Information Sheet on Ramsar Wetlands (RIS)

1. **Date this sheet was completed/updated:** October 2000
2. **Country:** Czech Republic
3. **Name of wetland:** Třeboňské rybníky (Třeboň Fishponds)
4. **Geographical coordinates:** 48° 10´- 49° 07´N, 14°39´-14°59´E
5. **Elevation:** average 430 m (420-450)
6. **Area:** total 10 165 hectares (fishponds 5289 hectares)
7. **Overview:** An ancient system of 159 fishponds (shallow artificial lakes used for traditional fish-farming) with diverse littoral zones (common reed, cattail, sedges), interconnected by canals and ditches and surrounded by wet meadows, waterlogged shrubs, alder carrs, small peatbogs and fens and broadleaf and mixed forests. Wetlands in the central part of Lužnice river floodplain are included. Importance for breeding and migratory water birds (IBA).
8.
9. **Wetland type:**

Inland wetlands: M, O, Tp, Ts, U, W, Xf,
Human-made wetlands: 1, 9
Rank of these wetland types:
1, 9, Tp,Ts, M, W, Xf, O, U

9. **Ramsar Criteria:**

Group A: criterion 1
Group B: criterion 2, criterion 2
Group B: criterion 2, criterion 5

The most significant criterion applicable to this site: criterion 5 and criterion 2

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

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

Třeboň Fishponds RS contains representative types of alluvial wetlands and fishponds that are typical for this biogeographic region. The number and total area of fishponds is unique compared to other regions. Several types of rare and endangered types of wetlands are associated with fishponds (littoral reed and sedge beds, wet meadows, small peatbogs and acidic fens).

Several vulnerable, endangered or critically endangered plant and animal species occur at the site (see below, section 17, 18). Core area of Czech otter (*Lutra lutra)* population.

More than 20 000 waterbirds are regularly supported by this wetland site (breeding, wintering, staging, migration).

13. **General location:** South Bohemia (administrative region České Budějovice, districts Jindřichův Hradec, Tábor, České Budějovice), 25 km 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. Soils are composed of sands, clays, gravels and peats.

The overall character and hydrology of the region is strongly influenced by human activity lasting for eight centuries, especially by drainage and building of fishponds. The site is characterised by a complex of rivers and streams (Lužnice /Lainsitz in Austria/ as a main river axis), dense network of artificial canals and ditches (New river, Golden canal), ancient shallow fishponds (159 fishponds built mostly in 14-16th centuries, varying in size from 1 to 490 hectares) and various types of alluvial wetlands. Hydrological regime of fishponds and canals can be controlled by technical devices, with seasonal draining and refilling of fishponds according to needs of local fish-farming technology. Water is mostly highly eutrophic or even hypertrophic as influenced by fertilisation and liming.

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. Winter snow cover up to 30 cm (60-80 days with snow per year).

15. **Hydrological values:** Hydrological values of fishponds and other wetlands at the site are represented by a large-scale water retention and flood control of regional importance and partially by sediment trapping and water self-purification.

16. **Ecological features:** Main habitats are fishponds with adjacent littoral reed and sedge beds (*Phragmites australis, Typha spp., Phalaris arundinacea, Carex sp*., *Juncus sp.,*) and wet meadows. Plant communities at the border (ecotone) between water and land are very rich and diverse: these range from direct contact between open water and land (represented by either fields and meadows or forest), to a several-hundred-metre-wide ecotone composed of reed - sedges - bogs and fens - willow carr - wet meadows. Artificial islands - sediment deposits as a result of dredging (in order to maintain fishpond depths) - have been created in many fishponds. Shallow sandbars appear only ocassionally and temporarily. Communities of aquatic plants (*Potamogeton spp., Ceratophyllum, Lemna sp., Batrachium sp.)* occur in some fishponds and in alluvial oxbows and pools. Fen woodlands and willow carrs occur in swampy areas with *Alnus glutinosa* and *Salix spp.* as the characteristic species. Smaller remnants of broadleaved forests are found in river flood-plains with *Quercus robur, Acer spp., Tilia spp.* and *Ulmus*

spp. Surrounding area is mostly covered with managed forests, mainly Scots pine (*Pinus sylvestris*) and Norway spruce (*Picea abies)*while remnants of Beech (*Fagus sylvatica)* forests occur at more hilly sites. Thousands of oak trees (*Quercus robur)* form typical alleys on fishpond dams and dikes.

17. **Noteworthy flora:**

The Třeboň fishponds include sub-Atlantic, sub-Boreal and central European elements of aquatic and wetland flora. The blue-green and green algae include the following rare species: *Batrachospermum vagum, Lemanea fluviatilis, Vaucheria borealis, Chara braunii, Nitella batrachosperma.* Higher plants include: *Eleocharis ovata*, *Calla palustris*, *Bidens cernua*, *B. radiata*, *Plantago uliginosa*, *Trapa natans*, *Nymphaea alba*, *N. candida*, *Litorella uniflora*, *Gnaphalium luteo-album*, *Ranunculus lingua*, *Ceratophyllum submersum*, *Stratiotes aloides*, *Cyperus fuscus*, *Butomus umbellatus*, *Elatine hexandra*, *E. triandra*, *Hydrocharis morsus-ranae*, *Sparganium minimum*, *Alisma gramineum*.

Rare plants protected by Czech national legislation:

Critically endangered: *Utricularia ochroleuca, Rhynchospora alba, Dryopteris cristata, Tillaea aquatica, Trapa natans, Illecebrum verticillatum, Litorella uniflora, Lindernia procumbens, Drosera anglica, D. intermedia, Juncus capitatus, J. tenageia, Nuphar pumila, Vignea chordorrhiza, V. dioica, Botrychium matricariifolium, Salix myrtilloides*

Significantly endangered: *Naumburgia thyrsiflora, Utricularia intermedia, Hippochaete hyemalis, Iris sibirica, Nymphaea candida, N. alba, Carex limosa, C. lasiocarpa, Lycopodiella inundata, Rynunculus lingua, Potamogeton alpinus, Drosera rotundifolia, Ceratophyllum submersum, Statiotes aloides, Pedicularis palustris, P. sylvatica, Orchis morio, Viola stagnina, Sparganium minimum*

Endangered: *Calla palustris, Leucojum vernum, Melampyrum bohemicum, Ophioglossum vulgatum, Thelypteris palustris, Oxycoccus palustris, Epipactis atrorubens, Taraxacum palustre, Dactylorhiza majalis, Hydrocotyle vulgaris, Parnassia palustris, Menyanthes trifoliata, Platanthera bifolia, P. chlorantha, Botrychium lunaria, Hottonia palustris*

18. Noteworthy fauna:

Wetland habitats along the fishpond shores, and the bogs and fens, support valuable communities of invertebrates with many rare and endangered species of molluscs: *Pseudanodonta complanata*, *Unio crassus*; dragonflies: *Nehalennia speciosa, Anax parthenope, Aeshna subarctica, Ophiogomphus cecilia, Orthetrum albistylum, Leucorrhinia dubia, Leucorrhinia rubicunda*; and spiders: *Dolomedes plantarius, Hygrolycosa rubrofasciata, Gnaphosa nigerrima, Marpissa pomatia, Walckeneria nodosa.*

The reserve is particularly important for birds with nearly 200 species recorded including 150 breeding species such as greylag goose (*Anser anse,*- 150 pairs*,* on migration stop-over sites at Tisý and Horusický fishponds up to 11,000 individuals), goldeneye (*Bucephala clangula* - 50 pairs), mute swan (*Cygnus olor* -50 pairs), white stork (*Ciconia ciconia* - 20 pairs*)*, black stork (*C. nigra,* 5-10 pairs breed outside site but is dependent on fishponds for food),), marsh harrier (*Circus aeruginosus,*50–60 pairs*)*, grey heron (*Ardea cinerea*) with the largest colonies in the Czech Republic (350 pairs), cormorant (*Phalacrocorax carbo* - colony of 100 pairs*),* red crested pochard (*Netta rufina,* 20-30 pairs*)*, white-tailed eagle (*Haliaeetus albicilla* - up to 12 pairs), night heron (*Nycticorax nycticorax* - 30-50 pairs), Savi's warbler (*Locustella luscinioides)*, *Sterna hirundo* (100–200 pairs), penduline tit (*Remiz pendulinus*), kingfisher (*Alcedo atthis)* and numbers of crake species, ducks and warblers. The area is an important stop-over site for waterfowl on migration (up to 15-20, 000 individuals). Rare amphibians and reptiles include tree frog (*Hyla arborea),* common spadefoot (*Pelobates fuscus)*, natterjack toad (*Bufo calamita)*, viviparous lizard (*Lacerta vivipara)* and grass snake (*Natrix natrix)*. The local population of otter (*Lutra lutra)* is probably the largest in the Czech Republic. Populations of fish cultivated in fishponds (carp *Cyprinus carpio* prevailing) and fish population in streams provide food base for piscivorous birds and mammals.

Species protected by Czech national legislation:

Critically endangered :
Astacus fluviatilis, Unio pictorum, Lampetra planeri, Pelobates fuscus, Triturus cristatus, Bufo calamita, Vipera berus, Limosa limosa, Botaurus stellaris, Ixobrychus minutus, Ardea purpurea, Milvus milvus, M. migrans, Haliaeetus albicilla, Chlidonias niger, Tringa totanus, Recurvirostra avosetta, Glaucidium passerinum

Significantly endangered: *Osmoderma eremita, Anodonta cygnea, Cerambyx cerdo, Cobitis taenia, Triturus triturus, T. alpestris, Hyla arborea, Rana arvalis, R. esculenta, Lacerta agilis, L. vivipara, Coronella austriaca, Gallinago gallinago, Anas querquedula, Bucephala clangula, Rallus aquaticus, Accipiter nisus, Nycticorax nycticorax, Alcedo atthis, Anas clypeata, Falco subbuteo, Acrocephalus arundinaceus, Sterna hirundo, Panurus biarmicus, Pernis apivorus, Tringa ochropus, Egretta alba, Netta rufina, Luscinia svecica, Alces alces, Myotis myotis, Myotis bechsteini, Nyctalus neisleri, Pipistrellus nathusii, Lutra lutra*

Endangered:
Apatura spp., Cimenitis spp., Neptis spp., Bombus spp. Polyphylla fullo, Formica spp., Papilio machaon, Cicindella spp., Aeschna subarctica, Astacus leptodactylus, Leuciscus idus, Lota lota, Misgurnus fossilis, Cottus gobio, Bombina bombina, B. variegata, Bufo viridis, B. bufo, Natrix natrix, Riparia riparia, Locustella luscinoides, Ciconia ciconia, Anas crecca, Accipiter gentilis, Anas stretera, Phalacrocorax carbo, Circus aeruginosus, Remiz pendulinus, Podiceps nigricollis, P. ruficollis, P. cristatus, Dendrocopos medius, Lanius collurio, Hirundo rustica, Bubo bubo, Corvus corax

19. Social and cultural values: Since the 12th century the area has been gradually transformed by man, resulting in a recognised example of a harmonious landscape where managed semi-natural ecosystems are used by local population on a sustainable way. Several outstanding fish ponds and artificial streams (Golden canal, New river) have been proposed as a potential site of UNESCO World Culture Heritage. The site is important for the specific branch of traditional Czech fish-farming (carp) - about 2500 tons harvested annually. The South Bohemian "fishpond landscape" has been depicted many times in Czech art, poetry and music.

20. Land tenure/ownership:

a/ site: 90% of fishponds are owned by private joint-stock company Třeboň Fisheries Rybářství Třeboň a.s.), other land is owned by the state (mostly forests), municipalities and individual private owners.

b/ surrounding area: state and municipal ownership prevails

21. Current land use:

a/ site: fish-farming, forestry, agriculture (meadows, pasture), nature conservation areas

b/ surroundings/catchment: agriculture, forestry, fish-farming, small settlements

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:

The most important negative factor affecting the site especially during last 20-30 years was (is at present and probably will be in the near future) too intensive fish-farming (liming, fertilising, extremely high fish-stock with dominating Common Carp). Modern fish-farming technology increased the production of fish (biomass per hectar) by 1-2 orders of magnitude compared to that common during last several centuries (up to 2000 kg/ha). Water environment became overall eutrophic or hypertrophic with many problems resulting from that situation (oxygen and pH fluctuations, cyanobacterial water bloom, fish intoxication caused by ammonia, extinction of sensitive plant species). High fish-stocks destroy water vegetation, cause negative changes in the structure of zooplankton and do not provide enough natural food (zooplankton, bentos) available for water birds. Additional factors are dredging of bottom sediments causing destruction of littoral vegetation including intensive hunting as wall as releasing of half-domesticated Mallards (*Anas platyrhynchos*) bred in captivity into the wild for hunting purposes. Improvement measures are complicated by private ownership of all fish ponds including nature reserves after privatisation on 1992 (90% of fish ponds are owned by large joint stock company). Efforts to apply lower intensity of fish- farming result in financial claims from owners (including losses caused to fish-stock by predators - otter, cormorant). The above mentioned situation is a main reason for inclusion of the site into the Montreux Record.

b/ around the site:

The situation in intensive fish-farming is similar at neighbouring fishpond systems. Run-off of nutrients from intensively used agricultural land, large pig-farms and settlements (sewage waters) brought some additional eutrophification into fishponds but this situation

improved during last years. There are no big projects for new technical infrastructure or urban development that would pose threat to the site.

23. **Conservation measures taken:**

The site is a part a 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. 15 small-scale nature conservation areas (nature reserves or nature monument or national or regional importance) have been declared within the Ramsar site, 5 of them covers whole fishponds, 10 of them have at least some part of fishpond included. 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 management plans are periodically revised. The latest management plans for fishpond reserves comprise such instructions and conditions as level and method of liming and fertilizing (if allowed) and density of fishstock. Better co-ordination exist between the state nature conservancy and state water authority (setting limits for water levels and providing permissions for fertilizing of fishponds). New law makes financial compensations of losses caused by predators to fishpond owners possible since spring 2000. State funds are gradually being used for owners to promote less intensive fish-farming and wetland restorations.

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

One or two small-scale nature conservation areas are being proposed to complete the network of fishpond reserves. New more strict regulations of fish-farming practices are being proposed for several most valuable fish-ponds but the process is not finished due to official appeal of fishpond owners that must be solved by the Ministry of Environment or by the court. Purchase or leasing of some fishponds by the state nature conservancy may be a solution for future but it is limited by current low state budget. Setting more strict hunting laws (including restriction of large-scale Mallard release) is just being discussed. 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.

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, Institute of hydrobiology of CAS and of South Bohemian university located České Budějovice as well as several scientific and academic

institutions from Prague (Charles University, Agricultural University) and Brno are actively involved in research and monitoring of Třeboň wetlands. Main topics: role of wetlands in the landscape, wetland climate, fishpond hydrobiology and hydrochemistry, cultivation and re-introduction of rare wetland plants, biology of common reed and other important species, waterfowl census, fish-farming - water birds relationship. 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 Administration of PLA/BR is organizing regular hydrobiological, botanical and ornithological monitoring of fishpond nature reserves as a basis for its administrative role. Czech Otter Foundation has its headquarters in Třeboň conducting extensive otter research since 1994.

26. **Current conservation education:**

The site has great potential for conservation education and training and is regularly use 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 and it is intensively used. Wetland Training Centre, 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. Three instructional trails exist around Třeboň. 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:

The Ramsar site is used for recreation and tourism as a part of popular Třeboň Basin PLA/BR. Summer activities prevail (camping, hiking, cycling, swimming, river canoeing, mushroom and blueberry picking etc.). Třeboň is a official spa resort running two spa houses throughout the year. About 50 000 - 100 000 people visit this area every year. The most of activities and necessary infrastructure for outdoor recreation and tourism have no harmful impact on protected wetlands with exception of commercial hunting for ducks bred in captivity concentrated in several areas. (see above - section 22). Birdwatching is allowed at suitable sites outside reserves. Motor boats used for recreation are prohibited at fishponds. Swimming and bathing in fishponds is limited by water quality to several sites.

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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