

Information Sheet on Ramsar Wetlands (RIS) – 2006-2008 version

Available for download from http://www.ramsar.org/ris/key_ris_index.htm.

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.
3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

Dr. Ján Kadlecík, State Nature Conservancy of the Slovak Republic, Čachovský rad 7, SK - 038 61 Vrútky,
Tel.: +421-43-428 45 03, Fax: +421-43-428 45 89,
e-mail: jan.kadlecik@sopsr.sk

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Designation date

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Site Reference Number

Ing. Peter Sabo, State Nature Conservancy of the Slovak Republic, M. R. Štefánika 206, 075 01 Trebišov, tel.:
+421 56 668 3000, fax.: +421 56 668 3001, e-mail:
peter.sabo@sopsr.sk

Ing. Ivan Koubek, The State Nature Conservancy of the Slovak Republic, Lazovná 10, 974 05 Banská Bystrica, Slovakia
Phone: +421-(0)48-47 136 24 Fax:+421-(0)48-415 38 66
e-mail: ivan.koubek@sopsr.sk

2. Date this sheet was completed/updated:

June 27, 2007

3. Country:

Slovak Republic

4. Name of the Ramsar site:

The precise name of the designated site in one of the three official languages (English, French or Spanish) of the Convention. Alternative names, including in local language(s), should be given in parentheses after the precise name.

Senné Fish-ponds (Senné - rybníky)

5. Designation of new Ramsar site or update of existing site:

This RIS is for (tick one box only):

- a) Designation of a new Ramsar site ; or
b) Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area

The Ramsar site boundary and site area are unchanged:

or

If the site boundary has changed:

- i) the boundary has been delineated more accurately ; or
ii) the boundary has been extended ; or
iii) the boundary has been restricted**

and/or

If the site area has changed:

- i) the area has been measured more accurately ; or
ii) the area has been extended ; or
iii) the area has been reduced**

** **Important note:** If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

The desiccation of alluvial meadows and follow up of succession of shrubbery (*Prunus spinosa* and *Rosa canina*) has caused the changes in the structure of grassland vegetation.

7. Map of site:

Refer to Annex III of the *Explanatory Note and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

- i) a hard copy (required for inclusion of site in the Ramsar List): ;
ii) an electronic format (e.g. a JPEG or ArcView image)
iii) a GIS file providing geo-referenced site boundary vectors and attribute tables .

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park, etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The boundary of the site is the same as the one of existing protected area – national nature reserve Senné with its buffer zone.

8. Geographical coordinates (latitude/longitude, in degrees and minutes):

Provide the coordinates of the approximate centre of the site and/or the limits of the site. If the site is composed of more than one separate area, provide coordinates for each of these areas.

48° 40' 40'' - 48° 42' 10'' N

22° 03' 30'' - 22° 05' 50'' E

Geographical coordinates of the approximate centre of the site:

48° 41' 30'' N, 22° 04' 29'' E

9. General location:

Include in which part of the country and which large administrative region(s) the site lies and the location of the nearest large town.

The site is located in the East Slovakian Lowland, 13 km SE of the district town of Michalovce (41 000 inhabitants) and 6 km W of the district town of Sobrance (8000 inhabitants).

Region: Košice.

Districts: Sobrance and Michalovce.

Cadastrs: Blatná Polianka, Iňačovce

10. Elevation: (in metres: average and/or maximum & minimum)

100 – 102 m a.s.l.

11. Area: (in hectares)

425 ha

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The site is located in a formerly seasonally-inundated large, flat depression within the Východoslovenská nížina Lowland (East Slovakian Lowland) that lies on an important water bird migration route. The site includes one large pond with adjacent seasonally-flooded grasslands and shrub swamps and 28 fish-farming ponds. It is one of the most important breeding and resting sites of rare, endangered and vulnerable water birds in Slovakia, including globally threatened and migratory species.

13. Ramsar Criteria:

Tick the box under each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11). All Criteria which apply should be ticked.

1 • 2 • 3 • 4 • 5 • 6 • 7 8 • 9
✓ ✓ ✓ ✓

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

1 - Habitat types of Annex I of the Habitat Directive identified within the site:

3150 Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition* – type vegetation (see point 20)

2 - It supports vulnerable, endangered and critically endangered species and threatened ecological communities. It is important for the survival of some species protected by the Bern Convention, Bonn Convention or CITES, including some globally threatened and endemic species. Conservation status according to Slovak Red List is given in the brackets.

Fish: *Carassius carassius* (EN).

Amphibians: *Triturus vulgaris* (VU, Bern3), *Triturus cristatus* (EN, Bern2, HD2) *Rana esculenta* (LR:nt, Bern3, HD5) *Bufo bufo* (LR:cd, Bern3) *B. viridis* (LR:cd, Bern2, HD4) *Bombina bombina* (LR:cd, Bern2, HD2)

Birds: *Ardeola ralloides* (EN, Bern2, AEW, BD1), *Larus cachinnans* (NE BD2/2) *Haliaeetus albicilla* (CR), *Asio flammeus* (VU, Bern2, BD1), *Anser erythropus* (VU Bern2, Bonn1,2, AEW, BD1), *Aythya nyroca* (VU - sporadic breeding Bern3, Bonn1,2, AEW, BD1), *Numenius tenuirostris* (CR, Bern2, Bonn1,2, AEW, BD1), *Crex crex* (VU, Bern2, Bonn2, AEW, BD1), *Acrocephalus paludicola* (VU - sporadic breeding, Bern2, Bonn1,2, AEW, BD1), *Phalacrocorax carbo* (NE, Bern3, AEW, BD1), *Botaurus stellaris* (VU, Bern2, Bonn1,2, AEW, BD1), *Nycticorax nycticorax* (VU, Bern3, AEW, BD1), *Egretta garzetta* (EN, Bern2, AEW, BD1), *Ardea cinerea* (LR:nt, Bern3, AEW), *Aythya fuligula* (NE, Bern3, Bonn2, AEW, BD2/1, 3/2), *Circus aeruginosus* (LR:lc, Bern3, Bonn2, BD1), *Rallus aquaticus* (NE, Bern3, Bonn, AEW, BD2/2), *Egretta alba* (EN, Bern3, Bonn2, AEW, BD1), *Ardea purpurea* (EN, Bern2, Bonn2, AEW, BD1), *Platalea leucorodia* (EN, Bern2, Bonn1,2, AEW, BD1), *Porzana parva* (LR:lc Bern2, Bonn2, AEW, BD1).

See point 21 for flora species.

3 – Senné Fish-ponds site supports populations of the following species important for maintaining the biological diversity of the Pannonian and Carpathian regions: *Aythya nyroca*, *Nycticorax nycticorax*, *Botaurus stellaris*, *Egretta garzetta*, *Ardea purpurea*, *Porzana parva*, *Circus aeruginosus*.

4 – The site regularly supports substantial numbers of individuals from particular groups of waterfowl: *Podiceps cristatus* (15-30 p.)-breeding, *Podiceps nigricollis* (20-80 p.)-breeding, *Phalacrocorax carbo* (10-20 p.)-breeding, *Botaurus stellaris* (4-8 p.)-breeding, *Ixobrychus minutus* (3-5 p.) -breeding, *Nycticorax nycticorax* (30-70 p.)-migration, *Egretta alba* (10-15 p.)-migration, *Ardea purpurea* (10-15 p.)-migration, *Platalea leucorodia* (0-5 p.)-migration, *Anas strepera*-migration, *A. crecca*-breeding, *A. platyrhynchos*-breeding, *A. querquedula*-breeding, *A. clypeata*-migration, *Aythya ferina*-breeding, *A. nyroca*-migration, *A. fuligula*-migration, *Circus aeruginosus* (5-20 p.)-breeding, *Recurvirostra avosetta* (0-5 p.), *Charadrius dubius* (0-5 p.), *Vanellus vanellus* (5-15 p.)-breeding, *Gallinago gallinago*-breeding, *Limosa limosa* (0-5 p.)-migration, *Tringa totanus* (3-5 p.)-breeding, *Chlidonias hybridus* (20-100 p.)-migration.

Migratory birds: *Anser fabalis* (tens of thousands during migration), *Anser albifrons*, *Anas penelope*, *Bucephala clangula*, *Haliaeetus albicilla*, *Pandion haliaetus*, *Circus cyaneus*, *Grus grus*, *Pluvialis apricaria*, *Calidris minuta*, *C. alpina*, *C. ferruginea*, *Limicola falcinellus*, *Philomachus pugnax* (tens of thousands), *Numenius phaeopus*, *Tringa stagnatilis*, *Phalaropus lobatus*, *Sterna caspia*, *Chlidonias leucopterus*.

15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

According to biogeographic regionalisation suggested for European Union (Natura 2000 concept) the area belongs to **Pannonian biogeographic region** (*Pannonicum*)

b) biogeographic regionalisation scheme (include reference citation):

(according to Futák 1972 in Bertová 1984): Region of pannonian vegetation (*Pannonicum*)
Division of eupannonian vegetation (*Eupannonicum*)
District of Východoslovenská nížina Lowland (East-Slovakian
Lowland)

The site is a part of the pannonian biogeographic region - EU Council Directive (92/43/EEC) .

16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

The East Slovakian Lowland had begun to evolve in the Neogene because of tectonic sinks. In the early Pleistocene, there was a conspicuous tectonic depression filled with deposits of volcanic and Flysch origin. Geology: Holocene fluvial clayey sediments on Neogene clays and gravel. Soil type: eutric fluvisols, fluvi-eutric gleysols, eutric gleysols and verti-haplic chernozems. Geomorphology: alluvial floodplain with large wetland depression between the (aggradational) levees; neotectonic movements (sinks) still active. Origin: artificial. Hydrology: The fish-ponds are supplied by the Okna River (catchment area 150.7 km²) with diversion construction near Blatná Polianka and a system of canals which flow into the Čierna Voda River. The area is in the Laborec River catchment. The amount of water taken for the system of fish-ponds from Okna River was set to a maximum of 2.5 m³.s⁻¹. Water quality in the recipient Čierna Voda River was measured by means of BSK₅, CHSK_{MN}, chemical and physical indices and biological/microbiological indicators; it was categorized into class II and/or III (water clean and/or polluted). Water depth: The maximum is 2 m. In the main fish-pond the mean depth is 0.7 m. In the largest pond (the reserve) there is permanent water, and the maximum seasonal variation in water levels is 0.4 m. Fish-farming ponds are discharged according to a fishery management plan. The adjacent meadows are seasonally flooded. Groundwater levels move up to 0.5 - 0.0 m below the surface or even slightly above the surface; average groundwater level in the area is between 0.89 - 1.71 m. Climate: cold winters (average air temperature in January over -3 °C, in July 19.7 °C, mean annual air temperature 9.1 °C); mean annual rainfall 593 mm (range 304- 1,050 mm) with maximum in July (79 mm) and minimum in March (31 mm).

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, and climate (including climate type).

Geology: The geological substrate is formed by rocks of the Upper Miocene up to Pliocene, and is represented by gray and varied clays, silts, sands, gravels, lignite, freshwater limestones and tuffite horizons, varied kaolinite clays, sands, gravels, rare lignite seams.

Geomorphological features: The catchment area belongs to lowlands. Type of relief is plain, floodplain and undulated plains with vertical difference lesser than 30 m. The selected relief forms are swamp foothill and inter-rampart depression, loess tables.

Soil types: The soil types are fluvisols; gleyic entric fluvisols and vertic fluvisols, eutric to district planosols, stagni-albic luvisols to stagnic glossisols. Soil texture is clayey, clayey-loamy and loamy.

Land use: agriculture (culture crop plants, meadows mowing, stock raising); sports fishing; hunting; education, recreation.

Climate: The catchment area belongs to warm region, to sub regions: warm, moderately dry, with cool winter; warm moderately humid, with cool winter.

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

The artificial system of fish-ponds substitutes for the former flooded area eliminated by the construction of reservoirs, canals and drainage network in the lowland. This system provides permanent surface water on a year-round basis.

19. Wetland Types

a) presence:

Circle or underline the applicable codes for the wetland types of the Ramsar "Classification System for Wetland Type" present in the Ramsar site. Descriptions of each wetland type code are provided in Annex I of the *Explanatory Notes & Guidelines*.

Marine/coastal: A • B • C • D • E • F • G • H • I • J • K • Zk(a)

Inland: L • M • N • O • P • Q • R • Sp • Ss • Tp • Ts • U • Va •
Vt • W • Xf • Xp • Y • Zg • Zk(b)

Human-made: 1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9 • Zk(c)

b) dominance:

List the wetland types identified in a) above in order of their dominance (by area) in the Ramsar site, starting with the wetland type with the largest area.

2, 1, W, 4, Ts, 6, 3

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

The site belongs to the phytogeographic province of Pannonian flora (*Pannonicum*), a district of true Pannonian xerophytic flora (*Eupannonicum*) and a region of the Východoslovenská Nížina Lowland. Several habitat types are present in the site: canals, ponds (1 non-farming pond and 28 fish-farming ponds and tanks), wet meadows and pastures with a wide variety of plant communities. In the catchment of Čierna Voda River, pastures of the alliance *Cynosurion cristati* (mostly association *Trifolio repentis - Lolietum lotetosum tenuis*) are dominant; some transition types that depended on groundwater level regime also occur. Communities of the alliance *Loto-Trifolion* at the edge of open water with *Orchis laxiflora* subsp. *palustris* are preserved as native vegetation units. Mesic meadows are represented by the alliance *Alopecurion pratensis*, associations *Alopecuretum pratensis* and *Festucetum pratensis*. These are valuable because of the occurrence of *Fritillaria meleagris* and *Leucojum aestivum*. The dominant type of riparian vegetation is dense reed-bed of alliance *Phragmition* with species as *Phragmites australis*, *Typha latifolia*, *T. angustifolia*, *Glyceria maxima* (it forms also distinct facies), *Phalaroides arundinacea*, *Galium palustre*, *Lysimachia vulgaris*, *Schoenoplectus lacustris*, *Scutellaria galericulata*, *Lythrum salicaria*, *L. virgatum*, *Lycopus europaeus*, etc. Important diagnostic species include *Sparganium erectum*, *Sagittaria sagittifolia*, *Butomus umbellatus*, *Alisma plantago-aquatica*. Phytocoenoses with dominant *Typha laxmanii* are valuable. The inner edge of the reed communities consists also of species of the alliance *Oenanthion aquaticae*. Floating macrophytes belong to the alliance *Lemnion minoris*, noteworthy species include *Lemna minor*, *L. trisulca*, *Trapa natans*, *Utricularia vulgaris*, *Hottonia palustris*, *Najas marina*, *Ceratophyllum submersum*, *Hydrocharis morsus-ranae*. A major part of the littoral tall-sedge stands is of the alliance *Caricion gracilis* (homogeneous communities with dominant *Carex gracilis* and *C. vulpina*). In the transition zone *Carex vesicaria*, *C. riparia*, *Phalaroides arundinacea*, *Sium latifolium* and *Iris pseudacorus* also are found. The edges of these stands are inhabited by the communities of the alliance *Phalaridion arundinaceae*. Wet depressions are occupied by alluvial meadows and wetland shrubs with dominant *Salix cinerea* which belong to the alliance *Salicion cinereae*. Other shrub/tree species are represented by *Salix alba*, *S. caprea*, *Populus nigra*, *P. tremula*, *Sambucus*

nigra, *Alnus glutinosa*, *Cerasus avium*, *Betula pendula*, *Padus avium*, etc. Along the N bank and dike an avenue of allochthonous *Populus Canadensis* was planted during the pond construction.

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14, Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

(According to the Slovak Red List)

Approximately 300 species of vascular plants have been found in the site and 14.5 % of them are considered rare or threatened. The most vulnerable species include *Ceratophyllum submersum* (EN), *Gratiola officinalis* (EN), *Thalictrum flavum* (VU), *Veronica anagalloides* (EN); *Orchis palustris* (CR), *Fritillaria meleagris* (CR); *Allium angulosum* (EN), *Berula erecta* (VU), *Butomus umbellatus* (VU), *Cicuta virosa* (VU), *Eryngium planum* (VU), *Juncus atratus* (VU), *Hottonia palustris* (VU), *Lathyrus hirsutus* (VU), *Leucojum aestivum* (VU), *Schoenoplectus tabernaemontani* (LR:nt), *Trapa natans* (VU), *Utricularia vulgaris* (VU), *Viola palustris subsp. palustris* (LR:nt), *Xanthium strumarium* (VU) etc.

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12, Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

according to the Slovak Red List

Odonata: *Anax parthenope* (VU), *Aeschna isosceles* (VU), *Brachytron pratense* (VU), *Libellula fulva* (EN), *Crocothemis erythraea* (LR:lc), *Sympecma fusca* (LR:nt), *Erythromma viridulum* (LR:lc), *Anax imperator*

Lepidoptera: *Lycaena dispar* (VU, Bern2, HD2, HD4), *Melitaea phoebe* (VU)

Fish: *Carassius carassius* (EN).

Amphibians: *Rana esculenta* (LR:nt), *Bufo bufo* (LR:cd), *Bufo viridis* (LR:cd), *Bombina bombina* (LR:cd).

Reptilia: *Natrix natrix* (LR:lc)

Birds: One of the most important breeding and resting sites of water birds in Slovakia is found here; 144 species of water birds have been found, 52 of them (36.1 %) are migrant, 41 (28.5 %) regularly breed (see also section 12), 31 (21.5 %) species are accidental, e.g. *Pelecanus onocrotalus*, *P. crispus* (VU), *Anthropoides virgo*, *Glareola nordmanni*, *Calidris melanotos*, *C. maritima* (the only Slovakian finding place), 16 (11.1 %) breed sporadically, e.g. *Phalacrocorax pygmeus* (NE), *Charadrius alexandrinus* (the only breeding site in Slovakia), 3 species (2.1 %) occur as non-breeding spring/summer visitors (*Ardeola ralloides* (EN), *Plegadis falcinellus*, *Larus cachinnans* (NE) and 1 species (0.7 %) is a rare visitor (*Glareola pratincola*). The area is also an important wintering site for *Cygnus olor*, *Haliaeetus albicilla* (CR), *Circus cyaneus* and *Asio flammeus* (VU). Characteristic non-breeding species include *Limicola falcinellus*, *Philomachus pugnax*, *Tringa stagnatilis*, *Phalaropus lobatus*, *Sterna caspia*, *Anthus cervinus*. Other globally threatened species found in the site, mainly during migration, are *Anser erythropus* (VU), *Aythya nyroca* (VU - sporadic breeding), *Numenius tenuirostris* (CR), *Crex crex* (VU), *Acrocephalus paludicola* (VU - sporadic breeding) (for details see also appended list of species).

Mammals: *Lutra lutra* (VU)

23. Social and cultural values:

a) Describe if the site has any general social and/or cultural values e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values:

A part of the site is used for fish-farming and for cattle grazing. The site is also an important subject of scientific research (hydrological, ornithological, botanical) and education for students and members of non-governmental organizations. All these activities are consistent with the maintenance of the site (vegetation depends on grazing and mowing, fishery and suitable management of fish-ponds support water birds, research is under guidance of environmental authorities).

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning?

If Yes, tick the box and describe this importance under one or more of the following categories:

- i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:
- ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:
- iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:
- iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

a) within the Ramsar site:

Surface water is owned by the state and managed by the state authorities Bodrog and Hornád River Catchment Administration at Košice and fish-farming ponds and tanks are owned by DONA Ltd., Veľké Revištia; meadows and pastures are private (owners unknown), used by Cooperative Farm at Iňačovce.

b) in the surrounding area:

The same owners as in a).

25. Current land (including water) use:

a) within the Ramsar site:

Most of the site is protected as a nature reserve (213.31 ha) and its buffer zone (211.28 ha). The reserve is not used and is comprised of one large pond and adjacent meadows and marshes. The buffer zone includes fish-farming ponds that produce several fish species (mainly carp - 80 %, but also introduced herbivores *Hypophthalmichthys molitrix*, *Ctenopharyngodon idella*, and other species such as pike, bream, wels etc.) in a 2 - 3 year cycle. Adjacent pastures are used for cattle grazing.

b) in the surroundings/catchment:

Fish-farming (total area of fish-farming ponds 482.74 ha), livestock grazing, mowing, other agricultural production (10 - 15 % of arable land), irrigation. Population in the area is dispersed in small villages: Blatná Polianka (192 inhabitants), Blatné Revištia (207), Blatné Remety (406), Iňačovce (567), Senné (691).

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

a) within the Ramsar site:

The fish-pond system was built in two periods - in 1970 - 1976 and in 1983 - 1987; water is supplied from the system of canals, river diversions and outlets. Water quality is affected by agriculture in the

catchment; eutrophication and siltation in the main pond can be seen. Secondary succession because of reduced grazing and reduced fish production has caused changes in the structure of both grassland and pond macrophyte vegetation. Direct human disturbance and fish poaching also occurs. Two allochthonous fish species (*Hypophthalmichthys molitrix* and *Ctenopharyngodon idella*) were introduced for fish-farming purposes. Allochthonous trees (*Populus canadensis*) were planted in 1970s along N dikes. Some fish-farming practices influence breeding of water birds.

b) in the surrounding area:

The Senné wetland depression was the subject of drainage activities since 19th century, and construction of the system of canals, pumping stations, dikes and drainage network began in the 1850s. Complex water management plans for the East Slovakian Lowland were elaborated since 1949 and during 1950 - 1970 considerable changes in discharge and groundwater regimes took place. In 1965, a large water reservoir, Vihorlat (Zemplínska šírava), with river diversion was built in the catchment and floods were mitigated (during over flow stages, the water level in the Senné depression reached up to 3 m and a lake 12 km long and 5 km wide appeared). Water pollution from industrial and agricultural sources in the catchment is an important adverse factor.

27. Conservation measures taken:

a) List national and/or international category and legal status of protected areas, including boundary relationships with the Ramsar site:

In particular, if the site is partly or wholly a World Heritage Site and/or a UNESCO Biosphere Reserve, please give the names of the site under these designations.

The site has been protected since 1974 (Decree of Ministry of Culture No. 3582/1974-OP on 27 May 1974), and it was declared a State Nature Reserve with an area of 213.31 ha (the area of non-farming pond and meadows) with buffer zone 211.28 ha (fish-farming ponds). According to the Act on Nature and Landscape Protection No. 287/1994 the site was categorized as a National Nature Reserve. The site is included in the Regional Territorial System of Ecological Stability of the Michalovce district (1994) as an important biocentre.

b) If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate):

Ia ; Ib ; II ; III ; IV ; V ; VI

c) Does an officially approved management plan exist; and is it being implemented?:

The semifinished management plan has relation to the project LIFE "Protection of SPA Senné and Mezibordožie in the Slovak republic".

d) Describe any other current management practices:

Fish-farming practices have been consulted with the manager so as to be beneficial to waterfowl. In 1987 - 1988 the first environmental management activities in the reserve were carried out (removal of sediments, vegetation management, dike and outlet reconstruction, management of islands, etc.). A draft management plan was prepared in 1992 and 1995, but it is necessary to finalize it according to new legislation on nature conservation documentation. However, some proposed measures have been implemented (dike reconstruction, research facilities, guarding of the site, fish stocking, education, mowing of meadows, establishment of an Advisory Board of representatives of the owners, managers, agencies, government authorities and NGOs) in cooperation with governmental and non-governmental organizations.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

In 1989 a proposal for enlargement of the buffer zone area to 323.1 ha and of the reserve itself to 4.21 ha was made by the Nature Conservancy, but legislative obstacles occurred. The draft

management plan also includes measures as monitoring, water quality analyses, stimulation of educational use, vegetation management, water regime improvement, support of waterfowl populations and financing. 50 % of the site is the part of suggested area of European interest SKUEV 0208 Senné Fish-ponds and 100 % of the site is the part of protected bird area SKCHVU 024 Senné.

29. Current scientific research and facilities:

e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

The site has been a subject of interest for ornitologists for a long time, and some studies have been published since 1955. Detailed research and banding of water birds was carried out in 1970 - 1974, and since 1975, with the Museum of Zemplín Region at the Michalovce village, nature conservation agencies, ornithological societies and foreign specialists have been involved with these activities. A detailed study on the Cormorant (*Phalacrocorax carbo*), its status and predation on fish in the farm was carried out in 1996 - 1997. A botanical study was made in 1997. A bird-watching tower was constructed in 1997, and a field station was established.

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

The site is used sporadically for education of students and guided tours are organized by the ranger and NGOs. Basic information on the site is provided in the administrative buildings of the fish farm. An educational path with information panels is planned using the field station also as visitors centre. The area is closed to the public because an increasing number of visitors can disturb the breeding birds.

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

The site is not used for recreation and tourism and their development is not advisable.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept of Agriculture/Dept. of Environment, etc.

a) Ministry of the Environment of the Slovak Republic, Department of Nature and Landscape Protection, Námestie Ľ. Štúra 1, 812 35 Bratislava, Slovak Republic +421 (0)2 5956 2211

b) Regional Office of the Environment, Komenského 52, 040 96 Košice +421 55 600 1251
District Office of the Environment, Námestie slobody 1, 071 01 Michalovce +421 56 642 5035

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

The State Nature Conservancy of the Slovak Republic, Lazovna 10, 974 01 Banská Bystrica, phone: +421/48/415 50 27, fax: +421/48/415 38 66, e-mail: ivan.koubek@sopsr.sk, www.sopsr.sk

State Nature Conservancy of the Slovak Republic, Administration of Protected Landscape Area Latorica, M. R. Štefánika 206, SK - 075 01 Trebišov, Tel./Fax: (+421-56) 668 30 00, 668 30 01, e-mail: slavka.minova@sopsr.sk

Water management:

Bodrog and Hornád Rivers Catchment Administration, Ďumbierska 14, SK - 040 01 Košice,

Tel.: +421-55-6333711

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

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TOMAŠOVIČ, ZATKALÍK, 1990: Iňačovce - bilancia povodia toku Okna ŠPR Senné-rybníky - štúdia. Technická správa. Hydrounion Bratislava, 24 pp. (Manuscript).

Please return to: Ramsar Convention Secretariat, Rue Mauverney 28, CH-1196 Gland, Switzerland
Telephone: +41 22 999 0170 • Fax: +41 22 999 0169 • e-mail: ramsar@ramsar.org