

Information Sheet on Ramsar Wetlands (RIS)

1. **Date this sheet was completed/updated:** October 2000
2. **Country:** Czech Republic
3. **Name of wetland:** Třeboňská rašeliniště (Třeboň Mires)
4. **Geographical coordinates:** 48° 10' - 48° 55' N, 14°39' -14°59' E
5. **Elevation:** 410-490 m
6. **Area:** total 1100 hectares
7. **Overview:** The site comprises five relatively small mires (without large water bodies) mostly covered with forest and shrubs and surrounded by a cultural landscape. The center of four valley raised peatbogs (forested mires developed in higher elevation and saturated with water mainly from precipitation) is occupied by natural stands of a bog pine (*Pinus rotundata*) and Labrador tea (*Ledum palustre*). One less forested minerotrophic mire and acidic fen is adjacent to a large fishpond and its hydrology depends mainly on groundwater springs.

8. Wetland type:

Inland wetlands: U, X_p

Rank of these wetland types: X_p, U

9. Ramsar Criteria:

Group A: criterion 1

Group B: criterion 2

The most significant criterion applicable to this site: criterion 1

10. Map of site included? YES

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12. Justification of the criteria selected under point 9, on previous page:

Třeboň Mires contains rare natural habitats (valley raised bogs and minerotrophic mires) that are representative for the post-glacial development of the landscape in this biogeographical region. The habitats are unique at presents compared to the surrounding cultivated landscape. Habitats of European importance (potential SAC - NATURA 2000) are present at this site.

Třeboň Mires are host to vulnerable, endangered or critically endangered species (see below - section 17 and 18) and communities. Largest Czech population of *Pinus rotundata* and *Ledum palustre* occurs at this site.

13. **General location:** South Bohemia (administrative region České Budějovice, districts Jindřichův Hradec, České Budějovice), 35 km south-east and north-east from regional capital city České Budějovice (100 000 inhabitants). The site is located within the Třeboňsko (Třeboň Basin) Protected Landscape Area and Biosphere Reserve centered on the town of Třeboň (9 000 inhabitants).

14. Physical features:

The local topography is flat or slightly undulating (Třeboň Basin) with a lack of sharp relief. Underlying rocks are primarily Cretaceous and Tertiary sedimentary (clay, sandstone, sand) with some crystalline rocks (granite, gneiss) present in the undulating eastern part of the site. Bogs developed at badly drained terrain depressions, some of them are saturated with water both from precipitation and from artesian groundwater springs. Soils are composed of clays and peats (peat layer max. 8 meters deep).

The moderately warm climate is marked by relatively long periods summer of clear weather with an annual mean air temperature of 7.8°C and annual mean precipitation of 627 mm. Fog occurs frequently due to large wetland and fishpond areas in the vicinity. Winter snow cover is up to 35 cm (snow cover 60-80 days per year).

15. **Hydrological values:** Hydrological values of peatbogs are represented by water retention, stabilization of water regime in the adjacent landscape and positive influence on local climate (cooling effect, increasing evaporation).

16. **Ecological features:** Main habitats are peat forests with bog pine (*Pinus rotundata*) and Labrador tea (*Ledum palustre*) developed at deep peat layers (max. 8 m), at margins also with Scots pine (*Pinus sylvestris*) and birch (*Betula verrucosa*, *B. pubescens*), and water-logged Norway spruce lagg forest (*Picea abies*) Several *Ericaceae* shrubs occur in the undergrowth (*Vaccinium myrtillus*, *V. uliginosum*, *V. vitis-idea*, *Oxycoccus palustris*, *Calluna vulgaris*) as well as several species of *Eriophorum*. At one sub-location (Ruda), fen woodlands and willow carrs occur in swampy area with *Alnus glutinosa*, *Frangulua alnus* and *Salix spp.* as characteristic species. Former small-scale extraction of peat for heating created small lakes and lagoons that are gradually overgrown with *Sphagnum* mosses (*S. capillifolium* as a dominating species) and other bog species and represent younger stages in the bog succession.

Noteworthy flora:

17. The oligotrophic forested mires (Červené blato, Široké blato, Žofinka) support unique stands of pine *Pinus rotundata* (association *Pino rotundatae-Sphagnetum*) with the largest populations of *Ledum palustre* in the Czech Republic. The characteristic formation of zones, represented by stands of *Pinus rotundata* (inner zone), through stands of *Pinus sylvestris*, to waterlogged spruce forest (in the surroundings), has also been mostly preserved. The mire named Ruda, located by Horusický fishpond, is the most valuable minerotrophic mire in the whole of the S. Bohemian region, with relict communities of the alliances *Eriophorion gracilis*, *Caricion demissae*, *Sphagno-*

Caricion canescentis and others. The herb layer contains the following species: *Vaccinium uliginosum*, *Oxycoccus palustris*, *Menyanthes trifoliata*, *Drosera rotundifolia*, *Andromeda polifolia*, *Comarum palustre*, *Eriophorum gracile*, *Rhynchospora alba*, *Carex chordorrhiza*, *C. lasiocarpa*, *C. limosa*, *Parnassia palustris*, *Utricularia minor*, and *U. intermedia*.

Rare plants protected by Czech national legislation :

Critically endangered: *Utricularia ochroleuca*, *Rhynchospora alba*, *Dryopteris cristata*, *D. intermedia*, *Vignea chordorrhiza*, *Liparis loeselii*, *Eriophorum gracile*,

Significantly endangered: *Naumburgia thyrsiaflora*, *Utricularia intermedia*, *Carex limosa*, *C. lasiocarpa*, *Drosera rotundifolia*, *Orchis morio*, *Viola stagnina*, *Sparganium minimum*, *Trichophorum alpinum*

Endangered: *Ledum palustre*, *Oxycoccus palustris*, *Andromeda polifolia*, *Calla palustris*, *Thelypteris palustris*, *Oxycoccus palustris*, *Epipactis atrorubens*, *Dactylorhiza majalis*, *Hydrocotyle vulgaris*, *Parnassia palustris*, *Menyanthes trifoliata*, *Hottonia palustris*, *Salix repens*

18. Noteworthy fauna:

The mires are host to many invertebrates completely unique for central Europe, resembling communities of subarctic bogs and fens. Characteristic species include tyrphobionts, many of which are glacial relicts. Besides tyrphobionts, the site supports a number of tyrphophilous species, i.e. species with looser links to the mire habitats. Both groups include many invertebrate species, mainly *Arachnea*, *Lepidoptera*, *Coleoptera*, etc. Not all groups have been studied in sufficient detail. Important invertebrate species: *Eupithecia gelidata*, *Chloroclysta infuscata*, *Arichanna melanaria*, *Nola aerugula*, *Autographa buraetica*, *Lithophane lamda*, *Celaena haworthii*, *Olethreutes lediana*, *Colias palaeno*, *Coleophora ledi*, *Phaenops farmaneki bohémica*, *Nebria rufescens*, *Patrobis assimilis*, and *Agonum ericeti*. Large areas of forest also support vertebrates, which are, however, not so closely associated with mires. Breeding bird species reported include: *Ciconia nigra*, *Caprimulgus europaeus*, *Glaucidium passerinum*, *Tringa ochropus*, and others. Also elk (*Alces alces*) occurs occasionally.

Rare animal species protected by Czech National legislation:

Critically endangered : *Vipera berus*, *Haliaeetus albicilla*,

Significantly endangered: *Colias palaeno*, *Aeschna subarctica*, *Rana arvalis*, *Ciconia nigra*, *Gallinago gallinago*, *Accipiter nisus*, *Falco subbuteo*, *Glaucidium passerinum*, *Tringa ochropus*, *Caprimulgus europaeus*, *Alces alces*, *Myotis myotis*, *Myotis bechsteini*, *Nyctalus neisleri*, *Pipistrellus nathusii*

Endangered: *Accipiter gentilis*, *Bubo bubo*, *Corvus corax*

19. Social and cultural values: Unique examples of isolated "island" ecosystems giving evidence of post-glacial development of Central European landscape. Representative examples of a traditional human use of peatbogs (extraction of peat bricks for heating). Model research areas for the study of natural succession and bog regeneration.

20. Land tenure/ownership:

a/ site: Nearly 90% of land is owned by the state (state forests), the rest is owned by municipalities and individual private owners.

b/ surrounding area: state and municipal ownership prevails

21. Current land use:

a/ site: nature conservation areas, forestry harmonised with conservation goals

22. Factors (past, present or potential) adversely affecting the site's ecological character, including changes on land use and development projects.

a/ at the site:

Small-scale extraction of peat (peat bricks were used for heating in local settlement and factories) in 18th and 19th century had some negative impact but also created non-forested habitats (small lakes, pools) corresponding with early stages of a natural bog development. Drainage of forest close to margins of the site influenced local hydrology and caused die-back of *Pinus rotundata* (see below).

b/ around the site:

Large industrial projects for peat extraction destroyed valuable peat deposits in the vicinity and also influenced hydrological regime in some parts of the site. The most important detrimental impact at two sites (Red Bog, Zofinka) was caused in 70th and 80th by massive drainage of surrounding managed pine and spruce forests. Deep drainage canals built along borders of conservation areas caused drainage and desiccation of the bog and a massive die-back of older *Pinus rotundata* trees that were not able to adapt to abrupt changes of a groundwater table. Bog pine die-back stopped and the situation improved in last five years.

23. Conservation measures taken:

The site is a part of the Třeboňsko protected landscape area (PLA) declared by the Czech government in November 1979 (UNESCO MAB Biosphere Reserve Trebon Basin (BR) established already in March 1977). PLA/BR covers 700 square kilometers and creates a protective zone for this Ramsar site. The site itself covers the most valuable parts of the PLA/BR - its core area and buffer zone. 5 small-scale nature conservation areas (nature reserves of national or regional importance) have been declared within the Ramsar site. Zonation of the Třeboňsko PLA was approved by the Czech Ministry of Environment in October 1995, the Třeboňsko PLA Management Plan in August 1996. Each nature reserve has its own Management plan valid for 10 years. All designation

decrees and Management plans are elaborated by the state nature conservancy in order to protect most significant values and phenomena of the site including the wetlands habitats and wetland species (in terms of Ramsar Convention). The state of the conservation areas and their management plans are periodically revised. The latest management plans for peatbog reserves comprise forest management (mostly no intervention to natural development of forest is planned or just measures aimed at improvement of a tree composition with priority given to native species), damming and insulation of drainage canals to reduce unwanted water discharge, building of shallow lagoons of open water to increase bog diversity, reduction of invasive shrubs and mowing of wet meadows). Better cooperation exists between the state nature conservancy and state forest authority. Private land is being purchased by the state.

24. Conservation measures proposed but not yet implemented:

The most important parts of this Ramsar site are just being proposed to become NATURA 2000 SPAs and SACs within the EU legislation approximation process. The above mentioned conservation measures (point 23) will continue. Projects for damming of deepest drainage canals on the perimeter of reserves exist.

25. Current scientific research and facilities:

The site is included in the network of International Long-Term Ecological Research Sites (ILTER). The Institute of Botany (section of plant ecology) of the Czech Academy of Sciences located in Třeboň, South Bohemian university and Institute of Entomology of CAS located (České Budějovice) are actively involved in research and monitoring of Třeboň Mires. Main research topics: role and function of peatbogs in the landscape, peatbog climate, peatbog hydrology and hydrogeology, peatbog plant ecology, restoration of habitats after forest fires, cause of bog pine die-back, entomology (*Lepidoptera*, *Coleoptera*). Wetland Training Centre linked to Wetlands International has its unit in Třeboň, organizing research, national and international training courses and publishing books and information brochures. The Central European Peatland Project is just being organized by Wetlands International (training workshop for CEEC was held in Třeboň, October 2000). The Administration of PLA/BR is organizing some research, monitoring and inventories as a basis for its administrative role and for peatbog habitat restoration after industrial exploitation.

26. Current conservation education:

The site has great potential for conservation education and training and is regularly used by several academic institutions (see previous information on research). New field station for ecological education aimed at local primary schools was established by the PLA/BR Administration in 1998, guided field trips to the adjacent nature reserve "Bog of an Elk" along a simple instructional path are a regular part of the educational program. Wetland Training Center, Czech Otter Foundation, Rožmberk Society and ENKI - public benefit corporation, represent the most active partners in educational programs. Training courses and field trips on wetland ecology and conservation and also

on environmental management are organized by UNESCO in this area. A multi-lingual instructional trail is open for public at "Red Bog" national nature reserve and other information on peatbogs for Třeboň is available at several stops of other trails. Several information booklets and leaflets were published for visitors. Video "One year in a wetland" exists in both Czech and English version for general public. Visitor center and permanent exhibition "People and the landscape" is under preparation on the Castle of Třeboň.

27. Current recreation and tourism:

Due to its natural conditions, this Ramsar site is not very often used for recreation and tourism compared to the Třeboň Basin PLA/BR as a whole. Public access is limited outside official roads and paths. Instructional trails (see above - section 26) were built at suitable locations. The "Red Bog" instructional trail originated is very popular and frequently visited by both Czech and foreign visitors (several thousand visitors per year). At some peatbogs, illegal seasonal blueberry and cranberry picking and mushrooming is a specific problem which also increases a danger of forest fire.

28. Jurisdiction: Territorial jurisdiction is divided into state (Government of the Czech Republic), regional (Regional Office České Budějovice) and municipal government authorities. Czech Ministry of Environment and its specialized regional institution Třeboň Basin PLA/BR Administration are responsible for functional jurisdiction for conservation purposes.

29. Management Authority: Administration of Třeboň Basin Protected Landscape Area and Biosphere Reserve (Správa CHKO Třeboňsko), Valy 121, 379 01 Třeboň, CZ

30. Biographical references:

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