

# Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 of the Conference of the Contracting Parties.

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**1. Date this sheet was completed/ updated:**

March 2002

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**2. Country:** BULGARIA

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Designation date

Site Reference Number

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**3. Name of wetland:**

SREBARNA

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**4. Geographical coordinates:** 44°06'40"/ 27°04'38"

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**5. Elevation:** 11-13 m

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**6. Area:** 1357,03 ha

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**7. Overview:** (general summary, in two or three sentences, of the wetland's principal characteristics)

A hyper-eutrophic freshwater lake beside the village of Srebarna, on the bank of the River Danube between kilometres 393 and 391. The open-water surface is partly covered by *Hydrocharis*, *Nymphaea* and *Potamogeton*, and is fringed by reedbeds of *Phragmites* and *Typha*. Typical are the floating reedbeds of the lake. There are some groups of *Salix* in the reedbeds. Komluka island (in the Danube), which is part of the reserve, is covered by flooded forest of *Salix* and *Populus*. Plantations of *Robinia* and *Eleagnus* cover the surrounding hills. The site is important for breeding waterbirds, especially the LR/Conservation Dependant *Pelecanus crispus*, the largest breeding population of the LR/Nearly Threatened *Aythya nyroca* (over 60 pairs and 308 specimens moulting in June-July) and *Phalacrocorax pygmeus* (300 breeding pairs) and for wintering geese. Species of global conservation concern that do not meet IBA criteria: *Anser erythropus* (has occurred in the past), *Branta ruficollis* (up to 1,000 in winter), *Haliaeetus albicilla* (1-5 in winter; extinct as a breeding species).

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**8. Wetland Type** (please circle the applicable codes for wetland types; in the present document, the "Ramsar Classification System for Wetland Type" is found on page 9)

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)

Please now rank these wetland types by listing them from the most to the least dominant:

O – M – Ts – Xf – 4 – 3 – 9 - 7

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9. **Ramsar Criteria:** (Please circle the applicable Criteria; the *Criteria for Identifying Wetlands of International Importance* are reprinted beginning on page 11 of this document.)

1 • 2 • 3 • 4 • 5 • 6 • 7 • 8

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Please specify the most significant criterion applicable to the site: 2/3

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

(Please refer to the *Explanatory Note Guidelines* document for information regarding desirable map traits).

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11. **Name and address of the compiler of this form:**

Irina Kostadinova /Member of the National Ramsar Committee  
and

Nikolai Petkov

Bulgarian Society for the Protection of Birds / BirdLife Bulgaria  
Yavorov Complex, Bl.71, Ent.4, Ap.1, P.O. Box 50  
1111 Sofia, Bulgaria

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

**Criterion 1** – Srebarna Lake is the last Danube riverside lake preserved in Bulgaria and is unique example of this common in the past type of wetlands. It shelters vast diversity of plants and animal species characteristic and rare for the region. Some of the plant formations are typical for the wetland like the floating reedbeds and flooded willow woodlands.

**Criterion 2 -**

The following species from the IUCN Red List categories have been recorded in the site:

Invertebrates: *Lycaena dispar*.

Fishes: *Alosa pontica pontica*; *Carasius carasius*; *Chalcalburnus chalcoides*; *Cyprinus carpio*; *Misgurnus fossilis*; *Gobio kessleri*; *Neogobius fluviatilis*.

Amphibians: *Triturus cristatus*; *Triturus dobrogicus*; *Bombina bombina*; *Hyla arborea*.

Birds: *Phalacrocorax pygmeus*; *Pelecanus crispus*; *Anser erythropus*; *Branta ruficollis*; *Aythya nyroca*; *Aquila heliaca*; *Haliaeetus albicilla*; *Cyrcus macrourus*; *Crex crex*; *Gallinago media*.

Mammals: *Lutra lutra*; *Vormela peregusna*; *Spermophilus citelus*; *Cricets migratorius*; *Mesocricetus newtoni*; *Mycromis minutus*; *Sicista subtilis*;

Plants from Bulgarian Red Data Book: 11 species (*Aldrovanda vesiculosa*, *Cicuta virosa*, *Stratiotes aloides*). Wildlife of European conservation concern: the plant *Aldrovanda vesiculosa*.

Invertebrates: 36 species of order Odonata (*Cordilia aenea*).

Animals from Bulgarian Red Data Book: *Pungitius platygaster* – one of the largest populations in Bulgaria, *Benthophilus stellatus*; *Chalcalburnus chalcoides*; *Lota lota*; *Pelobates syriacus*

*balcaniscus* – the northern border of the species range; *Elaphe longissima longissima*; *Mustela eversmanni*; The largest mixed colony of herons with *Egretta alba* 10-20 pairs, *E. garzetta* 80-100 pairs, *Adreola ralloides* – 150 pairs, *Platalea leucorodia* – 25-35 pairs; *Plegadis falcinellus* – 15-25 pairs; *Nycticorax nycticorax* – 60-100 pairs, for *Aythya ferina*, *Aythya nyroca*, *Anser anser* and *Cygnus olor* – one of the most important breeding sites in the country; the wetland supports important in national scale populations of *Larus ridibundus*, *Chlidonias niger*; *Ch. hybrida*.

### **Criterion 3 –**

The Managed Reserve Srebarna supports high and valuable biodiversity. Total of 1166 genera has been recorded in the area with 2 748 infrageneric taxa; 221 bird species have been recorded in the area or 55.2% of the Bulgarian ornithofauna, of them 90 are SPECs; 15 plant species of the Bulgarian Red Data Book; 21 reptile species and 23 species of fishes or 18.1% of Bulgarian freshwater fishes.

### **Criterion 4 –**

The wetland is an important breeding, staging and wintering site for large number of birds. It is the only breeding site of *Pelecanus crispus*, the largest colony of *Ph. pygmeus* as well as the largest breeding population of *Aythya nyroca* in Bulgaria. It is an important staging area for molting of *A.nyroca* (up to 310 individuals) and other rare and endangered in Bulgaria wildfowl species (*A. strepera*, *A.ferina*, *A.querquedula*). During late autumn and in winter it provides staging site for geese species – up to 1,000 *Branta ruficollis*, up to 50,550 *Anser albifrons*, supports the largest concentrations of *Anser anser* (up to 505 birds) in Bulgaria during this period. The lake provides foraging area for the large *Ph. carbo* colony situated on the nearby Danube Island, and in the recent years the Pelicans and Pygmy cormorants feed in the lake as well. The wetland support viable populations of number of fish species of which some are endangered in Bulgaria – (*Pungitius platygaster* – one of the densest populations in the country).

### **Criterion 5 –**

The site supports up to 52 355 waterbirds on migration and wintering (*A. albifrons* – up to 50,550 individuals).

### **Criterion 6 –**

The wetland supports species populations covering 1% criteria of the following species:  
*Pelecanus crispus* – 120 breeding pairs (9,6% of the Black Sea/Mediterranean population);  
*Phalacrocorax carbo* – over 560 pairs (1,1% of the Black Sea/Mediterranean population);  
*Ph.pygmeus* – 300 pairs (2,4% of the Black Sea/Mediterranean population);  
*Aythya nyroca* – 308 individuals and over 60 breeding pairs (1% of the E Europe/E Mediterranean population);  
*Branta ruficollis* – up to 1,000 individuals (1,4% of the global population)  
*Anser albifrons* – up to 50,550 individuals on migration and winter (7,8% of the W Siberia /Black Sea/Turkey population);

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### **13. General location:** (include the nearest large town and its administrative region)

The lake of Srebarna is situated in North-Eastern Bulgaria on the right bank of the Danube between the river kilometers 393 and 391. It is beside the village of Srebarna and 18km west from the town of Silistra, which is the regional administrative center

**14. Physical features: (e.g., geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth; water permanence; fluctuations in water level; tidal variations; catchment area; downstream area; climate)**

➤ Origin - It was formed under the influence of the former Srebarna River stream, which subsequently sank into the Karst, while the lake continued to be supplied by strong underground Karst water springs as well as by the Danube River.

➤ Geology & geomorphology (including soils) - The lake overlays Baremian and Apatian limestones covered with Pliocene clays. The alluvial horizon corresponds to the terrace accumulations of the Danube, the loess horizon is the uppermost strata with thickness of up to 14m. The soils are haplic chernozems, carbonate-meadow - chernozem

➤ Hydrogeology & hydrology

There are three clear periods in the development of the wetland. Up to 1948 – natural development, 1949-1979 – deteriorated condition; 1979-1994 – first restoration attempt; restoration of the hydrology after 1994. The long term drying up period from 1988 to 1994 has resulted in negative effect for the lake – diminished water body, decreased water level transformation into hypertrophic wetland. The watershed of the lake is 402 sq. km. supplied by the rivers Srebarnenska and Kalnezha. The hydrocarbonite, chlorine, sulfatic, sodium, calcium and magnesium ions are the main components of the water minerals. The bioorganic in the lake depend on the inflow of the Danube River. The concentration of the ammonium (0.7-1mg/l), nitrates (0.9-7.8 mg/l) and phosphorus (0.1-0.55 mg/l) ions is within the range of a eutrophic wetland.

➤ Climate

The climate in the region is continental with a temperature between 15°C (in January) and 39°C (in July). The average annual number of days with temperature >25 °C is 25 and for the days with temperature <0 °C it is 20. Annual precipitation average is 159 mm. The relative air humidity is highest in January (84%) and lowest in July and in August (66%). The predominant winds are with northern and north-eastern direction with average monthly speed ranging between 1,7 and 5,8 m/s.

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**15. Hydrological value:** (groundwater recharge, flood control, sediment trapping, shoreline stabilisation, etc.)

Not described

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**16. Ecological features:** (main habitats and vegetation types)

The main habitats are:

Standing freshwater; Temporary fresh water; Duckweed covers (*Lemna*, *Spirodela* *Wolfia*, *Azola*); Frogbit rafts (*Hydrocharis morsus-ranae*); Water-soldier rafts (*Stratiotes aloides*); Salvinia covers (*Salvinia natans*); Rooted submersed vegetation (*Potamogeton*); Small pondweed communities (*Ceratophyllum*); Northern Nymphaea beds (*Nymphaea alba*); Freshwater reedbeds (*Phragmites australis*); Cattail stands (*Typha latifolia*); Reedmace beds (*T. angustifolia*); Ponto-Panonian mesophyll hay meadows (*Leucoium aestivum*); Poplar plantations (*Populatum*).

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**17. Noteworthy flora:** (indicating, e.g., which species/communities are unique, rare, endangered, or biogeographically important, etc.).

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Typical for the site are the floating reedbeds formed by *Ph. australis* with participation of *Talipteris palustris* and *Salix sp.*; Considerable formations of *Utricularia vulgaris*, *Myriophyllum spicatum*, *Potamogeton pectinatus*, *Persicaria amphibia*, *Nymphaea alba*, *Nuphar lutea*, *Salvinia natans*, *Lemna trisulca*, important associations of *Typha angustifolia*, *T. latifolia* and *Schoenoplectus lacustris*;

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**18. Noteworthy fauna:** (indicating, e.g., which species are unique, rare, endangered, abundant or biogeographically important; include count data, ect.).

**Fish** – *Pungitius platygaster*, *Cyprinus carpio*, *Carassius carassius*, *Misgurnus fossilis*,

**Amphibians** – Viable populations exist of *Hyla arborea*, *Bombina bombina*, *Pelobates syriacus balcanicus*, *Triturus cristatus*, *Tr. dobrogicus*.

**Reptiles** – *Testudo graeca iberica*, *Elaphe longissima*, *Ablepharus kitaibelli fitzingeri*, *Lacerta trilineata dobrogica*, *Lacerta viridis meridionalis*, *Coluber jagularis caspius*, *Elaphe quatuorlineata sauromates*, *Vipera ammodytes montandoni*.

**Birds** are the most diverse component. Total of 223 species have been registered in the area, of them 54 are breeding, 57 are from the Red Data Book of Bulgaria, 90 SPECs occur in the area,

**Mammals** Total of 41 mammal species have been registered. The following IUCN list mammal species are found in the area: *Lutra lutra*, *Mustella eversmani*, *Vormela peregusna*, *Spermophilus citellus*, *Mesocricetus newtoni*, *Micromys minutus*; *Sicista subtilis*;

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**19. Social and cultural value:** (e.g. fisheries production, forestry, religious importance, archeological site, etc.)

Reed cutting and commercial fishing used to be practiced in the past but now is forbidden according to the reserve status.

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**20. Land tenure /ownership of:** (a) site (b) surrounding area

**(a) site**

The reserve 902 ha is an exclusive state property and is managed by the Ministry of Environment and Water and its respective subdivisions;

**(b) Surrounding area:**

Church property 26ha; private land – 1092 ha; Municipality property – 656.4ha; State property – 1579.6 ha;

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**21. Current land use:** (a) site (b) surroundings/catchment

**(a) site**

as a managed reserve there is no current land use only management activities are allowed.

**(b) surroundings/catchment**

The surrounding areas are mainly arable fields with wheat, some vineyards exist on the hilltops, forest plantations of *Rubinia pseudoacacia* and *Pinus nigra* on the west bank is situated the village of Srebarna.

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

### (a) at the site

- In 1948 was built a dike that disconnected the lake from the Danube and initiated its severe eutrophication process. In 1979 part of the dike has been removed but had little positive effect. The disconnection lead to the hypereutrophication of the wetland that was most severe in 1993-1994 when the water column also diminished to few centimeters. Heavy problem is the siltation process that is accelerated by the erosion of the west bank and the decaying reedbeds material. In 1994 was constructed a canal that restored the river-lake connection and improved its condition. During the low water level in the late 1980s and early 1990s important threats included nest-predation by foxes *Vulpes vulpes*, jackals *Canis aureus* and boars *Sus scrofa*, which affect the Pelican colony.
- Illegal fishing in the lake with nets, which causes disturbance and entrapment of diving birds in the fishnets; This problem causes entrapment of Pygmy cormorants, diving ducks – Pochards and Ferruginous Ducks, Grebes, Otters, terrapins etc.
- Potential threat for the area is burning of the floating reedbeds during drier period in spring or summer that may cause destruction of the Pelican colony, or the mixed heron colony.
- The deposition of organic and urban garbage on the bank of the lake from people of Srebarna village is causing additional organic and ecstatic pollution of the site.

### (b) around the site / catchment area

The use of fertilizers and pesticides in the surrounding arable lands and the pig farm near the river Kalnezha contribute to the pollution of the lake with bioorganic elements and organic compounds.

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**23. Conservation measures taken:** (national category and legal status of protected areas – including any boundary changes which have been made: management practices; whether an officially approved management plan exists and whether it has been implemented)

The status of the protected area was changed in the year 2000 from strict reserve to managed reserve to allow management activities in the wetland. In 1994 was fulfilled a project for restoration of the connection of the lake with the Danube River through an artificial canal. A management authority was appointed at the Ministry of Environment and Water that implies the restrictions of the protected area regime. The reserve management authority consists of Head of the RMA, head of the wardens and three wardens. A management plan was elaborated and approved by the MoEW and is due for implementation.

902 ha of the proposed enlarged Ramsar Site is designated as Managed Reserve, Biosphere Reserve, World Heritage Site (Srebarna lake, 902 ha). 600 ha are designated as Ramsar site as well. The boundaries of the managed reserve (since the last correction) are not digitized yet, and it is expected to be finished by May 2003.

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**24. Conservation measured proposed but not yet implemented:** (e.g. management plan in preparation; officially proposed as a protected area, etc.):

- The implementation of the management plan has not yet started.
  - In 1994 was proposed to create second canal for lake water circulation but at present this is in doubt and halted.
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**25. Current scientific research and facilities:** (e.g., details of current projects; existence of field station, etc.)

Field Ecological Station of the central Laboratory of General Ecology (CLGE), The CLGE executes project for monitoring of the wetland ecosystem as per contract with the MoEW and also as part of its individual scientific research programme.

BSPB/BirdLife Bulgaria carries out regular monitoring of the bird fauna of the site as part of its IBA Programme since 1988. The organization has its local volunteers in the nearby settlements for support of these activities.

Le Balkan is conducting observation on the *P. crispus* colony and has constructed a hide close at hand to the Pelican colony.

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**26. Current conservation education** (e.g. visitors center, hides, info booklet, facilities for school visits, etc.)

At present partially information is available at the Natural History Museum of Srebarna, though in an old fashion manner. The MoEW, BSPB/BirdLife Bulgaria and others have published number of leaflets and posters in recent years.

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**27. Current recreation and tourism:** (state if wetland is used for recreation/ tourism; indicate type and frequency / intensity)

The wetland is a hotspot for birdwatching and recreation tourism for foreign tourists. Annually hundreds of foreigners visit the site. Much smaller amount of Bulgarians (mainly naturalists and researchers) visits the wetland. Total of about 15 000 tourists visit the site.

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**28. Jurisdiction:** (territorial, e.g. state/region, and functional, e.g. Dept of Agriculture/Dept. of Environment, etc.)

The site is under the jurisdiction of Silistra Regional municipality.

**From functional point of view:**

The conservation is in the prerogatives of the Regional Inspectorate of the MoEW and the Reserve Management Authority; both are subjected to the National Nature Protection Service that is in charge of the protected areas in Bulgaria.

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**29. Management authority:** (name and address of local body directly responsible for managing the wetland)

Srebarna Reserve Management Authority

Srebarna Village – 7587,

Silistra Region

or

National Nature Protection Service

MoEW, 67 “W. Gladstone” str., BG-1000 Sofia; Bulgaria

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**30. Bibliographical references:** (scientific/ technical only)

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