

Information Sheet on Ramsar Wetlands (RIS)

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

1. **Date this sheet was completed/updated:** April 2001

2. **Country:** Portugal

3. **Name of wetland:** Paul de Tornada (Tornada March)

4. **Geographical coordinates:** 39° 27'N; 9° 3'W (of the approximate centre of the wetland)

5. **Elevation:** 8-9 m

6. **Area:** (in hectares): 50 ha

7. **Overview:** Freshwater permanently flooded marsh in a small alluvial plain included in a typhonic valley, with extensive reed beds and many aquatic openings. The wetland is surrounded by agriculture and forestry land. This wetland is especially important for migratory species.

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	G	H	I	J	K	Zk(a)
inland:	L	<u>M</u>	<u>N</u>	O	P	Q	R	Sp	Ss	<u>Tp</u>	<u>Ts</u>	
	U	Va	Vt	W	<u>Xf</u>	Xp	Y	Zg	Zk(b)			
human-made:	1	2	3	4	5	6	7	8	<u>9</u>	Zk(c)		

Please now rank these wetland types by listing them from the most to the least dominant:

Tp · Ts · Xf · 9 · M · N

9. **Ramsar Criteria:** A1; B2; B3; B4; B8

Please specify the most significant criterion applicable to this site: B2; B3; B4

10. **Map of site included?** YES

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

Conceição Martins

GEOTA – Grupo de Estudos de Ordenamento do Território e Ambiente

Travessa Moinho de Vento, 17 c/v Dt^a P 1200 – 727 LISBOA

Tel: +351 21 3956120 Fax: +351 21 3955316 geota@mail.telepac.pt

Maria de Jesus Fernandes

PATO – Associação de Defesa do Paul de Tornada

Apartado 171 P 2500 CALDAS DA RAINHA

Tel/Fax: +351 262 881790 cee@clix.pt

Please provide additional information on each of the following categories by attaching extra pages (please limit extra pages to no more than 10):

12. Justification of the criteria selected under point 9, on previous page. (Please refer to Annex II in the *Explanatory Note and Guidelines* document).

This wetland should be considered internationally important because it contains a representative example of a natural marsh in this biogeographic region.

It has great bird diversity and offers habitats of major importance for migrating birds as wintering areas (*Anas clypeata*, *Anas crecca*, *Anas strepera*, *Ardea cinerea*, *Aythya ferina*, *Gallinago gallinago*, *Porzana porzana*, *Regulus regulus*). It is also very important for some migratory species that stay a few days resting and feeding before finishing their journey (*Acrocephalus schoenobaenus*, *Anas penelope*, *Anas querquedula*, *Luscinia svecica*).

This area is also important as a breeding site for some species that are threatened in most parts of their own biogeographical area (*Acrocephalus scirpaceus*, *Acrocephalus arundinaceus*, *Ardea purpurea*, *Ardeola ralloides*, *Himantopus himantopus*, *Ixobrychus minutus*, *Locustella luscinioides*, *Motacilla flava*), or to species that breed in this region and feed on the wetland or on the surroundings (*Apus apus*, *Apus melba*, *Columba livia*, *Columba palumbus*, *Columba palumbus*, *Cuculus canorus*, *Delichon urbica*, *Falco subbuteo*, *Ficedula hypoleuca*, *Hirundo rustica*, *Hyppolais polyglotta*, *Luscinia megarhynchos*, *Muscicapa striata*, *Oriolus oriolus*, *Riparia riparia*, *Upupa epops*).

Tornada Marsh is important for some fishes as conger-eels (*Anguilla anguilla*), a migratory species threatened by water pollution and illegal fishing, and for some threatened mammals (*Sorex granarius*, *Crocidura russula*, *Mustela nivalis*, *Meles meles*, *Lutra lutra*), reptiles (*Emys orbicularis*, *Mauremys leprosa*, *Lacerta schreiber*, *Lacerta lepida*, *Podarcis bocagei*, *Psammodromus algirus*, *Anguis fragilis*, *Malpolon monspessulanus*, *Natrix maura*) and amphibians (*Salamandra salamandra*, *Bufo bufo*, *Hyla arborea*).

13. General location: (include the nearest large town and its administrative region)

Tornada Marsh is near Caldas da Rainha about 100 km North of Lisbon (NUT III – Lisboa e Vale do Tejo; NUT II - Oeste)

14. Physical features: (e.g. geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth water permanence; fluctuations in water level; tidal variations; catchment area; downstream area; climate)

Tornada Marsh has a central zone that stays flooded most of the year, encircled by land covered by water only during the winter. The central zone is currently covered by *Phragmites australis*, but in some dryer summers, as in 1993, it completely dries out. This permanently flooded sector has some deeper areas with open water, forming small lagoons on the centre of the wetland.

The Tornada marsh is part of a set of low lands, covered long ago by a sea arm that entered into the bay of São Martinho do Porto. A few centuries ago it existed in the region a true inland sea, surrounded by substantial human settlements.

From the geologic point of view, the wetland is on the Typhonic Valey of Caldas da Rainha, extending approximately NE-SW along 30 Km. Its north limit is the valley of Alcoa and Baça rivers, and the southern limit meets Roliça and Olho Marinho villages.

This region has a climate tempered with rain but no snowfall; the dryer season corresponds to the hot season of the year, the summer. Its location near-the sea and near the mountain range of Serra dos Candeeiros, determine the climate of the regions

The maximum average precipitation occurs in March, 93,9 mm, and the minimum in July, 5,4 mm.

The annual average temperature is 15 °C, with 10 °C in January and 19,8 °C in August.

15. Hydrological values: (groundwater recharge, flood control, sediment trapping, shoreline stabilisation, etc.)

This area is very important at local level for the regulation of the underground water table.

The Tornada Marsh is limited in the east and the west by two drainage channels, coming from small streams at the south end of the marsh. In this flat zone the channels run almost parallel until the extreme NE end of the wetland, where they join. At this point another ditch forms inwards only for draining. On the edges there are other ditches where the water runs outwards.

16. Ecological features: (main habitats and vegetation types)

The most abundant flora species are the *Polygonum amphibium* and *Ceratophyllum demersum*.

Around this area and on the outer limit of the wetland there are some patches of *Scirpus lacustris*.

The dominant species around the central zone is *Phragmites australis*. *Sparganium* sp., *Juncus* sp., *Carex* sp., *Cyperus* sp. and *Ranunculus* sp. occur frequently, as well as *Typha angustifolia*, *T. latifolia*, *Juncus maritimus* or *Iris pseudacorus*. There are some observations of *Utricularia australis*

There are some vestiges of rice culture, an activity practised for some time on the wetland until recently.

Azolla caroliniana and *Lemna minor* grows in certain sheltered places, mainly in the central permanently flooded zone and in the drainage channels, covering all water surface when favourable conditions are met.

In shallow waters, some species of *Sparganium* sp., *Cyperus* sp., *Scirpus* sp., *Eleocharis* sp. and *Carex* sp., are abundant.

17. Noteworthy flora: (indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc.)

Rare, threatened or biogeographically important plant species have not been identified. However, plant communities are very important to maintain local biodiversity, providing food and shelter for fauna species.

18. Noteworthy fauna: (indicating, e.g., which species are unique, rare, endangered, abundant or biogeographically important; include count data, etc.)

Abundant Birds Species

wintering - *Anas clypeata*, *Anas crecca*, *Anas strepera*, *Ardea cinerea*, *Aythya ferina*, *Gallinago gallinago*, *Porzana porzana*, *Regulus regulus*

migratory species - *Acrocephalus schoenobaenus*, *Anas penelope*, *Anas querquedula*, *Luscinia svecica*

species that are threatened their own biogeographical area - *Acrocephalus scirpaceus*, *Acrocephalus arundinaceus*, *Ardea purpurea*, *Ardeola ralloides*, *Himantopus himantopus*, *Ixobrychus minutus*, *Locustella luscinioides*, *Motacilla flava*

species that breed in this region and feed on the wetland or on the surroundings - *Apus apus*, *Apus melba*, *Columba livia*, *Columba palumbus*, *Cuculus canorus*, *Delichon urbica*, *Falco subbuteo*, *Ficedula hypoleuca*, *Hirundo rustica*, *Hyppolais polyglotta*, *Luscinia megarhynchos*, *Muscicapa striata*, *Oriolus oriolus*, *Riparia riparia*, *Upupa epops*

Vertebrates Red Book (Portugal)

Mammals – *Lutra lutra*

Reptiles – *Emys orbicularis*

Other important Species

fish - *Anguilla anguilla*

mammals - *Sorex granarius*, *Crocidura russula*, *Mustela nivalis*, *Meles meles*, *Lutra lutra*

reptiles - *Emys orbicularis*, *Mauremys leprosa*, *Lacerta schreiber*, *Lacerta lepida*, *Podarcis bocagei*, *Psammotriton algirus*, *Anguis fragilis*, *Malpolon monspessulanus*, *Natrix maura*

amphibians - *Salamandra salamandra*, *Bufo bufo*, *Hyla arborea*

Appendix I – List of Birds (R, W, S, M, C), List of Mammals, List of Amphibians, List of Reptiles, List of Fishes

19. **Social and cultural values:** (e.g., fisheries production, forestry, religious importance, archaeological site, etc.)

Tornada Marsh is one of the last of this kind of wetland in this area. The older historical references to the Tornada Marsh are associated with the creation of the city of Caldas da Rainha and to the foundation of its Thermal Hospital, by the Queen Leonor de Lencastre.

20. **Land tenure/ownership of:** (a) site (b) surrounding area

(a) The complete wetland area is private property. Currently it is being rented by GEOTA (a national NGO for environment), together with PATO (a local NGO for environment) and receiving some financial support from the Ministry of the Environment (Instituto da Conservação da Natureza - ICN) and the City Council (Câmara Municipal de Caldas da Rainha).

(b) The surrounding area is private property

21. **Current land use:** (a) site (b) surroundings/catchment

(a) Educational activities for nature conservation with schools.

(b) Agriculture and forestry

22. **Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land use and development projects:** (a) at the site (b) around the site

(a) Illegal hunting and shooting. Water pollution caused by domestic sewage.

(b) Urban expansion.

23. **Conservation measures taken:** (national category and legal status of protected areas - including any boundary changes which have been made: management practices; whether an officially approved management plan exists and whether it has been implemented)

There is no national or international conservation status for the site.

24. **Conservation measures proposed but not yet implemented:** (e.g. management plan in preparation; officially proposed as a protected area, etc.)

A management plan will be prepared.

25. **Current scientific research and facilities:** (e.g., details of current projects; existence of field station, etc.)

They are some scientific projects under way in some Universities (Faculdade de Ciências da Universidade de Lisboa; Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa; Faculdade de Ciências da Universidade de Coimbra) and in ICN.

26. **Current conservation education:** (e.g., visitors centre, hides, information booklet, facilities for school visits, etc.)

PATO has prepared an exhibition to improve public awareness and education, which can be visited at the marsh headquarters. The visitor has also the possibility to see videos and slide presentations about the wetland. A rudimentary laboratory has been created to allow scientific research for nature conservation on the site.

There is an observatory for bird-watching and some tracks.

The wetland has an information kit for teachers and booklets for visitors.

The visitors are mostly young people from local schools.

27. **Current recreation and tourism:** (state if wetland is used for recreation/tourism; indicate type and frequency/intensity)

There are no specific recreation or tourism activities, but guided visits are offered to the general public if previously booked.

28. **Jurisdiction:** (territorial, e.g., state/region and functional, e.g., Dept. of Agriculture/Dept. of Environment etc.)

Legal competencies are shared by a number of different authorities.

29. **Management authority:** (name and address of local body directly responsible for managing the wetland)

Maria de Jesus Fernandes
PATO – Associação de Defesa do Paul de Tornada
Apartado 171 P 2500 CALDAS DA RAINHA
Tel/Fax: +351 262 881790 cee@clix.pt

30. **Bibliographical references:** (scientific/technical only)

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II Congresso de Áreas Protegidas, Dezembro 1989

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“Paul da Tornada: Recurso para as aves”

1º Encontro Ornitológico do Paúl de Tornada, Dezembro de 1989

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“O Hospital das Caldas da Rainha até ao ano de 1656”

Academia das Ciências de Lisboa

Sarasa, C.G.; Bartolome, J; Fernandez-Cruz, M; Farinha, J.C.

“Segundo censo de Ardeidas invernantes en la Península Ibérica y Baleares (1992-93)”

AIRO 4, 1993

Verde, Maio-Setembro de 1988, ano V nº15

“Preservar e melhorar o ambiente no Oeste – Paul da Tornada”

Please return this Information Sheet to:

The Ramsar Convention Bureau

Rue Mauverney 28

CH-1196 Gland, Switzerland

(tel +41 22 999 0170, fax +41 22 999 0169, e-mail ramsar@ramsar.org)



Explanatory Note and Guidelines for the Information Sheet on Ramsar Wetlands



Ramsar Classification System for Wetland Type



Criteria for Identifying Wetlands of International Importance



Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance of the Convention on Wetlands