasiliensis muscularus*.

[Confirmation being checked on these: *Chionanthus caymanensis* var. *longipetala* (CITES Appendix 2); *Cordia sebestena* var. *caymanensis*; *Crossopetalum caymanense*; *Allophylus cominia* var. *caymanensis*; *Myrmecophilia thompsoniana thompsonia*; *Dendrophylax fawcettii*; *Tolunnia caymanense* and rare trees *Xylosoma bahamsense* and *Colubrina arborescens*.]

## 20. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.

Habitat supports endemic reptiles, including *Anolis conspersus conspersus*, *Sphaerodactylus argivus lewisi*, *Tropidophis caymanensis caymanensis* and *Alsophis cantherigerus caymanensis*. The Salina also constitutes the primary site so far identified, for the release of the critically endangered Grand Cayman Blue Iguana *Cyclura lewisi* into the wild.

Bats roost in caves on a high, forested ridge in the Reserve. These include the Brazilian Free-tailed bat *Tadarida brasiliensis*, the Jamaican Fruit-eating bat *Artibeus jamaicensis* and the Big-eared bat *Macrotus waterhousii*. Other species include *Phyllops falcatus* and *Lasiurus spp.*

Avian interest includes *Dendroica vitellina*, *Amazona leucocephala*, *Melopyrrha nigra*, *Vireo magister* and *Vireo crassirostris*.

### 21. Social and cultural values:

e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

The severe terrain makes this area effectively inaccessible.

### 22. Land tenure/ownership:

Ownership category	On-site	Off-site
National Trust	+	
Private		+

### 23. Current land (including water) use:

Activity	On-site	Off-site	Scale
Category I. Nature Reserve	+		Entire site protected

### 24. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

Activity	On-site	Off-site	Scale
Forest clearance for agriculture and development causing habitat fragmentation		+	Moderate
Ingress of feral cats and dogs	+	+	Unknown

### 25. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

Conservation measure	On-site	Off-site
Land grant from Crown to National Trust, 1988.	+	
Fully protected under National Trust for the Cayman Islands Law.	+	
Study of impact of fire on <i>Agalinis kingsii</i> , 1999 - (It was determined that occasional burning may actually assist survival of this plant).	+	

A number of biological surveys have been carried out in the Reserve, which have established, beyond doubt, that the preservation of such an area is probably the best hope for a number of native species that do not adapt to closer contact with a human environment.

*Other relevant legislation includes:*

***Animals Law No. 8 (1976)***: this protected iguanas and all non-domestic birds, except those listed as game birds, from hunting, collection and egg taking

***Animals (Protection) Regulations (1989)***: this legislation significantly amended the above, reducing the list of game (unprotected) birds to three species.

***National Trust for the Cayman Islands Law (1987)***: established the National Trust.

***National Conservation Law (pending 2004)***

**26. Conservation measures proposed but not yet implemented:**

e.g. management plan in preparation; official proposal as a legally protected area, etc.

*Proposed* – Release site for Grand Cayman Blue Iguana, based on trial releases of radio-tagged individuals ('92, '93).

*Proposed* - Trust to develop formal conservation strategies for *Agalinis kingsii* and other venerable native Caymanian plants.

2004 - Site features in Cayman Islands Important Bird Areas (*in press*).

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**27. Current scientific research and facilities:**

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

2004 - Red List of the Flora of the Cayman Islands – FCO funded.

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**28. Current conservation education:**

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

Supporting information is available through the National Trust website: [www.nationaltrust.org.ky](http://www.nationaltrust.org.ky)

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**29. Current recreation and tourism:**

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

There are no clear trails through the Reserve and access is only possible by foot, either by navigating with few landmarks through dense forest and extremely rugged terrain, or across extensive flooded wetlands. This has meant that the Reserve has been left fairly isolated and is still very much undisturbed.

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**30. Jurisdiction:**

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

**Cayman Islands Government**

Ministry of Tourism, Environment, Development and Commerce

(Administration Building - TEL: (345) 244-2401. FAX: (345) 945-4131)

The Department of the Environment

(Marco Giglioli Building - TEL: (345) 949-8469. FAX: (345) 949-4020)

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**31. Management authority:**

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

**National Trust for the Cayman Islands**

PO BOX 31116 SMB, Grand Cayman, Cayman Islands

TEL: (345) 949-8469 FAX: (345) 949-7020 WEB: [www.nationaltrust.org.ky](http://www.nationaltrust.org.ky)

---

**32. Bibliographical references:**

Scientific/technical references only. If biogeographic regionalisation scheme applied (see **13** above), list full reference citation for the scheme.

**Site-relevant references**

Bangs, O. 1916. A collection of birds from the Cayman Islands. *Bull. Mus. Comp. Zool.* 60(7): 303-320.

Bangs, O. 1919. The races of *Dendroica vitellina* Cory. *Bull. Mus. Comp. Zool.* 62(11):493-495.

Barlow, J. C. 1980. Patterns of ecological interaction among migrant and resident vireos on wintering grounds. Pages 67-79 in *Migrant birds in the Neotropics: ecology, behavior, distribution, and conservation* (Eds. A. Keast & E. S. Morton). Smithsonian Institution Press, Washington, D.C.

Barlow, J. C. 1990. *Songs of vireos and their allies. Family Vireonidae: vireos,peppershrikes, shrike-vireos and greenlets.* ARA records, Gainesville, Florida.

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Bond, J. 1956. *Check-list of Birds of the West Indies.* 4th Edition. Academy of Natural Sciences of Philadelphia,

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# Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7, as amended by Resolution VIII.13 of the Conference of the Contracting Parties.

Note for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers are strongly urged to provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of maps.

## 1. Name and address of the compiler of this form:

**UK Overseas Territories Conservation Forum**

102 Broadway

Peterborough PE1 1DG

UK

Email: [pienkowski@cix.co.uk](mailto:pienkowski@cix.co.uk)

With assistance from Cayman Islands Dept. Environment.

FOR OFFICE USE ONLY.

DD MM YY		
Designation date		

Site Reference Number							

## 2. Date this sheet was completed/updated:

11 November 2004

## 3. Country:

**UK (Cayman Islands)**

## 4. Name of the Ramsar site:

**Barker's Wetland**

## 5. Map of site included:

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps.

a) **hard copy** (required for inclusion of site in the Ramsar List): *yes*  -or- *no*

b) **digital (electronic) format** (optional): *Yes*

## 6. Geographical coordinates (latitude/longitude):

19, 23, 19.3 N                      81, 22, 04.7 W

## 7. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

**Nearest town/city:**                      George Town, Grand Cayman

**Administrative region:**                      Grand Cayman, Cayman Islands

8. Elevation (average and/or max. & min.) (metres):	9. Area (hectares):
Min.    -7m (Replenishment Zone)	Marine Replenishment Zone    348
Max.    4m	Terrestrial National Park       112
Mean    1m	TOTAL                      460

## 10. Overview:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

Positioned on the western peninsula of Grand Cayman, representing the largest single undeveloped area of land remaining in this part of the island. A continuum, through coral reef, subtidal aquatic beds, including seagrass, to low elevation Caribbean coral derived beach and ridge, backing onto coastal forest and mangrove wetland, incorporating permanent and temporary ponds. Mangroves are extensively man-modified through a series of mosquito control dykes and canals.

**11. Ramsar Criteria:**

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

**1, 2, 3, 7, 8**

**12. Justification for the application of each Criterion listed in 11. above:**

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

- 1 Continuum, through coral reef, subtidal aquatic beds, including seagrass, to low elevation Caribbean coral derived beach and ridge, backing onto coastal forest and man-modified mangrove wetland and ponds. The rocky-bottomed Sea Pond is lithologically unique to Grand Cayman.
- 2 Historic site for *endangered* marine turtle nesting. Proposed site for the reintroduction of the *critically endangered* Grand Cayman Blue Iguana *Cyclura lewisi*.
- 3 Biodiversity representative of ecological continuum from terrestrial wetland to coral reef. Breeding and feeding grounds for local and passage birds.
- 7 Cayman endemic fish species *Limia caymanensis* is found in ponds on site.
- 8 Important habitat for marine turtles, Queen conch *Strombus gigas* conch and Spiny lobster *Panulirus argus*. Potential as a high-value recruitment ground for conch and lobster currently subject to investigation by Cayman Islands Government DOE.

**13. Biogeography** (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

**a) biogeographic region:**

Caribbean

**b) biogeographic regionalisation scheme** (include reference citation):**14. Physical features of the site:**

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Soil & geology	Coral sand and Ironshore Formation, typically friable, poorly consolidated reef limestones, calcarenites and oolitic limestones cemented by calcite. (Pleistocene)
Geomorphology and landscape	
Nutrient status	
pH	
Salinity	Variation under influence by rainfall. Seawater ca.19gm/l. Sea Pond highly stratified with brackish water overlaying almost anoxic saline (close to seawater).
Soil	Mainly organic
Water permanence	Seasonal / intermittent and permanent.
Summary of main climatic features	Average annual rainfall: ca 1107mm Mean annual temperature: 23–30° C



### 15. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

Peninsula of low-lying mangrove and dry limestone cays. Mangrove man-modified, to increase flushing as a mosquito control measure.

Average tidal amplitude around Grand Cayman is 26cm, however, within the Barkers canal system, tidal amplitude is very damped.

Climate type: sub-humid tropical, with distinct seasonal variation (wet season May-Nov). During summer months, easterly-bound low-pressure systems may develop into tropical storms and hurricanes. Restricted air temperature range (max 36.5°C, min 11.2°C), strongly moderated by sea temperature.

### 16. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Sediment trapping. Shoreline stabilization.

### 17. Wetland types

Code	Name	% Area
A	Permanent shallow marine waters	3
B	Marine subtidal aquatic beds	66
C	Coral reefs	6
I	Intertidal forested wetlands	21
Q	Permanent saline / brackish / alkaline lakes	1
R	Seasonal / intermittent saline / brackish / alkaline lakes & flats	2
9	Canals and drainage channels, ditches	1

### 18. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site.

Continuum, through fringing coral reef, subtidal aquatic beds, including seagrass, to low elevation Caribbean coral derived beach and ridge, backing onto coastal forest and mangrove wetland and ponds. Breeding and feeding grounds for local and passage birds. The coral reefs and marine biology of Cayman is described in the UNEP/IUCN Directory of coral reefs. The mosquito control dykes and canals are a major man-made ecological feature of the site, designed to increase flushing within the wetland. Site includes extensive seagrass beds and temporary water bodies, identified as underrepresented wetland habitats - Resolution VIII.11 (2002).

### 19. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Dominant species include Black mangrove *Avicennia germinans*, White mangrove *Laguncularia racemosa*, Red mangrove *Rhizophora mangle*, and Buttonwood *Conocarpus erectus*, with characteristic species including *Salicornia virginica*, *Acrostichum aureum* and *Rhaddadenia biflora*.

Endemics include *Cordius sebastina caymenensis* and *Crossopetalum caymenensi*.

Floral communities of North Sound are described by Raymont *et al.* (1976b), including significant seagrass beds, predominantly Turtle Grass *Thalassia testudinum*.

## 20. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Important habitat for marine turtles, Queen conch *Strombus gigas* and Spiny lobster *Panulirus argus*. Potential as a high-value recruitment ground for conch and lobster currently subject to investigation by Cayman Islands Government DOE.

Beaches are a historic site for *endangered* marine turtle nesting, and beach ridge habitat is proposed as suitable for the release of the Grand Cayman Blue iguana *Cyclura lewisi*.

Inland areas represent an important breeding and feeding ground for local and passage birds. Accessible and diverse butterfly interest, including the endemic Grand Cayman Pygmy Blue butterfly *Brephidium exilis Thompsoni* in association with *Salicornia virginica*.

Supports significant population of the burrowing land crab *Cardisoma guanhumii*, recorded as being in significant decline in Cayman, This is due in large part to habitat loss, human consumption and heavy traffic, which results in significant losses during spawning migrations. Sea Pond is also a habitat for the Mangrove Tree crab *Aratus pisonii* (in Cayman, otherwise only known from a small area of Little Sound).

Cayman endemic fish species *Limia caymanensis* is found in ponds on site, notably Sea Pond.

## 21. Social and cultural values:

e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Barkers has long been utilized as a recreational area (camping) by local people. This was a major factor in the selection of this site as Cayman's first National Park.

## 22. Land tenure/ownership:

Ownership category	On-site	Off-site
Crown (is currently in the process of purchasing all the constituent land parcels)	+	
Private	+	+

## 23. Current land (including water) use:

Activity	On-site	Off-site	Scale
Low intensity agriculture		+	Small
Recreation, camping, water sports	+	+	Moderate

## 24. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

Activity	On-site	Off-site	Scale
Commercial development (PO)	+	+	Unknown
Recreational and tourism (PA, PR, PO)	+	+	Will require monitoring
Invasive species* (PR, PO)	+	+	Intermediate

- Control of invasive species will represent a significant management issue for the National Park once established. On site control of feral cats and dogs will be required before any release of Blue Iguanas can take place.
- The diverse flora of the beach ridge coastal forest includes several endemics including *Cordius sebastina caymenensis* and *Crossopetalum caymenensi*, however, numerous invasive species are also present in this area and will require some control measures. These include *Colubrina asiatica*, *Scaevola sericea*, *Casuarina equisetifolis*, *Leucaena leucocephala* and *Haematoxylum campechianum*.

## 25. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

Land purchase by Crown initiated, towards establishment of National Park. No management plan has been developed or formally adopted as yet.

*Other relevant legislation includes:*

***Animals Law No. 8 (1976)***: this protected iguanas and all non-domestic birds, except those listed as game birds, from hunting, collection and egg taking

***Animals (Protection) Regulations (1989)***: this legislation significantly amended the above, reducing the list of game (unprotected) birds to three species.

***Marine Conservation Law (1978)***: legislation allowed for designation of restricted marine areas, and protection to certain marine species.

***Marine Conservation (Turtle Protection) Regulations (1978)***

***Marine Conservation (Marine Parks) Regulations (1986)***: specifies three categories of designation (*Environment Zone* – no removal of marine life, use of anchors, entry into the water. Speed < 5 knots. *Replenishment Zone* – Restricted fishing methods. Removal of conch and lobster prohibited). *Marine Park Zone* - Marine life protected and anchoring restricted).

***National Trust for the Cayman Islands Law (1987)***: established the National Trust.

***National Conservation Law (pending 2004)***

## 26. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

Protection under forthcoming Protected Area's system as Cayman's first National Park.

*Proposed site for release of critically endangered Blue Iguana *Cyclura lewisi*.*

*Proposed site for nesting habitat improvement for Grand Cayman parrot *Amazona leucocephala*.*

## 27. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Ongoing monitoring, management and research under Cayman Islands Mosquito Research and Control Unit.

## 28. Current conservation education:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

Public and stakeholders meetings undertaken as part of initial Barkers Park planning stage. Though no formal management plan is yet in existence, it is planned that the Park will feature a visitor center, observation hides and nature trails, facilities for school visits and associated literature etc. Information on the Marine Parks is available through the Dept. Environment website [www.doe.8m.com](http://www.doe.8m.com)

## 29. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Barkers has long been utilized as a recreational area (camping) by local people. This was a major factor in the selection of this site as Cayman's first National Park.

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**30. Jurisdiction:**

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

**Cayman Islands Government**

Ministry of Tourism, Environment, Development and Commerce

(Administration Building - TEL: (345) 244-2401. FAX: (345) 945-4131)

The Department of the Environment

(Marco Giglioli Building - TEL: (345) 949-8469. FAX: (345) 949-4020)

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**31. Management authority:**

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

The Department of the Environment

(Marco Giglioli Building - TEL: (345) 949-8469. FAX: (345) 949-4020)

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**32. Bibliographical references:**

Scientific/technical references only. If biogeographic regionalisation scheme applied (see **13** above), list full reference citation for the scheme.

**Site-relevant references**

Bradley, PE (1986): The Cayman Islands. In: *A directory of Neotropical wetlands*, ed. by DA Scott & M Carbonnell, 469-482. IUCN, Gland & Cambridge

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Scott, DA & Carbonell, M (eds.) (1986) *A directory of neotropical wetlands*. IUCN/IWRB, Cambridge/Slimbridge

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