Information Sheet on Ramsar Wetlands

Categories approved by Recommendation 4.7 of the Conference of the Contracting Parties.

NOTE: It is important that you read the accompanying Explanatory Note	
1. Date this sheet was completed/updated:	Dak of designation: 11/05/39 (date of amaincine at COPT)
10th February, 1999	110599 6 4 6 0 8
2. Country:	Designation date Site Reference Number
Bermuda (U.K.O.T.)	
3. Name of wetland: PEMBROKE MARSH EAST	
4. Geographical coordinates: 32°17!N 64°46!	W
5. Altitude: (average and/or max. & min.) 0.5m - 2m 7. Overview: (general summary, in two or three sentences, of the wetland's	6. Area: (in hectares) 7.82 hectares principal characteristics)
An extensive freshwater Typha and channels up to 3m deep. Supports wintering waterfowl.	Cladium marsh with some open water a wide variety of passage and
	±°
8. Wetland Type (please circle the applicable codes for wetland types as listed in Annex I of the Explanatory Note and Guidelines document.)	
marine-coastal: A · B · C · D · E ·	$F \cdot G \cdot H \cdot I \cdot J \cdot K$
inland: $L \cdot M \cdot N \cdot O \cdot P$: $\cdot U \cdot Va \cdot Vt \cdot W \cdot Xf$	$Q \cdot R \cdot Sp \cdot Ss \cdot Tp$ Ts $\cdot Xp \cdot Y \cdot Zg \cdot Zk$
man-made: $1 \cdot 2 \cdot 3 \cdot 4 \cdot 5^{\circ}$	6 · 7 · 8 · 9
Please now rank these wetland types by listing them from the most to the least dominant:	
9. Ramsar Criteria: (please circle the applicable criteria; see point 12.	next page.)
$1a \cdot 1b \cdot 1c \cdot 1d \mid 2a \cdot 2b \cdot 2c$	\cdot 2d 3a \cdot 3b \cdot 3c 4a \cdot 4b
Please specify the most significant criterion applicable to the si	te: <u>1c</u>
10. Map of site included? Please tick yes -or- (Please refer to the Explanatory Note and Guidelines document for information re-	
11. Name and address of the compiler of this form: John A. Barnes, Director Dept. of Agriculture and Fisheries P.O. Box HM 834 Hamilton HM CX BERMUDA	Tel: (441) 236-4201

12. Justification of the criteria selected under point 9:

A good example of a *Typha* marsh that drains as an estuarine system into the sea and supports juvenile populations of certain fish species. The site regularly supports passage and wintering waterfowl and is an important breeding area for moorhen. The large capacity of the marsh buffers flooding from Hamilton city runoff during heavy rains.

13. General location:

On the north edge of the City of Hamilton, Pembroke Parish, Bermuda.

14. Physical features:

A freshwater cattail and Saw-grass marsh with open water channels up to 3m deep in a deep peat basin. There are only slight fluctuations in water level as freshwater runoff into the basin drains via a 2 km channel to Mill Creek and Hamilton Harbour.

15. Hydrological values:

The peat layer beneath protects Devonshire Lens aquifer from pollution by leachate from the dump.

16. Ecological features:

A freshwater marsh in a peat basin connected to the sea by a 2 km drainage channel.

17. Noteworthy flora:

The largest surviving cattail *Typha augustifolia* marsh on Bermuda, with some *Ceratophyllum demersum* and *Cladium jamaicensis*.

18. Noteworthy fauna:

Formerly the most important breeding area in Bermuda for moorhen Gallinula chloropus (6prs+) and American coot Fulica americana (1-2 prs). A wide variety of waterfowl are recorded on passage and in winter, including Pied-billed Grebe Podilymbus podiceps, American Bittern Botaurus lentiginosus, Least Bittern Ixobrychus exilis, Black-crowned Night Heron Nycticorax nycticorax, Green Heron Butorides virescens (=B. striatus), Great Blue Heron Ardea herodias, Teal Anas crecca, Blue-winged Teal A. discors, Ring-necked Duck Aythya collaris, Lesser Scaup A. affinis, Sora Rail Porzana carolina and Purple Gallinule Porphyrula martinicia. The introduced minnow Gambusia affinus occurs, and the marsh supports Bermuda's largest populations of North American eel and tarpon juveniles, which gain access to the pond via a drainage ditch connecting to Mill Creek one mile to the west.

19. Social and cultural values:

A former garbage disposal site now being restored as parkland and nature reserve in the heart of a densely populated area. Will supply important open space and recreational value in future.

20. Land tenure/Ownership of:

Government of Bermuda.

21. Current land use:

The former landfill site is currently a major composting facility producing soil for landfill site restoration.

22. Factors adversely affecting the sites ecological character:

Windblown refuse and leaching of pollutants from landfill site have polluted the remaining marsh.

23. Conservation measures taken:

The landfill site was closed in 1992. Zoned as a nature reserve under the Planning Act 1974 and Development Act 1983. Designated as a Nature Reserve under The Bermuda National Parks Act 1986.

24. Conservation measures proposed:

The landfill site is currently under restoration as parkland. A plan for the nature reserve is about to be implemented and will involve enhancement of the drainage channel to the sea and increasing the open water areas of the marsh by removal of invasive Cow-cane *Arundo donax* and excavation of the maze of channels through the cattail to improve visual amenity and water circulation, and to create bird nesting islands.

25. Current scientific research and facilities:

Dr. Martin Thomas has studied the limnology of the Pembroke Canal. There have been various engineering studies on drainage problems in the marsh e.g. Chasemore Report 1960.

26. Current conservation education:

None

27. Current recreation and tourism:

None

28. Jurisdiction:

- a) Territorial Government of Bermuda
- b) Functional Government of Bermuda

29. Management authority:

Ministry of Works and Engineering, Government of Bermuda, and, Parks Division, Government of Bermuda.

30. Bibliographical references:

Scott, D.A. and Carbonell, M., Compilers. 1986. A Directory of Neotropical Wetlands. IUCN Cambridge and IWRB Slimbridge.

The Pembroke Marsh Plan 1987. Department of Planning, Government of Bermuda.

Chasemore. 1960. Unpublished report for Bermuda Government Public Works Department: Drainage Arrangements for the Pembroke Marsh/Mill Creek Basin.

Thomas, M.L.H., 1997. – Summary and Recommendations from the Report on the Ecological Conditions of Pembroke Canal and the Inner Part of Mill Creek, 1996. Bermuda Zoological Society.