



# Ramsar Information Sheet

Published on 8 November 2016

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## Hungary Hortobágy



Designation date	11 April 1979
Site number	189
Coordinates	47°32'33"N 20°57'30"E
Area	32 037,00 ha

## Color codes

Fields back-shaded in light blue relate to data and information required only for RIS updates.

Note that some fields concerning aspects of Part 3, the Ecological Character Description of the RIS (tinted in purple), are not expected to be completed as part of a standard RIS, but are included for completeness so as to provide the requested consistency between the RIS and the format of a 'full' Ecological Character Description, as adopted in Resolution X.15 (2008). If a Contracting Party does have information available that is relevant to these fields (for example from a national format Ecological Character Description) it may, if it wishes to, include information in these additional fields.

## 1 - Summary

### Summary

Hortobágy consists of a mosaic of wetlands, dry and semi-dry steppes and small steppic woods. Of this habitat complex, some of the most important wetlands were designated as Ramsar sites in 1979, to which Lake Tisza areas, an artificial reservoir were attached in 1997. The Ramsar site thus consists of disjunct units:

- Hortobágy-Halastó
- Zám-puszta
- Pentezug-puszta
- Angyalháza-puszta
- Egyek-Pusztakócs Marshes
- Northern Part of Kisköre Reservoir (Tiszafüred Bird Reserve)
- Middle Part of Kisköre Reservoir (Poroszló-basin)
- Kunkápolnás

Please refer to the document in Section 6.1.2 vi. other published literature for a general overview of the individual units.

## 2 - Data & location

### 2.1 - Formal data

#### 2.1.1 - Name and address of the compiler of this RIS

##### Compiler 1

Name	Csaba Bereczki
Institution/agency	Hortobágy National Park Directorate
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#### 2.1.2 - Period of collection of data and information used to compile the RIS

From year	2015
To year	2015

#### 2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish)	Hortobágy
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#### 2.1.4 - Changes to the boundaries and area of the Site since its designation or earlier update

(Update) A. Changes to Site boundary Yes  No

(Update) The boundary has been delineated more accurately

(Update) B. Changes to Site area No change to area

#### 2.1.5 - Changes to the ecological character of the Site

(Update) 6b i. Has the ecological character of the Ramsar Site (including applicable Criteria) changed since the previous RIS? No

## 2.2 - Site location

### 2.2.1 - Defining the Site boundaries

#### b) Digital map/image

<1 file(s) uploaded>

#### Boundaries description (optional)

The Ramsar site boundary follows the boundaries of various units of the Hortobágy National Park. In the west, it contains the northern and the central units of Lake Tisza (Kisköre) reservoir, in the centre, it contains the Egyek-Pusztakócs Marshes, in the northeast, the Hortobágyi Fishponds system (Hortobágy-halastó), and in the west and south, Pentezug-pusztá, Angyalháza-pusztá, Zám-pusztá and the Kunkápolnás Marsh.

1986 ha (Hortobágy-Halastó)  
 2821 ha (Zám-pusztá)  
 4219 ha (Pentezug-pusztá)  
 3567 ha (Angyalháza-pusztá)  
 4202 ha (Egyek-Pusztakócs Marshes)  
 3476 ha Northern Part of Kisköre Reservoir (Tiszafüred Bird Reserve)  
 3648 ha Middle Part of Kisköre Reservoir (Poroszló-basin)  
 8119 ha Kunkápolnás

### 2.2.2 - General location

a) In which large administrative region does the site lie? (1) County of Hajdú-Bihar, (2) Middle Part of Kisköre Reservoir and Northern Part of Kisköre Reservoir are located in County of Jász-Nagykun-Szolnok, (3) Most of Kunkápolnás Marsh is also located in County of Jász-Nagykun-Szolnok

b) What is the nearest town or population centre? (1) Around Hortobágy village, (2) 5-10 km west of Tiszafüred, (3) south-east of Nagyiván village

2.2.3 - For wetlands on national boundaries only

a) Does the wetland extend onto the territory of one or more other countries? Yes  No

b) Is the site adjacent to another designated Ramsar Site on the territory of another Contracting Party? Yes  No

2.2.4 - Area of the Site

Official area, in hectares (ha):

Area, in hectares (ha) as calculated from GIS boundaries

2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
EU biogeographic regionalization	Pannonic

### 3 - Why is the Site important?

#### 3.1 - Ramsar Criteria and their justification

- Criterion 1: Representative, rare or unique natural or near-natural wetland types

Other ecosystem services provided

Hortobágy is the single largest alkaline wetland complex in the Carpathian Basin, that is within the Pannonic Biogeographical region. On the basis of its sheer size, it can be considered rare and even unique within the Carpathian Basin, but it also represents perfectly some of the easternmost members of the alkaline steppe – alkaline lake habitat complexes that stretch from Central Asia along the southeastern plains of Europe to Lake Fertő/Neusiedl on the border between Austria and Hungary. A large proportion of its habitats has been preserved in good, natural condition, particularly the marshes that have been least affected by anthropogenic impacts. Thanks to this, it still holds the characteristic fauna and flora elements of the alkaline marshes and steppes in stable populations. Within the Ramsar site, the rare or unique character of the separate units can be described as follows: Hortobágy-Halastó is a near-natural fishpond system, with valuable flora and fauna characteristic for ancient alkaline marshes of the region. These fishponds boast the longest list of observed bird species in any site in Hungary. Zám-puszta is a good example of rare shallow ephemeral water bodies and natural semistatic marshes. During the reporting period, it held a part of the only population of Aquatic Warbler (*Acrocephalus paludicola*) within the Carpathian Basin. This species is listed on Annex I of the Birds Directive. The Pentezug-puszta consists of typical alkaline temporary marshes and meadows. It holds representative stands of *Artemisio-Festucetum* and *Alopecuretum* grasslands, with the largest *Orchis morio* population of Hortobágy with around 1500 stems. *Elatine alsinastrum* is an IUCN Red Data Book species. Egyek-Pusztakócs Marshes: Hagymás is a marsh in a natural status representing a temporary marsh type, Jusztus is an astatic marsh type, Fekete-rét and Meggyes-lapos represent a permanent marsh type. The Northern Part of Kisköre Reservoir (Tiszafüred Bird Reserve) and the Middle Part of Kisköre Reservoir (Poroszló-basin) have preserved the flora and fauna of floodplains and oxbow lakes of River Tisza, with masses of White Water Lily (*Nymphaea alba*), Yellow Floating-heart (*Nymphoides peltata*) and IUCN Red Data Book species Water-chestnut (*Trapa natans*).

- Criterion 2 : Rare species and threatened ecological communities

- Criterion 3 : Biological diversity

Justification

Alkaline marshes have almost disappeared from Europe, but these marshes have preserved their typical flora and fauna. The natural habitats (see Criterion 1), as well as many of the species are important to maintain the biological diversity of Pannonic Biogeographic region. Here are the most important strongholds of Pygmy Cormorant (*Phalacrocorax carbo*) and Spoonbill (*Platalea leucorodia*) within the biogeographic region. The site also holds the only Aquatic Warbler (*Acrocephalus paludicola*) population in the Carpathian Basin. Angyalháza-puszta is the most important autumn migration stopover site of Dotterel (*Charadrius morinellus*) in Carpathian Basin, while Hortobágy-Halastó is the most outstanding staging site of Lesser White-fronted Goose (*Anser erythropus*) in the region. The most important breeding habitats for Spotted Crane (*Porzana porzana*) and White-winged Tern (*Chlidonias leucopterus*) in the region, which is of Middle European significance. Typical wetland vegetation of alkaline marshes and oxbow-lakes is preserved here, including plants that have become extinct in major part of their original range due to water regulations and drainage: *Nymphaea alba*, *Nuphar lutea*, *Nymphoides peltata*, *Stratiotes aloides*. The plant communities preserve remnant populations of numerous, formerly more widespread species, such as *Phlomis tuberosa*, a characteristic species of loess grasslands, or *Plantago schwarzenbergiana*, which is endemic to alkaline steppes in the eastern half of Carpathian Basin. 302 bird species have been recorded in the Hortobágy Ramsar site, which is remarkably high compared to the 394 bird species registered in Hungary.

Criterion 4 : Support during critical life cycle stage or in adverse conditions

Criterion 5 : >20,000 waterbirds

Overall waterbird numbers

Start year

Source of data:

Criterion 6 : >1% waterbird population

### 3.2 - Plant species whose presence relates to the international importance of the site

Scientific name	Common name	Criterion 2	Criterion 3	Criterion 4	IUCN Red List	CITES Appendix I	Other status	Justification
<i>Armoracia macrocarpa</i>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	Appendix I of the Bern Convention	European endemism Northern Part of Kisköre Reservoir
<i>Cirsium brachycephalum</i>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LC 	<input type="checkbox"/>	Annex II of the EU Habitats Directive	300000 individuals Pentezug-puszta unit ; Angyalháza-puszta unit ; Egyek-Pusztakócs Marshes
<i>Lindernia procumbens</i>	Prostrate false pimpernel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NT 	<input type="checkbox"/>	Appendix I of the Bern Convention ; Annex IV of the EU Habitats Directive	
<i>Marsilea quadrifolia</i>	Four Leaf Clover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LC 	<input type="checkbox"/>	Annex II of the EU Habitats Directive	1000-4000 individuals, fluctuating
<i>Nymphaea alba</i>	White Water Lily	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LC 	<input type="checkbox"/>		Especially in The Northern Part of Kisköre Reservoir and the Middle Part of Kisköre Reservoir ; Angyalháza-puszta: In River Hortobágy, bordering the site
<i>Nymphoides peltata</i>	Yellow Floating-heart	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LC 	<input type="checkbox"/>		Especially in The Northern Part of Kisköre Reservoir and the Middle Part of Kisköre Reservoir covers 40-50 ha on unit VI.
<i>Phlomis tuberosa</i>		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		characteristic species of loess grasslands Zám-puszta unit ; Angyalháza-puszta ; Egyek-Pusztakócs Marshes unit
<i>Plantago schwarzenbergiana</i>		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		endemic to alkaline steppes in the eastern half of Carpathian Basin Can be found on the pastures which are inundated only for a short period - Kunkápolnás Marsh unit
<i>Salvinia natans</i>	Floating fern	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LC 	<input type="checkbox"/>	Appendix I of the Bern Convention	Egyek-Pusztakócs Marshes unit
<i>Stratiotes aloides</i>	Water Soldier	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LC 	<input type="checkbox"/>		In edges between reedbeds and open waters - Kunkápolnás Marsh unit
<i>Trapa natans</i>	Water chestnut	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	Appendix I of the Bern Convention	Especially in The Northern Part of Kisköre Reservoir and the Middle Part of Kisköre Reservoir

Species listed under Criterion 3:

- *Nuphar lutea*

Other noteworthy plant species which are not listed in the Catalogue of Life:




























- *Linaria biebersteiniana*, European endemism

Other noteworthy plant species:


































- *Schoenoplectus* sp., *Typha* sp., *Glyceria* sp., (Zám-pusztá)






### 3.3 - Animal species whose presence relates to the international importance of the site

Phylum	Scientific name	Common name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6	9	3	5	7	8								
CHORDATA/AVES	<i>Acrocephalus melanopogon</i>	Moustached Warbler	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	180-200 pairs
CHORDATA/AVES	<i>Acrocephalus paludicola</i>	Aquatic Warbler	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				VU	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Annex I of the EU Birds Directive	fluctuating population, decline in 2006 to 63, increased in 2007 to 140, however, not breeding since 2011 Criterion 3: The site also holds the only Aquatic Warbler population in the Carpathian Basin
CHORDATA/AVES	<i>Alcedo atthis</i>	Common Kingfisher	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	1-2 pairs, 20 individuals feeding, overwintering
CHORDATA/AVES	<i>Anas crecca</i>	Eurasian Teal; Green-winged Teal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6000			LC	<input type="checkbox"/>	<input type="checkbox"/>		individuals (average) Criterion 5: see text box below
CHORDATA/AVES	<i>Anser albifrons</i>	Greater White-fronted Goose	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	94000	2013-2014	7.8	LC	<input type="checkbox"/>	<input type="checkbox"/>		individuals (average) Criterion 5: see text box below
CHORDATA/AVES	<i>Anser anser</i>	Greylag Goose	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	19000	2013-2014		LC	<input type="checkbox"/>	<input type="checkbox"/>		individuals (average) Criterion 5: see text box below
CHORDATA/AVES	<i>Anser erythropus</i>	Lesser White-fronted Goose	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	56	2013-2014	35	VU	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Annex I of the EU Birds Directive	individuals (average) Criteria 3 and 4: Hortobágy-Halastó is the most outstanding staging site of Lesser White-fronted Goose in the region Criterion 6: See text box below.
CHORDATA/AVES	<i>Ardea alba</i>	Great Egret	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	800	2013-2014	1.6	LC	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	pairs (average) Criterion 6: See text box below.
CHORDATA/AVES	<i>Ardea purpurea</i>	Purple Heron	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	200-300 pairs
CHORDATA/AVES	<i>Ardeola ralloides</i>	Squacco Heron	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	40-120 pairs
CHORDATA/AVES	<i>Asio flammeus</i>	Short-eared Owl	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	0-50 pairs
CHORDATA/AVES	<i>Aythya nyroca</i>	Ferruginous Duck	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Annex I of the EU Birds Directive	70-130 pairs
CHORDATA/AMPHIBIA	<i>Bombina orientalis</i>	Fire-bellied Toad	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	Annex II and IV of the EU Habitats Directive	over 2% of the Hungarian population
CHORDATA/AVES	<i>Branta ruficollis</i>	Red-breasted Goose	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	895	2014	2	EN	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Annex I of the EU Birds Directive	individuals (2014) Criterion 6: See text box below.
CHORDATA/AVES	<i>Burhinus oedipus</i>	Eurasian Stone-curlew	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	2-10 pairs
CHORDATA/AVES	<i>Charadrius morinellus</i>	Eurasian Dotterel	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	120-510 migrant individuals Criteria 3 and 4: Angyalháza-pusztá is the most important autumn migration stopover site of Dotterel in Carpathian Basin.

Phylum	Scientific name	Common name	Species qualifies under criterion			Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification	
			2	4	6	9	3	5	7									8
CHORDATA/AVES	<i>Chlidonias hybrida</i> 	Whiskered Tern	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	875	2013-2014	1.8	LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	Pairs (average) Population size: usually 750-1000 pairs Criterion 6: see text box below.
CHORDATA/AVES	<i>Chlidonias leucopterus</i> 	White-winged Tern	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1300	2013		LC 	<input type="checkbox"/>	<input type="checkbox"/>	Appendix II of the Bern Convention	pairs See Section 6.1.2. > i. taxonomic list 0-500 pairs, record numbers up to 2000-4500 pairs in exceptionally wet years Criterion 3: The most important breeding habitats for White-winged Tern in the region, which is of Middle Europea
CHORDATA/AVES	<i>Chlidonias niger</i> 	Black Tern	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	0-300 pairs
CHORDATA/AVES	<i>Chroicocephalus ridibundus</i> 	Black-headed Gull	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	37500	2013-2014	2.2		<input type="checkbox"/>	<input type="checkbox"/>		Individuals (average) Criteria 5 and 6: see text box below.
CHORDATA/AVES	<i>Ciconia ciconia</i> 	White Stork	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	200-500 individuals, occasionally high numbers of oversummering immatures, up to 1000
CHORDATA/AVES	<i>Ciconia nigra</i> 	Black Stork	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	autumn peaks of 50-200 migrant individuals in the Ramsar site
CHORDATA/AVES	<i>Circus aeruginosus</i> 	Western Marsh Harrier	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	100-110 pairs
CHORDATA/AVES	<i>Circus cyaneus</i> 	Northern Harrier	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	300 wintering individuals
CHORDATA/AVES	<i>Circus pygargus</i> 	Montagu's Harrier	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	5-15 pairs, breeds in the area since the 80ies
CHORDATA/ACTINOPTERYGII	<i>Cobitis taenia</i> 	Spined loach	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex II of the EU Habitats Directive	over 2% of the Hungarian population
CHORDATA/AVES	<i>Egretta garzetta</i> 	Little Egret	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	70-130 pairs
CHORDATA/REPTILIA	<i>Emys orbicularis</i> 	European Pond Terrapin	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	Annex II and IV of the EU Habitats Directive	over 2% of the Hungarian population
CHORDATA/AVES	<i>Falco peregrinus</i> 	Peregrine Falcon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	3-8 individuals
CHORDATA/AVES	<i>Falco vespertinus</i> 	Red-footed Falcon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT 	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Annex I of the EU Birds Directive	25-80 pairs, breeding
ARTHROPODA/INSECTA	<i>Gortyna borellii lunata</i> 	Fisher's Estuarine Moth	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	Annex II and IV of the EU Habitats Directive	
CHORDATA/AVES	<i>Grus grus</i> 	Common Crane	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	68500	2013-2014	28.5	LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	individuals (average) Criteria 5 and 6: See text box below.
CHORDATA/ACTINOPTERYGII	<i>Gymnocephalus baloni</i> 	Danube ruffe	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex II of the EU Habitats Directive	
CHORDATA/ACTINOPTERYGII	<i>Gymnocephalus schraetser</i> 	Schraetzer	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex II of the EU Habitats Directive	
CHORDATA/AVES	<i>Haliaeetus albicilla</i> 	White-tailed Eagle	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Annex I of the EU Birds Directive	2 pairs, 50-100 overwintering individuals Criterion 4: Hortobágy-Halastó is an important wintering site for dozens of White-tailed Eagles partly due to winter feeding carried out by conservationists.
CHORDATA/AVES	<i>Ichthyaetus melanocephalus</i> 	Mediterranean Gull	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	0-8 pairs



Phylum	Scientific name	Common name	Species qualifies under criterion			Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6	9	3	5	7								
CHORDATA/AVES	<i>Ixobrychus minutus</i> 	Little Bittern	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	40-120 pairs
CHORDATA/AVES	<i>Limosa limosa</i> 	Black-tailed Godwit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				NT 	<input type="checkbox"/>	<input type="checkbox"/>		Criterion 5: see text box below
CHORDATA/AVES	<i>Luscinia svecica</i> 	Bluethroat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	130-200 pairs
CHORDATA/MAMMALIA	<i>Lutra lutra</i> 	European Otter	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT 	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Annex II and IV of the EU Habitats Directive	100-500 individuals ; over 2% of the Hungarian population
ARTHROPODA/INSECTA	<i>Lycaena dispar</i> 	Large Copper	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	Annex II of the EU Habitats Directive	50 000 imagoes
CHORDATA/AVES	<i>Mergellus albellus</i> 	Smew	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	100-140 migrant individuals
CHORDATA/AVES	<i>Microcarbo pygmeus</i> 	Pygmy Cormorant	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	120-200 pairs Criterion 3: Here are the most important strongholds of Pygmy Cormorant within the Pannonic Biogeographic region.
CHORDATA/AVES	<i>Milvus migrans</i> 	Black Kite	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	1-2 pairs
CHORDATA/ACTINOPTERYGII	<i>Misgurnus fossilis</i> 	Weatherfish	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex II of the EU Habitats Directive	over 2% of the Hungarian population
CHORDATA/AVES	<i>Numerius tenuirostris</i> 	Slender-billed Curlew	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				CR 	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Annex I of the EU Birds Directive	occasionally recorded in 1990s
CHORDATA/AVES	<i>Nycticorax nycticorax</i> 	Night Heron	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	500-800 pairs
CHORDATA/AVES	<i>Pandion haliaetus</i> 	Osprey,Western Osprey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	3-4 individuals
CHORDATA/AVES	<i>Philomachus pugnax</i> 	Ruff	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	125000		10		<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	individuals (average) Criterion 6: see text box below. 100000 – 200000 migrant individuals (spring migration) Hortobágy is important for them to refuel before moving on to their breeding or wintering grounds.
CHORDATA/AVES	<i>Platalea leucorodia</i> 	Eurasian Spoonbill	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	395	2013-2014	6.6	LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	pairs (average) Criterion 3: Here are the most important strongholds of Spoonbill within the Pannonic Biogeographic region. Criterion 4. Kunkápolnás and Hortobágy-Halastó host major colonies of Spoonbill. Criterion 6: See text box below.
CHORDATA/AVES	<i>Plegadis falcinellus</i> 	Glossy Ibis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	0-30 pairs
CHORDATA/AVES	<i>Pluvialis apricaria</i> 	European Golden Plover,European Golden-Plover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	up to 4000 migrant individuals
CHORDATA/AVES	<i>Porzana parva</i> 	Little Crane	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	50-80 pairs Criterion 3: The most important breeding habitats for Spotted Crane in the region, which is of Middle European significance.
CHORDATA/AVES	<i>Porzana porzana</i> 	Spotted Crane	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	0-300 pairs, absent in years of drought, in wet years up to 1000 pairs
CHORDATA/AVES	<i>Porzana pusilla</i> 	Baillon's Crane	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	0-30 pairs, breeds in wet years in tussocky wet meadows, but difficult to survey due to its secretive habits

Phylum	Scientific name	Common name	Species qualifies under criterion			Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6	9	3	5	7								
CHORDATA/ AVES	<i>Recurvirostra avosetta</i> 	Pied Avocet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	Annex I of the EU Birds Directive
CHORDATA/ ACTINOPTERYGII	<i>Rhodeus amarus</i> 	Bitterling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex II of the EU Habitats Directive	over 2% of the Hungarian population
CHORDATA/ ACTINOPTERYGII	<i>Romanogobio albiginnatus</i> 	White-finned gudgeon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex II of the EU Habitats Directive	
CHORDATA/ MAMMALIA	<i>Spermophilus citellus</i> 	European Souslik	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				VU 	<input type="checkbox"/>	<input type="checkbox"/>	Annex II and IV of the EU Habitats Directive	
CHORDATA/ AVES	<i>Sterna hirundo</i> 	Common Tern	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	10-40 pairs
CHORDATA/ AVES	<i>Sterna albifrons</i> 	Little Tern	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	0-1 pairs
CHORDATA/ AVES	<i>Tringa glareola</i> 	Wood Sandpiper	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the EU Birds Directive	5000 migrant individuals
CHORDATA/ AMPHIBIA	<i>Triturus cristatus</i> 	Crested Newt	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Annex II and IV of the EU Habitats Directive	over 2% of the Hungarian population
CHORDATA/ ACTINOPTERYGII	<i>Umbra krameri</i> 	Mudminnow	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				VU 	<input type="checkbox"/>	<input type="checkbox"/>	Annex II of the EU Habitats Directive	

For Criterion 5 and 6, please refer to Section 6.1.2 Additional reports and documents > i. taxonomic lists of plant and animal species occurring in the site, for more information on the peak numbers recorded for relevant species.

Other noteworthy animal species which are not listed in the Catalogue of Life:

Insects: Endemic subspecies of moths: *Saragossa porosa kenderesiensis* and *Hadula dianthi hungarica* are food plant specialists living on halophytic plant species, *Artemisia santonicum* and *Gypsophila muralis*, respectively. The former plant is also a food plant of another endemic moth subspecies, *Narraga tessularia kasyi*.

### 3.4 - Ecological communities whose presence relates to the international importance of the site

Name of ecological community	Community qualifies under Criterion 2?	Description	Justification
Relic loess grasslands ( <i>Salvia-Festucetum rupicolae</i> )	<input type="checkbox"/>	<i>Salvia nemorosa</i> , <i>Salvia austriaca</i> , <i>Nonea pulla</i> , <i>Filipendula hexapetala</i> , <i>Dianthus pontederiae</i> , <i>Agropyron pectinatum</i>	
Alkaline grasslands	<input type="checkbox"/>	Zám-puszta: <i>Artemisio-Festucetum</i> , on more wet parts <i>Puccinellietum limosae</i> ; Pentezug-puszta: Typical <i>Artemisio-Festucetum</i> grassland with astatic marshes and meadows with <i>Alopecuretum</i> tall grass associations.	
1530 Pannonic salt steppes and salt marshes	<input checked="" type="checkbox"/>	Representativity: excellent; conservation status: good; global assessment: good.	Annex I of the EU Habitats Directive
3150 Natural eutrophic lakes with Magnopotamion or Hydrocharition type vegetation	<input checked="" type="checkbox"/>	representativity: excellent; conservation status: good; global assessment: good	Annex I of the EU Habitats Directive
6250 Pannonic loess steppic grasslands	<input checked="" type="checkbox"/>	representativity: significant; conservation status: average; global assessment: good	Annex I of the EU Habitats Directive

## 4 - What is the Site like? (Ecological character description)

### 4.1 - Ecological character

The most important wetlands of Hortobágy are the permanent and the temporarily inundated, alkaline marshes, several fishpond systems created in the place of former marshland, and Kisköre (Lake Tisza) reservoir. Their habitats, plant and animal communities can thus be grouped into alkaline marshlands/steppes and artificial water bodies (fishponds and reservoirs).

Please refer to Section 6.1.2 Additional material > vi. other published literature for more detailed information on the ecological components of the site and physical features of the site and its catchment.

### 4.2 - What wetland type(s) are in the site?

#### Inland wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
Saline, brackish or alkaline water > Marshes & pools >> Sp: Permanent saline/brackish/alkaline marshes/pools		3		Rare
Saline, brackish or alkaline water > Marshes & pools >> Ss: Seasonal/intermittent saline/brackish/alkaline marshes/pools		1		Rare

#### Human-made wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
1: Aquaculture ponds		4		
6: Water storage areas/Reservoirs		2		

### 4.3 - Biological components

#### 4.3.1 - Plant species

##### Other noteworthy plant species

Scientific name	Common name	Position in range / endemism / other
<i>Agropyron cristatum</i>		Relic loess grasslands in the Zám-pusza unit
<i>Alopecurus pratensis</i>		Zám-pusza unit
<i>Anacamptis morio</i>	Green-winged Orchid	1500 individuals (Pentezug-pusza unit); Angyalháza-pusza unit found in 1990
<i>Anacamptis palustris</i>		Angyalháza-pusza unit, found in 1991
<i>Anacamptis palustris elegans</i>		Kunkápolnás Marsh unit
<i>Atriplex littoralis</i>		Zám-pusza unit
<i>Beckmannia eruciformis</i>		Zám-pusza unit; Kunkápolnás Marsh unit
<i>Bolboschoenus maritimus</i>		Kunkápolnás Marsh unit
<i>Bupleurum tenuissimum</i>		Zám-pusza unit
<i>Butomus umbellatus</i>		Middle Part of Kisköre Reservoir
<i>Carex disticha</i>		Egyek-Pusztakócs Marshes unit - recorded only in Hagymás marsh in Hortobágy
<i>Dianthus pontederæ</i>		large population in the Pentezug-pusza unit; Relic loess grasslands in the Zám-pusza unit; Egyek-Pusztakócs Marshes
<i>Elatine alsinastrum</i>	Whorled waterwort	IUCN Red List: NT; Pentezug-pusza unit; Egyek-Pusztakócs Marshes unit;
<i>Eleocharis palustris</i>		Zám-pusza unit
<i>Filipendula vulgaris</i>		Relic loess grasslands in the Zám-pusza unit
<i>Glyceria fluitans</i>		Pentezug-pusza unit

Scientific name	Common name	Position in range / endemism / other
<i>Glyceria maxima</i>		Pentezug-pusztai unit
<i>Heliotropium supinum</i>		Angyalháza-pusztai unit
<i>Hydrocharis morsus-ranae</i>		Egyek-Pusztakócs Marshes unit ; Kunkápolnás Marsh unit
<i>Iris pseudacorus</i>	Yellow Flag	largest population of Hortobágy region in Egyek-Pusztakócs Marshes ; Northern Part and Middle Part of Kisköre Reservoir
<i>Leucanthemella serotina</i>		In the edge of the feeding canal in Hortobágy-Halastó ; Northern Part of Kisköre Reservoir
<i>Leucocjum aestivum</i>	Summer snowflake	IUCN Red List: LC ; Northern Part of Kisköre Reservoir
<i>Limonium gmelinii</i>		Zám-pusztai unit - endemic
<i>Lythrum virgatum</i>		Pentezug-pusztai unit
<i>Nonea pulla</i>		Relic loess grasslands in the Zám-pusztai unit
<i>Phragmites australis australis</i>	Reed	Middle Part of Kisköre Reservoir
<i>Plantago major</i>		Angyalháza-pusztai unit
<i>Poa nemoralis</i>		Zám-pusztai unit
<i>Puccinellia distans</i>		Zám-pusztai unit
<i>Quercus robur</i>	Oak	Pentezug-pusztai unit: small island along River Hortobágy with some 100 years old oak tree
<i>Ranunculus aquatilis</i>		Pentezug-pusztai unit ; Egyek-Pusztakócs Marshes unit
<i>Sagittaria sagittifolia</i>	Arrowhead	Hortobágy-Halastó unit ; In some parts of Kunkápolnás Marsh unit ; Middle Part of Kisköre Reservoir
<i>Salicornia europaea</i>		Zám-pusztai unit
<i>Salsola soda</i>		Zám-pusztai unit : Angyalháza-pusztai unit
<i>Salvia austriaca</i>		Relic loess grasslands in the Zám-pusztai unit ; Angyalháza-pusztai unit
<i>Salvia nemorosa</i>		Relic loess grasslands in the Zám-pusztai unit ; Angyalháza-pusztai unit
<i>Schoenoplectus lacustris</i>		mosaic stands - Middle Part of Kisköre Reservoir
<i>Spergularia maritima maritima</i>		Angyalháza-pusztai unit
<i>Suaeda salinaria</i>		Zám-pusztai unit
<i>Taenatherum caput-medusae</i>		Egyek-Pusztakócs Marshes unit - Largest population in Hungary
<i>Typha angustifolia</i>	Broadleaved Bulrush	Middle Part of Kisköre Reservoir
<i>Utricularia vulgaris</i>		Pentezug-pusztai unit ; Angyalháza-pusztai unit ; Egyek-Pusztakócs Marshes unit
<i>Wolffia arrhiza</i>		

## 4.3.2 - Animal species

## Other noteworthy animal species

Phylum	Scientific name	Common name	Pop. size	Period of pop. est.	%occurrence	Position in range /endemism/other
CHORDATA/AVES	<i>Anas acuta</i>	Northern Pintail				In some years, 0-5 pairs breed on wet meadows, but numbers are small even on passage.
CHORDATA/AVES	<i>Anas clypeata</i>	Northern Shoveler				700-1500 in spring
CHORDATA/AVES	<i>Anas penelope</i>	Eurasian Wigeon				900-1000 in spring
CHORDATA/AVES	<i>Anas platyrhynchos</i>	Mallard				around 40-50 000 in spring

Phylum	Scientific name	Common name	Pop. size	Period of pop. est.	%occurrence	Position in range /endemism/other
CHORDATA/AVES	Anas querquedula	Garganey				3000-4000 in spring
CHORDATA/AVES	Ardea cinerea	Gray Heron; Grey Heron				breeding
CHORDATA/AVES	Buteo rufinus	Long-legged Buzzard				marshy steppe areas in summer
CHORDATA/MAMMALIA	Castor fiber	Eurasian Beaver				4-5 families at Lake Tisza (Kisköre Reservoir).
CHORDATA/AVES	Circaetus gallicus	Short-toed Snake Eagle				marshy steppe areas in summer
CHORDATA/AVES	Coturnix coturnix	Common Quail				
CHORDATA/AVES	Falco cherrug	Saker Falcon				marshy steppe areas in summer
CHORDATA/AVES	Falco subbuteo	Eurasian Hobby; Northern Hobby				occasionally also breeds on the site
CHORDATA/AVES	Falco tinnunculus	Common Kestrel; Eurasian Kestrel				breeding
CHORDATA/AVES	Gallinago gallinago	Common Snipe				valued members of marshland bird communities
CHORDATA/AVES	Locustella luscinioides	Savi's Warbler				300-400 pairs (breeding)
CHORDATA/AVES	Locustella naevia	Common Grasshopper Warbler				expands (50 pairs in the Ramsar site) in wet meadows
CHORDATA/AVES	Numenius arquata	Eurasian Curlew				4000-5000 in autumn
CHORDATA/AVES	Otis tarda	Great Bustard				In the pusza (steppe) areas, usually 25-30 Great Bustard are present and nest
CHORDATA/AVES	Panurus biarmicus	Bearded Tit				200 pairs
CHORDATA/AVES	Podiceps cristatus	Great Crested Grebe				30-170 pairs (nesting)
CHORDATA/AVES	Podiceps grisegena	Red-necked Grebe				10-70 pairs (nesting)
CHORDATA/AVES	Podiceps nigricollis	Black-necked Grebe; Eared Grebe				0-200 pairs (nesting)
ARTHROPODA/INSECTA	Poecilus kekesiensis					Fairly recently, this beetle species new to science was discovered on the alkaline grasslands of the Hortobágy
CHORDATA/AVES	Rallus aquaticus	Water Rail				fairly common breeder in reedbeds and marshes (300 pairs min.), but difficult to survey due to its secretive habits
CHORDATA/AVES	Remiz pendulinus	Eurasian Penduline Tit				100-150 pairs
CHORDATA/AVES	Riparia riparia	Bank Swallow; Sand Martin				
CHORDATA/AVES	Tachybaptus ruficollis	Little Grebe				150-200 pairs (nesting)
CHORDATA/AVES	Tringa erythropus	Spotted Redshank				5000-7000 in autumn
CHORDATA/AVES	Tringa totanus	Common Redshank				(20-50 pairs) valued members of marshland bird communities; 1500-2000 in spring
CHORDATA/AVES	Vanellus vanellus	Northern Lapwing				(100-200 pairs) valued members of marshland bird communities

## 4.4 - Physical components

### 4.4.1 - Climate

Climatic region	Subregion
D: Moist Mid-Latitude climate with cold winters	Dfa: Humid continental (Humid with severe winter, no dry season, hot summer)

Climate: semi-arid, semi-humid forest steppe, with average annual precipitation of 550 mm, the mean annual temperature is about 10 °C. The annual evaporation loss is about 200 mm.

4.4.2 - Geomorphic setting

a) Minimum elevation above sea level (in metres)

a) Maximum elevation above sea level (in metres)

Middle part of river basin

Please name the river basin or basins. If the site lies in a sub-basin, please also name the larger river basin. For a coastal/marine site, please name the sea or ocean.

River Tisza originates outside the boundary of Hungary, collects the water arriving from the eastern part of the basin surrounded by Carpathians. The total catchment area of Tisza River covers approximately the half of Carpathian Basin (157200 km<sup>2</sup>), from which Hungary has 47000 km<sup>2</sup>.

4.4.3 - Soil

Are soil types subject to change as a result of changing hydrological conditions (e.g., increased salinity or acidification)? Yes  No

Please provide further information on the soil (optional)

Soils in these areas are largely solonetz (black alkali soils) with an A-horizon of approximately 0-25 cm. The B-horizon of these soils has been formed due to the accumulation of mainly Na-salts (NaHCO<sub>3</sub>, Na<sub>2</sub>SO<sub>4</sub>, NaCl, Na<sub>2</sub>CO<sub>3</sub>) due to leaching (in periods of precipitation) and capillary rise of groundwater and salts (in dry periods). When infiltration is very small, which is the case for trampled (or another surface erosion process affected) barren soils eliminating the A-horizon of the soil, or when there is an excess upward seepage (and this with the strong evaporation concentrates the salts), salts concentrate on the surface or just beneath it.

4.4.4 - Water regime

Water permanence

Presence?	Changes at RIS update
Usually permanent water present	
Usually seasonal, ephemeral or intermittent water present	

Source of water that maintains character of the site

Presence?	Predominant water source	Changes at RIS update
Water inputs from surface water	<input type="checkbox"/>	No change

Please add any comments on the water regime and its determinants (if relevant). Use this box to explain sites with complex hydrology.

As a result of the regulation works during the last century the natural catchment area of the marshland and steppe units of Hortobágy Ramsar site were fragmented and the natural watercourses flooding the marshes were cut off. The various agricultural projects implemented in the 1950s seriously decreased the local catchment areas to further reduction of the already limited marsh area. Recently the natural water supply is impossible.

Nowadays Hortobágy receives water in the following way: Tisza River - Western Main Channel - Árkus canal - supply canals and - feeding canals.

Please refer to Section Section 6.1.2 Additional reports and documents > vi.other published literature for more information on the water regime and hydrological values of the individual units.

4.4.5 - Sediment regime

<no data available>

4.4.6 - Water pH

Alkaline (pH>7.4)

4.4.7 - Water salinity

Mxohaline (brackish)/Mxosaline (0.5-30 g/l)

Please provide further information on salinity (optional):

The soil and groundwater bodies are rich in Na-salts. To illustrate how rich is the soil in Na-salts it is enough to mention, that the saturated soil extract of the upper 50 cm layer has 10-70 mS conductivity. Salt concentration of the groundwater varies between 2000 and 20000 mg/l. This process has led to the formation of impermeable subsoils and in general to a decreased infiltration making overland-flow the most important hydrological pathway.

4.4.8 - Dissolved or suspended nutrients in water

Unknown

4.4.9 - Features of the surrounding area which may affect the Site

Please describe whether, and if so how, the landscape and ecological characteristics in the area surrounding the Ramsar Site differ from the i) broadly similar  ii) significantly different  site itself.

4.5 - Ecosystem services

4.5.1 - Ecosystem services/benefits

Provisioning Services

Ecosystem service	Examples	Importance/Extent/Significance
Food for humans	Sustenance for humans (e.g., fish, molluscs, grains)	High
Wetland non-food products	Reeds and fibre	High
Wetland non-food products	Livestock fodder	Medium

Regulating Services

Ecosystem service	Examples	Importance/Extent/Significance
Maintenance of hydrological regimes	Groundwater recharge and discharge	
Hazard reduction	Flood control, flood storage	Medium

Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Recreational hunting and fishing	Medium
Recreation and tourism	Picnics, outings, touring	Medium
Recreation and tourism	Nature observation and nature-based tourism	Medium
Spiritual and inspirational	Cultural heritage (historical and archaeological)	High
Scientific and educational	Educational activities and opportunities	Medium
Scientific and educational	Major scientific study site	High
Scientific and educational	Important knowledge systems, importance for research (scientific reference area or site)	High

Supporting Services

Ecosystem service	Examples	Importance/Extent/Significance
Biodiversity	Supports a variety of all life forms including plants, animals and microorganisms, the genes they contain, and the ecosystems of which they form a part	High

Other ecosystem service(s) not included above:

The most important cultural value of the whole Hortobágy (including the steppe/marshy units of the Ramsar site) is the survival of ancient, traditional pastoral life. Extensive animal husbandry has been practiced here for thousands of years, and the preserved pastoral traditions, tools and lifestyle date back to the times of the Hungarian conquest of Carpathian Basin (late 9th century). The co-existence of this traditional lifestyle and the natural heritage, which mutually formed each other during centuries, was recognized by the international community when, in the year 2000, UNESCO declared Hortobágy National Park as part of the World Cultural Heritage in the cultural landscape category.

Please refer to Section 6.1.2 Additional reports and documents > vi. other published literature for more information on the hydrological value of each individual unit, the social and cultural values of the Site and further details on the current land (including water) use.

Have studies or assessments been made of the economic valuation of ecosystem services provided by this Ramsar Site? Yes  No  Unknown

4.5.2 - Social and cultural values

- i) the site provides 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

Description if applicable

The extensive fish farming at Hortobágy Halastó is a good example for harmonizing farming practices with the conservation of the natural heritage. Traditional animal husbandry in the puszta (steppe/marsh) areas has also contributed to preserving and enriching the natural values of the site.

- ii) the site has exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland

Description if applicable

Traditional tools, methods and lifestyle of pastoral communities (herdsmen) have been maintained here in superb quality and provide a good example for the harmonious co-existence of man and nature.

- iii) the ecological character of the wetland depends on its interaction with local communities or indigenous peoples

Description if applicable

The natural habitat structure of short grasslands is maintained by extensive grazing, affecting also the wetland vegetation, especially the shorelines. The ecological character of Hortobágy-Halastó and Kisköre Reservoir depend on human activities as they are man-made, but extensively managed wetlands.

4.6 - Ecological processes

<no data available>



## 5 - How is the Site managed? (Conservation and management)

### 5.1 - Land tenure and responsibilities (Managers)

#### 5.1.1 - Land tenure/ownership

##### Public ownership

Category	Within the Ramsar Site	In the surrounding area
National/Federal government	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Local authority, municipality, (sub)district, etc.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

##### Private ownership

Category	Within the Ramsar Site	In the surrounding area
Cooperative/collective (e.g., farmers cooperative)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Commercial (company)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other types of private/individual owner(s)	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Provide further information on the land tenure / ownership regime (optional):

**a) within the Ramsar site:**

Owned by the Hungarian State and managed by Hortobágy National Park Directorate, except for Kisköre Reservoir, which is owned by the State and managed by the Water Management Authority.

**b) in the surrounding area:**

State owned, managed by Hortobágy National Park Directorate, cooperative and private farms, fishery, municipalities.

#### 5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for managing the site:

Hortobágy National Park Directorate

Provide the name and title of the person or people with responsibility for the wetland:

Ms. Szilvia Göri, desk officer for Ramsar issues

Postal address:

H-4024 Debrecen, Sumen utca 2.

E-mail address:

szilvi@hnp.hu

## 5.2 - Ecological character threats and responses (Management)

### 5.2.1 - Factors (actual or likely) adversely affecting the Site's ecological character

#### Water regulation

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Drainage	Medium impact		<input checked="" type="checkbox"/>	No change	<input type="checkbox"/>	No change
Water abstraction	Medium impact		<input checked="" type="checkbox"/>	No change	<input type="checkbox"/>	No change

#### Agriculture and aquaculture

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Livestock farming and ranching			<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Marine and freshwater aquaculture	Medium impact		<input checked="" type="checkbox"/>	No change	<input type="checkbox"/>	No change

#### Human intrusions and disturbance

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Recreational and tourism activities	Medium impact		<input checked="" type="checkbox"/>	No change	<input type="checkbox"/>	No change
(Para)military activities			<input checked="" type="checkbox"/>		<input type="checkbox"/>	

#### Natural system modifications

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Dams and water management/use	Medium impact		<input checked="" type="checkbox"/>	No change	<input type="checkbox"/>	No change
Vegetation clearance/ land conversion			<input checked="" type="checkbox"/>		<input type="checkbox"/>	

Pollution

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Household sewage, urban waste water		Medium impact	<input checked="" type="checkbox"/>	No change	<input checked="" type="checkbox"/>	No change
Agricultural and forestry effluents		Medium impact	<input type="checkbox"/>	No change	<input checked="" type="checkbox"/>	No change

Climate change and severe weather

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Droughts	Medium impact		<input checked="" type="checkbox"/>	No change	<input type="checkbox"/>	No change

Please describe any other threats (optional):

a) within the Ramsar site:

Halastó: inadequate intensive fishfarming in the past, but since 1997 the whole system is used with priority of nature conservation purposes

Zám-puszta: after flood control (19th century) marshes partly lost their natural water supply, the long lasting dry period caused a decrease of wet parts and open water surfaces, creation of grassland irrigation system in the 1950-60s on 150 ha of the north-eastern part of Halas-marsh fragmenting the marsh bed and its catchment.

At Pentezug-puszta the long lasting dry period and the inadequate grazing affected the area in the last 12-14 years. On the northern part rice-fields were created in the 50s and were used partly as ploughland. The grassland vegetation of these arable lands has partly recovered and is used today for hay-making. To avoid the negative impact of the agricultural projects implemented in the 50s a grassland and wetland restoration feasibility study was prepared.

The Creation of rice and grassland irrigation systems at Angyalháza-puszta in the 1950-60s was fragmenting the natural beds of watercourses and marshes and the local catchment. The long lasting drought decreased the extension of wet parts, also some bare biotopes have disappeared.

Northern Part of Kisköre Reservoir (Tiszafüred Bird Reserve): The stabilization of its wildlife is hindered by the significant fluctuation in water level deriving from the functioning of the reservoir: the winter drainage and the summer takeout for irrigation, illegal anglers also can cause some disturbance.

In the Middle Part of Kisköre Reservoir (Poroszló-basin) the stabilization of its wildlife is hindered by the significant fluctuation in water level deriving from the functioning of the reservoir: the winter drainage and the summer takeout for irrigation.

Kunkápolnás: Formerly military area, but since 2004 state owned and managed by the Hortobágy National Park Directorate.

b) in the surrounding area:

Egyek-Pusztakócs Marshes: use of fertilizers, chemicals can be a source of danger by infiltration, ploughlands year by year expands a few metres to the marsh areas.  
Overall the inadequate agricultural activities.

Water pollution coming from Tisza River can be a source of danger for the Middle Part of Kisköre Reservoir (Poroszló-basin). Refuse water of Eger town running into the upper reach of the reservoir results in deterioration of the water quality.

5.2.2 - Legal conservation status

Global legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
World Heritage site			
UNESCO Biosphere Reserve	Angyalháza, Pentezug, Zám, Kunkápolnás, Hortobágy-Halastó. MAB Core areas: Angyalháza, Pentezug, Zám, Kunkápolnás		whole

Regional (international) legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
EU Natura 2000	SPA and SAC		partly

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
national park			whole
bird reserve	Tiszafüred Bird Reserve		partly

5.2.3 - IUCN protected areas categories (2008)

II National Park: protected area managed mainly for ecosystem protection and recreation

5.2.4 - Key conservation measures

Legal protection

Measures	Status
Legal protection	Implemented

Habitat

Measures	Status
Improvement of water quality	Proposed
Hydrology management/restoration	Proposed
Land conversion controls	Proposed

Human Activities

Measures	Status
Livestock management/exclusion (excluding fisheries)	Proposed

Other:

Current management practices: Barren islands were created in 2002 for breeding grounds for waders.

A new management plan of the Hortobágy National Park is under development, which contains also information and prescriptions about the Ramsar site.

Conservation measures taken: Please refer to Section 6.1.2 Additional material > vi. other published literature.

Proposed nature conservation management measures in Egyek-Pusztakócs Marshes are: to stop with cultivation on approximately 50 % of the today cultivated arable lands, to continue with the restoration of loess grasslands, to increase the number of grazing animals (mostly cattle, extensive grazing). With the financial contribution of the EU LIFE-Nature fund restoration project of the surrounding grasslands is carried out in 2004-2008. These actions serve from one hand the restoration of the natural water movements (the restored grasslands will act as local catchment again) and from the other hand water quality control (buffer zones).

5.2.5 - Management planning

Is there a site-specific management plan for the site? In preparation

Has a management effectiveness assessment been undertaken for the site? Yes  No

If the site is a formal transboundary site as indicated in section Data and location > Site location, are there shared management planning processes with another Contracting Party? Yes  No

Please indicate if a Ramsar centre, other educational or visitor facility, or an educational or visitor programme is associated with the site:

Please refer to section 6.1.2 Additional Additional reports and documents > vi. other published literature for information on current communications, education and public awareness activities related to the different parts of the Site.

Ecotourism is co-ordinated and supported from the Hortobágyvisitor centre in Hortobágy village, opened to the public in 2007, as well as from the Western Gate of Hortobágy (Nyugati Fogadó) at the junction to Egyek on road 33. Birdwatching tourism is mainly concentrated on Hortobágy-Halastó, where the industrial train of the Fishery had been renewed by 2006 and opened for ecotourism. Entrance to the southern part of Pentezug-puszta area is prohibited, in the northern part tourism is concentrated in the Animal Park.

5.2.6 - Planning for restoration

Is there a site-specific restoration plan? Yes, there is a plan

5.2.7 - Monitoring implemented or proposed

Monitoring	Status
Soil quality	Implemented
Plant species	Implemented
Animal species (please specify)	Implemented

Pentezug-puszta: Significant area for research in alkaline micro-formations and soil development processes of surface erosion forms.

The natural status survey of the area is going on.

Paleoecological research was carried out in 1998-99 at Zám-puszta, also a research on zooplankton of ephemeral waters. The uniqueness of the area in sense of halophytic vegetation associations means a scientific research value. Also some research were started on vegetation.

In the Pentezug-puszta area 2800 ha of the natural grassland area is fenced and there is not human impact on it. Here in 1997 Przewalsky Horses were introduced for research purposes also serving the preservation of this wild horse.

In the Egyek-Pusztakócs Marshes hydrobiological and ornithological status survey is going on, occasional investigations on dragonflies and fishes. The area has potential for further research activities.

Angyalháza-puszta is target area of the National Biomonitoring Programme. Research on the effect of grazing is continuously going on (botanical, zoological). Botanical research is carried out as part of the rehabilitation project.

Northern Part of Kisköre Reservoir (Tiszafüred Bird Reserve): At governmental level a new strategy of using the whole reservoir in a way where the nature conservation prescriptions are taken in consideration is being prepared. There is a field station at the site. Hydrological, hydrobiological researches (Middle-Tisza Water Management Authority, Szolnok). Fish-faunistic researches (Research Institute for Pisciculture, Szarvas). Botanical researches, the twenty years long lasting monitoring of the Tisza Research Committee (JATE University, Ecological Dep., Juhász Gy. Teachers' College, Szeged). Survey of basic ecological status (University of Debrecen and HNPD) is continuously going on since 2000.

Middle Part of Kisköre Reservoir (Poroszló-basin): Regular training courses are organised for locals, who rent canoes and guide tourists on the reservoir by canoeing. Some ecotourism development activities are planned on the short term.

## 6 - Additional material

### 6.1 - Additional reports and documents

#### 6.1.1 - Bibliographical references

For the full list of bibliographical references, please refer to the document in Section 6.1.2 Additional reports and documents > vi. other published literature.

#### 6.1.2 - Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)

<1 file(s) uploaded>

ii. a detailed Ecological Character Description (ECD) (in a national format)

<no file available>

iii. a description of the site in a national or regional wetland inventory

<no file available>

iv. relevant Article 3.2 reports

<no file available>

v. site management plan

<no file available>

vi. other published literature

<2 file(s) uploaded>

#### 6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:



Aerial view of the Hortobágy Fishponds ( Mr. János Tar (Hortobágy NP Directorate), 2011 )

#### 6.1.4 - Designation letter and related data

Designation letter

<no file available>

Date of Designation 1979-04-11