

Information Sheet on Ramsar Wetlands (RIS) – 2006 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 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:

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Designation date

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Site Reference Number

2. Date this sheet was completed/updated:

30 May 2006

3. Country:

Hungary

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.

Mártély Landscape Protection Area

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**

The area size on the RIS follows the officially (nationally) designated site size (which is based on the land registration data). Unfortunately the map submitted previously was rather sketchy and the outlines did not follow precisely the land parcel boundaries. So only the map was improved and the officially designated area size did not change.

** 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:

No major change since the previous RIS for the site.

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): X;
- ii) an electronic format (e.g. a JPEG or ArcView image) X;
- 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.

Follows the boundary of the Mártély Landscape Protection Area.

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.

46°26'N 020°10'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 South part of Hungary in the lower Hungarian reach of the River-Tisza basin. Belongs to the Csongrád county of Hungary, close to the villages of Mártély settlement territories. The nearest large town is Hódmezővásárhely.

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

average 79 m above Baltic sea level

11. Area: (in hectares) 2232 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.

Mártély is a section of the River Tisza floodplain, characteristic for the floodplain wetlands of southern Hungary. It features freshwater oxbow lakes, flood meadows, marshes, arable land, woodland, and many smaller and larger branches of the river. The site consists of permanently and occasionally flooded areas. The site hosts a relatively large population of otter *Lutra lutra*, and it is important reproduction place for many fish species. It hosts one endemic plant species, *Leucanthemum serotinum*. Mártély is a breeding site for various waterbirds, and raptors, e.g. including several species of Ardeidae species, Black Stork, White-tailed Eagle.

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.

<u>1</u>	•	<u>2</u>	•	<u>3</u>	•	<u>4</u>	•	5	•	6	•	7	•	8	•	9
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input type="checkbox"/>								

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. It contains a representative and unique example of permanent river, freshwater oxbow lakes, and tree dominated flooding types of wetlands within the Pannonic biogeographic region.

3150 Natural eutrophic lake with magnopotamion or Hydrocharition vegetation type.

3270 Rivers with muddy banks with *Chenopodium rubri* p.p. and *Bidenton* p.p.

6440 Alluvial meadows of river valleys of the *Cnidion dubii*

91 E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-adion*, *Alnion incanae*, *Salicion albae*)

2. It supports vulnerable, endangered species and threatened ecological communities.

Lycanea dispar LR/nt IUCN red list+ 92/43/EGK directive Annex II

Ophiogomphus cecilia LR/lc IUCN Red list + 92/43/EGK directive Annex II

Aspius aspius DD IUCN Red list + 92/43/EGK directive Annex II

Cobitis taenia LR/lc IUCN Red list + 92/43/EGK directive Annex II

Misgurnus fossilis LR/nt IUCN red list + 92/43/EGK directive Annex II

Gymnocephalus baloni DD IUCN Red list + 92/43/EGK directive Annex II i

Gymnocephalus schraetzer VU IUCN Red list + 92/43/EGK directive Annex II

Pelecus cultratus DD IUCN Red list + 92/43/EGK directive Annex II

Rhodeus sericeus amarus LR/lc IUCN Red list + 92/43/EGK directive Annex II

Zingel zingel VU IUCN Red list + 92/43/EGK directive Annex II

Bombina bombina LC IUCN Red list + 92/43/EGK directive Annex II

Triturus dobrogicus NT IUCN Red list + 92/43/EGK directive Annex II

Emys orbicularis LR/nt IUCN Red list + 92/43/EGK directive Annex II

Lutra lutra NT IUCN Red list + 92/43/EGK directive Annex II

Myotis dasycneme VU IUCN Red list + 92/43/EGK directive Annex II

Alcedo atthis LC IUCN Red list + Annex I Bird Directive

Ardea purpurea LC IUCN Red list + Annex I Bird Directive

Ardeola ralloides LC IUCN Red list + Annex I Bird Directive

Aythya nyroca NT IUCN Red list + Annex I Bird Directive

Botaurus stellaris LC IUCN Red list + Annex I Bird Directive

Chlidonias hybridus LC IUCN Red list + Annex I Bird Directive

Chlidonias niger LC IUCN Red list + Annex I Bird Directive

Ciconia ciconia LC IUCN Red list + Annex I Bird Directive
Ciconia nigra LC IUCN Red list + Annex I Bird Directive
Circus aeruginosus LC IUCN Red list + Annex I Bird Directive
Circus cyaneus LC IUCN Red list + Annex I Bird Directive
Crex crex NT IUCN Red list + Annex I Bird Directive
Dendrocopos syriacus LC IUCN Red list + Annex I Bird Directive
Dryocopus martius LC IUCN Red list + Annex I Bird Directive
Egretta alba Annex I Bird Directive
Egretta garzetta LC IUCN Red list + Annex I Bird Directive
Grus grus LC IUCN Red list + Annex I Bird Directive
Haliaeetus albicilla NT IUCN Red list + Annex I Bird Directive
Milvus migrans LC IUCN Red list + Annex I Bird Directive
Nycticorax nycticorax LC IUCN Red list + Annex I Bird Directive
Pernis apivorus LC IUCN Red list + Annex I Bird Directive
Phalacrocorax pygmeus NT IUCN Red list + Annex I Bird Directive
Platalea leucorodia LC IUCN Red list + Annex I Bird Directive
Porzana parva LC IUCN Red list + Annex I Bird Directive
Porzana porzana LC IUCN Red list + Annex I Bird Directive

Salvinia natans Annex I. Bern Convention
Zerynthia polyxena Annex II Bern Convention + Annex IV Habitats Directive
Acipenser nudiiventris Annex II Bern Convention + EN IUCN Red list + Annex V Habitats Directive + Annex II Bonn Convention
Acipenser gueldensaedti Annex II Bern Convention + EN IUCN Red list + Annex V Habitats Directive + Annex II Bonn Convention
Proterorhinus marmoratus Annex III Bern Convention
Leucaspius delineatus Annex III Bern Convention
Pelobates fuscus Annex II Bern Convention + Annex IV Habitats Directive
Bufo bufo Annex III Bern Convention
Bufo viridis Annex II Bern Convention + Annex IV Habitats Directive
Rana arvalis Annex II Bern Convention + LC IUCN Red list + Annex IV Habitats Directive
Rana dalmatina Annex II Bern Convention + Annex IV Habitats Directive
Rana esculenta Annex III Bern Convention + LC IUCN Red list + Annex V Habitats Directive
Rana ridibunda Annex III Bern Convention + Annex V Habitats Directive
Hyla arborea Annex II Bern Convention + NT IUCN Red list + Annex IV Habitats Directive
Triturus vulgaris Annex III Bern Convention
Sorex minutus Annex III Bern Convention + LR/lc IUCN Red list
Sorex araneus Annex III Bern Convention + LR/lc IUCN Red list
Neomys fodiens Annex III Bern Convention + LR/lc IUCN Red list
Crocidura suaveolens Annex III Bern Convention + LR/lc IUCN Red list
Felis silvestris Annex II Bern Convention + VU IUCN Red list + Annex IV Habitats Directive

3. *Leucanthemum serotinum* - Pannonic endemic, biogeographically important
Palingenia longicauda is endemic to the Carpathian Basin tributaries of the river Danube.

4. It is breeding site for various waterbirds, and raptors, e.g. including several species of Ardeidae species, Black Stork, White-tailed Eagle.

Notable breeding, migrating, wintering and resident birds including in 79/409/EGK Annex I.:
Alcedo atthis, *Ardea purpurea*, *Ardeola ralloides*, *Aythya nyroca*, *Botaurus stellaris*, *Chlidonias hybridus*, *Chlidonias niger*, *Ciconia ciconia*, *Ciconia nigra*, *Circus aeruginosus*, *Circus cyaneus*, *Crex crex*, *Dendrocopos syriacus*, *Dryocopus martius*, *Egretta alba*, *Egretta garzetta*, *Grus grus*, *Haliaeetus albicilla*, *Milvus migrans*, *Nycticorax nycticorax*, *Pernis apivorus*, *Phalacrocorax pygmeus*, *Platalea leucorodia*, *Porzana parva*, *Porzana porzana*

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: Pannonic

b) biogeographic regionalisation scheme (include reference citation): European Commission DG

Environment webpage

Bern Convention/ EU Habitats Directive

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.

Geology, hydrogeology

Three major rivers (Danube, Tisza, Maros) played a key role in the formation of the present landscape of this area. From the rivers silting up the one-time Pannon Lake, approximately 2.5-3 million years ago the ancient Danube appeared in the area, and running through the present Danube-Tisza Mid-Region, at first it flowed into the Tisza valley at Szolnok, later at Csongrád. The ancient Tisza and its tributaries arrived from the direction of the Körös basin at that time. The ancient Danube left the Danube-Tisza Mid-Region and took up its north to south direction of flow. The huge ridges of alluvial Danube sediments (which are of sandy origin in this reach) became free of the river and were gradually covered partly by wind-blown loessy sediments and and partly by 'moving sand'. These wind-blown sediments (moving sand and loess) are characteristic near the surface up to the present day. About 18-20 thousand years ago the ancient Tisza took up its direction of flow as well. It was then that the bends of Tisza developed (which can still be traced on the surface) mainly as a result of 4-6 times bigger water output 12-16 thousand years ago. This surface continued to change due to the floods and unique lower and higher (free of flood) inundation area levels developed along the River Tisza.

Climate

The climate variations are limited in the region of the Carpathian Basin. The macroclimate can be considered a homogenous basic feature in terms of surface and fauna evolution, as well. The region has a temperate continental climate. Its unique features are limited cloudiness, a relatively high number of sunshine hours, high daily and annual temperature variation, relative dryness and very low humidity values.

This region is the area with the least cloudiness in Hungary. The annual average cloudiness is 52-57%. The annual average number of sunshine hours is approx. 2050. At the same time this is one of the warmest areas in the country. No significant variations exist in this region. The annual average temperature is between 10-11°C. The mean temperature of the coldest month (January) is between minus 1.5 and minus 2°C, while that of the warmest month (July) is 21-22°C. Characteristically of areas with a continental climate, the annual average temperature variance is quite significant (23-24°C). The region can be classified within Hungary as one with a short winter and a long summer. The number of winter days is only 26-31, however, major frosts are common. Spring comes early, and the average temperature rises above 10°C in the whole region between 7-12 March. The number of summer days is 81-84. In the fall the daily average temperature falls below 10°C again generally between 17-21 October.

The region is one of the parts of the country having the least precipitation. Under normal conditions the annual precipitation is between 500-600 mm in the region. The rainfall of the summer semester (April-September), the so-called breeding period, is around 300-350 mm. The winter precipitation occurs mainly in the form of snow. The number of snow-cover days is 30-40. The precipitation conditions therefore are relatively disadvantageous. This is further intensified by low humidity values, with an annual average of many years at 71-74%. Based on this data we may declare that the balance of precipitation and

evaporation is negative in the region. The wetlands that have developed and exist can thank their subsistence to supplementary water influences (e.g. ground water).

17. Physical features of the catchment area:

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

The site belongs to River Tisza catchment area. The living Tisza-valley has a huge catchment area (157.000 km²) which also comprises Carpathian mountain region and the major part of Great Hungarian Plain. The whole site is inside the main embankment.

18. Hydrological values:

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

River control and surface drainage from the middle of the nineteenth century radically changed the water conditions of the region. The comprehensive control of the River Tisza began in 1846 and started at the reach of Csongrád in 1856. The biggest bends were cut through and the river was forced between dykes. As a result it was involved two oxbow lakes, such as Mártély and Körtvélyes freshwater lakes.

As a result of the embankments along the river and narrow floodplain the level of the floods are very high so the deep water (3-4 m) completely covered the total floodplain area. As a consequence of the inappropriate water management the water goes away very quickly from the entire floodplain, even from the wetland areas. Gallery forests are among the most endangered biotops in Hungary. The forest biotope chains in the Tisza inundation area are at present considered indispensable natural treasures in the lowland environment. During the preparations for the work titled „Improving the Vásárhelyi Plan”, which can be regarded as Hungary’s new flood control strategy, it became evident how few and how vulnerable the valuable flood plain forests are, which provide a habitat for the remained assemblages of the one-time flood areas. Several factors endanger these forests. The biggest damage can be caused by intense silviculture with woodfelling and cutting purposes. Another problem that cannot be neglected is the extreme hydrological conditions of the flood plains, which can hardly be regarded as natural. High floods, water-and groundwater level changing with high amplitude, create competitive drawbacks for autochthonous tree and shrub species fit for the original habitat.

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.

Xf, M, 4, O, Tp, Ts, 7, 9.

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 river bed is lined by (Polygono hydropipero-Salicetum triandrae) community. The extremely resistant willow species: (Salix alba, S.triandra, S. purpurea, S. viminalis) tolerate flooding, drought and icy inundation and grow bush-sized on the deposit laid down by the river. In the northern part of the Boszorkány island in Szeged we can observe the 'birth' and the 'death' of willow groves. Sailing on the

River Tisza, we can see that this community along the banks of the river is almost unbroken. Forests in the bank zone consisting of autochthonous willow and poplar groves (soft-wood groves, *Salicetum albae-fragilis*) are of great environmental value. Three tree species can be found in soft-wood gallery forests: White willow (*Salix alba*), White poplar (*Populus alba*) and Black poplar (*Populus nigra*). During natural renewal, one of these trees has bigger patches and becomes dominant in the tree stratum. Unfortunately the number of those stands are very low where we can admire huge, old White or Black poplars—it is more often that we meet a lonely tree in planted forests. The shrub stratum of soft-wood galleries along the Tisza have only allochthonous species. The Box elder (*Acer negundo*) and the American ash (*Fraxinus pennsylvanica*) spread by foresters find their optimal conditions in the flood plain, their seedlings may become dominant in the herb stratum, they are common in the shrub stratum and sometimes form the lower tree stratum. The herb stratum of poplar communities in the flood plain resembles that of (*Polygono hydropipero-Salicetum triandrae*) communities. The following bog species are common: (*Carex gracilis*), the Yellow iris (*Iris pseudachorus*), the Gipsywart (*Lycopus europaeus*), the Yellow loosestrife (*Lysimachia vulgaris*), the Bittersweet (*Solanum dulcamara*) and the Comfrey (*Symphytum officinale*).

Dykes are lined by the so-called 'navy forests'. In this zone we find the ditches of which the dykes were built. These ditches have bog vegetation, their flora is of great value. The most characteristic tree species is the White willow (*Salix alba*) of which the lower branches and twigs are regularly cut down, so their trunks are bare so they have a big 'head' and they are called 'headed willows'. The wickers of these willows were used to reinforce the dykes. One reason to preserve these willow assemblages is that old willows become hollow thus providing a habitat for hollow-dwelling birds, the other is their cultural significance – their scenic value is significant. Their herb and shrub strata are similar to that of soft-wood galleries. The beautiful *Leucanthemelle serotina* and the Summer snowflake (*Leucojum aestivum*), both protected, are common in the fringe of the forests of the River Tisza. As the most important role of these forests is to preserve dykes, their handling involves longer shifts of cutting, so there is more chance to create nature-like assemblages than in case of hybrid poplar forests treated with shorter shifts of cutting. If the flood plain is narrow, the gallery woods at the banks and the 'navy forests' may overlap but the middle part of the flood plain is usually occupied by hybrid poplar assemblages whose territorial proportion is the highest in Csongrád county's flood plains. Plantations, consisting of allochthonous species planted in checkrow, treated with intense short period cutting after thorough preparation of the soil, cannot be considered real forests. High proportion of invasive and weed species are characteristic here. Forests with significant number of allochthonous species but the same structure as autochthonous forests can be of great natural value as their avian fauna is rich, heron colonies breed here and protected and strictly protected birds also build nests. Natural renewance of soft-wood galleries is common, still, the largest part of the flood plain forests are planted and their structure and species composition are far from natural. Natural forests of the higher inundation area are oak-ash-elm (*Fraxino pannonicae-Ulmetum*) groves. Genuine, natural hardwood groves do not occur along the River Tisza in Csongrád county but some planted Pedunculate oak assemblages of different age are to be found in the flood plain and the protected inundation area too. Their herb stratum is poor in the flood plain, and due to the floods, species of natural hardwood forests cannot survive here. Grasslands in the site are usually hayfields with Meadow foxtail (*Alopecurus pratensis*), *Phalaroides arundinacea* and Reed sweet-grass (*Glyceria maxima*) stands. Those along the flood plain form transitions with moor communities creating a mosaic pattern. Their area is very small. In order to maintain flood plain hayfields human treatment is needed (without such treatment, the area is invaded by *Amorpha fruticosa*, an invasive acacia species, or later soft-wood groves may evolve during a longer period of time) but then we lose grassland species, biocoenoses and scenic values. The planted grass of dykes also have natural significance because it can provide a habitat adequate for wild plant and animal species and can become nature-like. The most important protected species of the Tisza flood area are: *Leucanthemelle serotina*, the Summer snowflake (*Leucojum aestivum*) and the Meadow clematis (*Clematis integrifolia*) which are most common between the forest and the dyke. The lost natural biotop along the River Tisza to be presented, the moor, was the most characteristic biotop in the end of the eighteenth century. It is the typical biotop of boggy bottom-lands, shallower ditches beside the dyke and silt-up backwaters. Their area is not significant and strongly fragmented. Zones dominated by *Schoenoplectus lacustris*, the Branched bur-reed (*Sparganium erectum*), the Flowering rush (*Butomus umbellatus*), sedges (*Carex* spp.), (*Phalaroides arundinacea*), the Purple loosestrife (*Lythrum virgatum*, *L. salicaria*), the Common reed (*Phragmites australis*) and the Bulrush (*Typha latifolia*, *T. angustifolia*) form

zonation complexes depending on water depth. If there are shallow, open water surfaces in the moor, these offer especially valuable feeding place for birds, however, their amphibian fauna is rich also. Fortunately this biotope is able to regenerate quite easily. It quickly develops in ditches (even artificial ones) with adequate depth and water supply.

The significance of backwaters in nature conservation is very big, however, the burden, due to human utilization, is also heavy. As they may develop naturally, natural still water assemblages formed in the river bends cut off, and without disturbance, by natural succession they more and more like moor assemblages. Different swimming, floating and rooted weed communities appear in them. Characteristic species of swimming weeds are duckweed species (*Lemna minor*, *L. trisulca*), *Salvinia natans*, an interesting, protected water fern, and *Ceratophyllum* species which float under the surface of water. Typical floating weeds include: the serrate-leaved Water-soldier (*Stratiotes aloides*), *Hydrocharis morsus-ranae* and the Common bladderwort (*Utricularia vulgaris*), a yellow-flowered species which grows insect catching saccules. The so-called water lilies are the most beautiful: besides the protected denominator, the White water-lily (*Nymphaea alba*) we can find the yellow-flowered Yellow water-lily (*Nuphar lutea*) and the Water chesnut (*Trapa natans*) known from its interesting, hooked, chesnut-like fruit. The aim of nature conservation is to conserve all succession states. In order to achieve this, oversilting must be prevented in certain places. The condition of backwaters in the southern Tisza is quite different. The ones on the protected side are usually strongly built in, polluted, ploughed till the banks, burdened with irrigation works and holiday resorts but there are exceptions. Backwaters in the flood plain are in better condition, regular floods help their survival.

Some allochthonous and invasive plant species can take advantage of these unnatural conditions and invade the place of certain species in forest communities such as *Amorpha fruticosa*, *Echinocystis lobata*, *Acer negundo*, *Vitis riparia*, *Fraxinus pennsylvanica*. The most important spreading factor of the seed of the alien species is the floods. Usually general forestry management is also unfavourable in the floodplain region because of intensive planting of adventives *Populus x euramericana* and other artificial hybrid poplar and willow races, exploitation natural forests in young age and executing large clear-cuttings so providing in this way good opportunity for adventives invasive plants to spread intensively. Artificial hybrid poplar races made serious genetic pollution - by pollination - in the natural *Populus nigra* populations, so genetically unpolluted *Populus nigra* populations are close to extinction.

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.*

Leucanthemum serotinum - Pannonic endemic, biogeographically important

Astragalus contortuplicatus

Leucanthemum serotinum

Leucojum aestivum

Trapa natans

Peucedanum officinale

Senecio paludosus

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.*

Palingenia longicauda is endemic to the Carpathian Basin tributaries of the river Danube.

Carabus granulatus

Carabus cancellatus

Carabus clathratus

Dorcus paralellepipedus

Oryctes nasicornis

Chamaesphecia palustris

See section 12 for other noteworthy animal species.

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: Traditional fisheries production can be found around the floodplain of River Tisza. No religious importance, ancient burial-ground, and archaeological sites inside the Ramsar-site.

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? No.

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: 35 % of the site is state owned by Kiskunság National Park Directorate, most of other lands are also in state owned (e.g. water regulation company, and forest company)

b) in the surrounding area: mostly privately owned

25. Current land (including water) use:

a) within the Ramsar site: The most important land using are involved forest, extensive grassland, and agricultural using.

b) in the surroundings/catchment: mainly the extensive and intensive agricultural, grassland and planted forest using are involved.

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: groundwater decreasing, water and river regulation, extensive agricultural pollution and disturbing factors, water pollution disaster, intensive fishpond management, drying out, eutrophication, low grazing pressure, invasion by a alien species (e.g. *Fraxinus pennsylvanica*, *Amorpha fruticosa*), spontaneous forestation.

The condition of backwaters in the southern Tisza is quite different. The ones on the protected side are usually strongly built in, polluted, ploughed till the banks, burdened with irrigation works and holiday resorts but there are exceptions.

Some allochthonous and invasive plant species can take advantage of these unnatural conditions and invade the place of certain species in forest communities such as *Amorpha fruticosa*, *Echinocystis lobata*,

Acer negundo, *Vitis riparia*, *Fraxinus pennsylvanica*. The most important spreading factor of the seed of the alien species is the floods.

Artificial hybrid poplar races made serious genetic pollution - by pollination - in the natural *Populus nigra* populations, so genetically unpolluted *Populus nigra* populations are close to extinction.

b) in the surrounding area: groundwater decreasing, water and river regulation, intensive agricultural pollution and disturbing factors, artificial forest planting, drying out, eutrophication, low or high grazing pressure, invasion by a alien species (e.g. *Fraxinus pennsylvanica*, *Amorpha fruticosa*), spontaneous forestation, waterfowl hunting.

One of the main problems is the decreasing groundwater in the region due to water and river regulation and droughts.

Intensive agricultural pollution can occur on cultivated lands just as high grazing pressure is possible in grasslands which damage natural flora and pollute groundwater etc. There is an opposite problem with low grazing pressure when spontaneous forestation will begin much easier where is unwished. Artificial forest plantation are managed by forestry but it should be replaced them native tree species considering that artificial hybrid poplar races made serious genetic pollution furthermore large clear-cuttings in these forests providing in this way good opportunity for adventives invasive plants to spread intensively.

Surrounding areas are affected by human activities so disturbing factors cause invasive plant species spreading. Waterfowl hunting is permitted taking attention of the nature conservation.

It should be paid particular attention to developing campsites, growing tourism, holiday resorts and if necessary it can be controlled. Waste management is solved on campsites but anglers usually leave their rubbish nearby the banks.

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 whole site is protected by Hungarian nature conservation laws (national designation: Mártély Landscape Protection Area, Natura 2000 network: Special Protection Area (SPA), proposed Site of Community Importance (pSCI) regard to floodplain habitats within the site).

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?:

No, a site specific management plan is need to be improved and implemented.

d) Describe any other current management practices: habitat restoration project launched in 2006 to restore marshes, wet meadows and the Körtevényesi oxbow (altogether 500 ha) and 1500 ha of arable land (to be converted into grasslands).

28. Conservation measures proposed but not yet implemented:

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

There are planned further habitat restoration programmes.

29. Current scientific research and facilities:

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

National Biodiversity Monitoring System is running on the site for habitats.

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.

Information tables, booklets, summer environmental educational camp for local schools are available on the site. Riparian forest nature trail. 2000 copies of brochure titled "Pusztaszer and Mártély) published in 2005.

31. Current recreation and tourism:

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

Water recreation tourism (swimming, boating, fishing) is important on Mártély oxbow lake with a small holiday resort settlement on the site. It is not important on the other part of the site.

32. Jurisdiction:

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

The Alsó-Tisza-vidéki Authority for Environmental Protection, Nature Conservation and Water Management is the first instant authority of the Ministry for Environment and Water.

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.

Kiskunsági Nemzeti Park Directorate
Hungary
H-6000 Kecskemét, Liszt F. u.19.
borose@knp.hu

34. Bibliographical references:

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

Only in English written or Hungarian with English summary or abstract

Bankovics A.: Data on the comparative ecology of the scrub Warbler *Hippolais pallida elaeica* (LINDL.) and its spreading along the Tisza is the Tears 1973 to 1974. *Tiscia*, 1974. 10. köt. 81-83. p.

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Gallé, S. & Körmöczi, L (eds.). 2000. Ecology of River Valleys. Published by Department of Ecology, University of Szeged, *Tiscia* monograph series 2000.

Sterbetz, I. 1981. Protected wetlands of international importance in Hungary. IWRB XVII. International Conference in Debrecen 1981.

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