

## 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 and Guidelines* document before completing this form.

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

For office use only.

08.09.98

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### 2. Country:

Italy

### 3. Name of wetland:

Palude Brabbia

### 4. Geographical coordinates:

45°44'N 8°40'E

5. Altitude: max 241 l/m; min 238 l/m; Average 239 l/m 6. Area: (in hectares) 459 ha

### 7. Overview: (general summary, in two or three sentences, of the wetland's principal characteristics)

Palude Brabbia is a fen peatland located in a valley of glacial origin, between two lakes, Lago di Varese (north side) and Lago di Comabbio (south side) and bordered by hills on the western and eastern sides. The site includes areas of marshes, ponds, wet meadows and wet woodlands and is dissected by small channels. It is fed by Canale Brabbia, a stream that borders the wetland, coming from Lago di Comabbio and ending in Lago di Varese, by rainfall and by small streams coming down from the hills.

### 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

inland: L - M - N - O - P - Q - R - Sp - Ss - Tp  
Ts - U - Va - Vt - W - Xf - Xp - Y - Zg - Zk

man-made: 1 - 2 - 3 - 4 - 5 - 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 - 1b - 1c - 1d / 2a - 2b - 2c - 2d / 3a - 3b - 3c / 4a - 4b

Please specify the most significant criterion applicable to the site: 1a

### 10. Map of the site included? Yes

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

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**12. Justification of the criteria selected under point 9:**

1a - the site is one of the best preserved examples of fen peatland in the Italian Pre-Alps area

2a - the site holds 35 birds species included in the EU Birds Directive, 2 species of Amphibians and 4 invertebrates included in the EU Habitats Directive. One Amphibian (*Rana latastei*) is included in the "1994 IUCN Red List of Threatened Animals". The site also holds a number of rare or relict plants, such as *Drosera intermedia* (V), *Hibiscus palustris* (V), *Rhynchospora fusca* (E), *Peucedanum palustre* (IUCN), *Hottonia palustris* (V). All of these plant species are included in the "Red Book of Italian Plants" (V means Vulnerable, E means Endangered, both at a national level), *Peucedanum palustris* is included in the "1994 IUCN Red List of Threatened Plants" as "Vulnerable"

2c: Palude Brabbia is an important breeding site for *Ardea purpurea* (ca 30 pairs), *Nycticorax nycticorax* (ca. 20 pairs) and especially for the globally endangered *Aythya nyroca*. (max. 6 pairs in 1997).

2d: the site holds an important population of *Rana latastei*, a frog endemic to the Padana Plain

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**13. General location:** About 8 km south-west of the city of Varese, in the Province of Varese, Region of Lombardia, northern Italy.

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**14. Physical features: Geology and geomorphology**

The site was part of a larger lake after the last glacial age, together with Lago di Varese and Lago di Comabbio. The slow withdrawal of the waters caused the gradual formation of the wetland. Palude - Brabbia is located in a depression in the pre - Quaternary, rocky substratum. The formations that compose the rocky substratum are limestone and Gonfolite, a Cretaceous formation of marls and clays. Lithologic studies have shown that the surface layer of the basin is formed of peat, silt and sand, beneath which a 20 m deep substratum of clay and silt is located. Lower down there is a sandy bed that overlays a marly - conglomerate substrate.

**Origins**

There are some important habitats of artificial origin:

- Canale Brabbia. and the small canals which border and cross the site, dug in the past in an attempt of drainage
- Open waters resulting from peat-extraction activities and clay excavation
- Wet meadows, resulting from traditional agricultural activities
- Poplar cultivations

**Hydrology and hydraulics**

Palude Brabbia takes about 1/3 of its water from Canale Brabbia and 2/3 from other sources (rainfall and small streams coming down from the hills). The annual average inflow of Canal Brabbia is 343 I/s, while the other inflows are 730 I/s. There are no data about the outflow and the evapotranspiration of the area, therefore it is not possible to calculate the water balance and the retention time, although it is supposed to be some days.

The water level of the site is also man-influenced by the level of Lago di Varese and by the inflow of Canale Brabbia, both artificially regulated with barrages.

The water table lies 3 m deep and it suffers from overexploitation.

**Soil type**

The soil is typically peaty. It is weekly acid (pH 6), compact at the edge of the site a and along the trails, soft in the wettest areas. No specific data on the chemical composition are available.

#### **Water quality**

Water is neutral or weakly alkaline (pH 7.07 - 8.06) and is characterized by high concentrations of nutrients creating clear conditions of eutrophication. This phenomenon is typical of wetlands but in this case seems also to be due to the polluted water coming from Lago di Comabbio. The level of turbidity is also high.

As far as heavy metals are concerned, quite high concentrations of Fe, Mn and Zi were found at the outlet of Canale Brabbia, although the situation at a general level is not critical..Heavy metals are concentrated at the bottom of the Canale, due to the heavy pollution of the last hundreds years (a textile factory was established in the past by an English companies along the canal) that are periodically released in the water.

The generally relatively good quality of the waters seems to be connected to the filtering capacity of phytodepuration of the aquatic macrophytes in spring and summer.

#### **Depth**

0.5 - 4.0 m. in the ponds

0.5 - 2. 0 m. in Canale Brabbia

0.0 - 0.5 m. elsewhere

#### **Catchment area**

ca 1,500 ha, from 238.1 to 427.0 m. high.

#### **Downstream area**

Downstream Palude Brabbia there is Lago di Varese,

#### **Climate**

Average annual temeperature: 12.3 °C (min Jan 0.7 °C - max Jul 23,2 °C)

Average annual rainfall: 1532.5 mm. (min Jan 80,0 mm - max Nov 187.4 mm).

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### **15. Hydrological values:**

The site is important for collecting and trapping nutrients coming from Lago di Comabbio and other small affluents.

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### **16. Ecological features:**

Most part of the site is dominated by Cyperacea (*Carex* spp. and *Cladium mariscus*) and Graminacea (*Phragmites australis*, *Phalaris arundinacea*, *Poa palustris*). The dominant plant communities are Caricetum elatae (most common), Phragmitetum communis and Typhetum latifoliae, even though all the potential plant communities that are typical of wet areas at this latitude are here represented: hydrophytes (eg *Lemna*), elophytes (eg *Phragmites*), hygrophytes (eg *Salix*) and the climax woodland of Querco - Fagetea and Fraxini - Fagetea. A particular community is the Sphagnetum.

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### 17. Noteworthy flora:

The site supports numerous species of plants which are rare or endangered at a national or international level, such as: *Drosera intermedia*, *D. rotundifolia*, *Hibiscus palustris*, *Calamagrostis canescens*, *Rhinospora fusca*, *R. alba*, *Cardamine hayneana*, *Peucedanum palustre*, *Orchis incarnata*, *Utricularia australis*, *Hotionia palustris*, *Riccia fluitans*, *Aulacomnium palustre*, *Bidens cernua*, *Viola palustris*.

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### 18. Noteworthy fauna:

The site is important for its migratory, wintering and breeding avifauna and for the presence of some glacial relict species. Important populations of waterbirds regularly breed in Palude Brabbia, including *Podiceps cristatus*, *Ixobrychus minutus*, *Rallus aquaticus*, *Cettia cetti*, *Acrocephalus palustris*, *A. arundinaceus*, *A. scirpaceus*, *Emberiza schoeniclus*. The presence of some breeding species is important at a national and /or international level: *Ardea purpurea* (ca 30 pairs), *Nycticorax nycticorax* (ca 20 pairs), *Aythya nyroca* (max 6 pairs in 1997), *Locustella liuscinioides* (one of the few large populations in Italy). *Botaurus stellaris* is regularly observed at the site and at the close by Lago di Varese.

During migration there are several regularly observed rare or endangered bird species, such as: *Pandion haliaetus* (max 5 ind.), *Porzana parva*, *Porzana porzana*. Wintering species includes *Circus cyaneus*, *Falco peregrinus*, *Lanius excubitor*.

Other noteworthy vertebrate species are: *Lacerta vivipara* (relict species), *Rana latástei* (endemic of Padana Plain, 1994 IUCN Red List of Threatened Animals, Habitat Directive), *Triturus cristatus* (Habitat Directive), *Mustela putorius*.

Important species of invertebrates includes: *Austropotamobius pallipes* (Crustacea, endangered in Italy, Habitat Directive), *Graphoderus bilineatus* (Coleoptera), *Lucanus cervus* (Coleoptera, Habitat Directive), *Apatura ilia* (Lepidoptera), some relict species of dragonflies (*Somatocloria* sp.), *Ciaenius sulcicollis* (Coleoptera, only three sites known in Italy), *C. tristis* (Coleoptera, relict species) and *Oxydirus oxycephaloides* (Nematoda, rare in Italy).

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### 19. Social and Cultural values:

Archaeological finds show that the area was already inhabited in the Neolithic age but the real social use of Palude Brabbia had its start at the beginning of the last century. In that period the reclamation works started, that increased the surface of arable land, and the activity of peat-extraction, that went on till the Second World War.

The site was always used for fishing and hunting activities by local people but never at a professional level and only as a complementary family resource.

At present the main human activities inside the site are the following ones:

ECONOMICAL: agriculture, poplar-growing, phytodepuration, groundwater extraction, floriculture

RECREATIONAL: birdwatching, fishing (even though forbidden), walking in nature

EDUCATIONAL: environmental education, mainly with schools

SCIENTIFIC: scientific researches, focused especially on birds; university degree thesis.

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### 20. Land tenure/ownership:

One third of the site is owned by the Provincia di Varese, after a recent acquisition (1997) of the so called "Agricola Paludi" area.

The rest is owned by privates, including an NGO (LIPU - BirdLife Italy).

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## 21. Current land use:

- (a) Inside the site main land uses are agriculture, poplar growing, conservation activities.
- (b) Outside its borders there are two industrial areas, along the western and northern side of the wetland, most of which related to textile production. At the north - western corner is located a very large factory producing electric household goods (Whirlpool spa). It uses water for cooling purposes and has a treatment plant that releases waters into the Canale Brabbia, like other factories located along the canal. Their discharges are told to be clean but in the canal periodically concentrations of heavy metals or strange colours are noted. It is difficult to identify the source of these.

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## 22. Factors adversely affecting the site's ecological character:

Main factors presently affecting the site can be classified as follows:

(a) at the site

Vegetational succession

Introduction of allochthonous fish species

Fires

Illegal fishing,

(b) around the site

Industrial discharges

Water withdrawal

Eutrophication of Lago di Comabbio

Water level control

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## 23. Conservation measures taken:

The site has received the following designations:

1977: "Biotope", regional law n. 33, 27.06.77

1983: "Regional Nature Reserve", regional law n. 86, 30.1.83

198?: SPA according to the Bird Directive

1984: "Wetland of International Importance" according to the Ramsar Convention, Decreto Ministeriale 11.06.84, official Ramsar designation 05, 12.84

1989: "Important Bird Area" according to ICBP and IWRB

1996: proposed "Site of Conservation Importance" according to the Habitat Directive

A management plan for the regional reserve was approved in 1993 by Regional Law. The plan identifies the activities that are forbidden or regulated and the practices to be followed for the management of the site. The five year plan has recently expired and the Provincia di Varese is presently (sept. 1998) working on the new version.

The Reserve is divided in three categories of zones: A - strong protected Nature Reserve; B - Nature Reserve; C - Buffer zone.

The plan has been implemented by the Provincia di Varese, who is entrusted of this by Regione Lombardia, through a collaboration with LIPU - BirdLife Italy.

All largely incompatible activities were stopped, as written in the plan: hunting, clay - pigeon shooting, vegetal detritus extraction.

Management activities include practical habitat management for nature conservation purposes: re-opening through excavation of silted ponds, especially in favour of breeding *Aythya nyroca*; cutting of reeds; cutting of allochthonous plant species and planting of native trees, especially in favour of *Rana latastei*; fire control and surveillance; water level control; water quality monitoring.

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

Illegal fishing is still going on, even though there is surveillance.

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

The following scientific studies are going on at present (sept. 1998), thanks also to a 2 years (1997 and 1998) LIFE project financed by the European Union to LIPU, with Provincia di Varese as co – financer:

- ecology and census of *Rana latastei*
- breeding ecology and census of *Aythya nyroca*
- ringing of migratory birds
- censuses of breeding *Acrocephalus sp. and Locustella luscinioides*

There are not specific facilities for scientific research.

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**26. Current conservation education:**

A room of the local Library of the municipality of Inarzo is presently working as Visitor Centre of the Reserve. A wood Visitor Centre will be built by the end of the year thanks to the LIFE project.

A hide and two man - made reed barriers are available for visitors.

A full colour leaflet on the Reserve, 3 black and white leaflets on mammals, amphibians, and butterflies of the Reserve, a sticker and a booklet are available at the Visitor Centre. More educational printed material will be produced by the end of 1998 thanks to the LIFE project.

School visits are regularly guided by the wardens of the Reserve (about 700 school-children in spring - summer 1998). Guided tours are also organized all over the year.

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**27. Current recreation and tourism:**

The facilities are the ones mentioned in the previous point.

Visitors are quite numerous: 1605 passed through the Visitor Centre in the first six months of 1998, not considering schools. These one were the more interested on birds, animals and nature in general. Much more people visit the Reserve just to enjoy being in the open, especially in the period April - June, and these ones are the most difficult visitors to be managed (cars, motorbikes, etc.), even though at present it cannot be considered a real problem.

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**28. Jurisdiction:**

The site is under the territorial jurisdiction of Regione Lombardia and the functional jurisdiction of the regional Servizio Difesa della Natura e Parchi (Nature Protection and Parks Service).

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**29. Management authority:**

The responsibility of the management of the area is of :

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LIPU - BirdLife Italy is encharged by the Provincial authority to actually manage the site since 1993.

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