

World Heritage Sites

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SREBARNA NATURE RESERVE BULGARIA

The Srebarna Nature Reserve is a freshwater lake on the Romanian border, supplied by seasonal floods from the River Danube one kilometre to the north. It is the breeding home of 99 species of birds, 24 of which are rare or endangered. Some 80 other bird species migrate and overwinter there, including 10% of the world's Dalmatian pelicans. The site was inscribed on the List of the World Heritage in Danger from 1992 to 2003, because the lake was becoming a marsh of polluted water due to activities upstream which led to the decline and disappearance of many birds. Two new canals permitting a flow of water to the Reserve and a halt to farming and housing, which affected the lake, began to restore its condition.

COUNTRY

Bulgaria

NAME

Srebarna Nature Reserve

NATURAL WORLD HERITAGE SITE

1983: Inscribed on the World Heritage List under Natural Criterion x.

1992-2001: Listed as a World Heritage site in Danger.

2008: Expanded to include the buffer zone under the same criterion.

STATEMENT OF OUTSTANDING UNIVERSAL VALUE

The UNESCO World Heritage Committee issued the following Statement of Outstanding Universal Value at the time of inscription:

Brief Synthesis

Srebarna Nature Reserve protects a lake and wetland ecosystem of 638 ha located near to the village of Srebarna on the west bank of the Danube River. The reserve includes the lake and the former agricultural lands north of the lake, a belt of forest plantations along the Danube, the island of Komluka and the aquatic area locked between the island and the riverbank. The reserve is an important wetland on the Western Palaearctic bird migratory flyway. It provides nesting grounds for 99 species of birds and seasonal habitat to around 80 species of migratory birds. The property is surrounded by hills, which provide a natural boundary and offer an ideal means for observing the waterfowl.

Criterion (x): Srebarna Nature Reserve protects an important example of a type of wetland that was widespread in Bulgaria in the past. It shelters a diversity of plant and animal species, which are increasingly threatened. The wetland is an important breeding, staging and wintering site for a large number of birds. Floating reedbed islands and flooded willow woodlands provide important bird breeding areas. In the lake's northern end the reedbeds gradually give way to wet meadows. In the north-western end of the lake and along the Danube there are belts of riverine forest with single old trees of White Willow.

The rich bird life supported by Srebarna Nature Reserve is the basis for its international significance. The property holds populations of birds that are considered critical to species survival. It hosts the only colony of Dalmatian Pelican in Bulgaria, as well as the largest breeding populations of four more globally threatened species: Pygmy Cormorant, Ferruginous Duck, White-tailed Eagle and Corncrake. Srebarna is also of European value importance in supporting Little Bittern Night Heron, Squacco Heron, Little Egret, Great White Egret, Purple Heron, Glossy Ibis, Spoonbill and Ruddy Shelduck. Three species of terns also occur here. Globally threatened Pygmy Cormorant and Red-breasted Goose winter in the Reserve, and the wintering populations of White-fronted Goose, Greylag Goose and Fieldfare are also notable. In total the property provides critical habitat that supports 173 bird species, 78 species of which are of European conservation concern, and nine being listed as globally threatened.

Integrity

The property includes the largest lake left after drainage of the marshy zone along the Danube and was connected to the river until a dyke was built in 1949. Its current situation is therefore not completely natural and is maintained by water management measures. In 1994 a channel was constructed between the lake and the Danube river in order to ensure the annual flow of Danube waters into the lake during the spring months. The Reserve is a strictly protected area, and only carefully-controlled scientific research, and conservation management activities are allowed to take place within it. The site is relatively small, and only if other areas are also protected, in the region and on bird migration routes, can the key species of Srebarna Nature Reserve be expected to survive.

The property is protected by a 673 ha buffer zone which was created in 2008. This consists of a portion of the Srebarna Nature Reserve that is not part of the World Heritage property and 419 ha of land surrounding the Srebarna Nature Reserve, which is located within an adjacent protected area known as Pelikanite. The aim of this buffer zone is to prevent and reduce negative human impacts on the reserve.

Protection and Management Requirements

Srebarna Lake was the first wetland in Bulgaria to receive legal protection status and also the first to achieve international recognition. The lake was designated as reserve in 1948 to protect the diversity of birds it hosts. According to the 1998 law dealing with protected areas in Bulgaria, the property is classified as a "Managed Reserve", being exclusively State property. Management and control are carried out by the Ministry of Environment and Water and its regional departments. The reserve falls under the jurisdiction of the Regional Inspectorate of environment and water for the town of Russe. Besides its inclusion on the World Heritage List, Srebarna Lake is also protected as a Wetland of International Importance under the Ramsar Convention and as a UNESCO Biosphere Reserve. In 1989 the lake was designated as an Important Bird Area by BirdLife International. Its values are also recognised and protected at the European level. The property is also included in two Natura 2000 sites: the Srebarna Special Protection Area and Ludogorie-Srebarna Special Area of Conservation.

The property requires active management, and a management plan needs to be maintained and updated to guide this work. Key objectives of the management plan are conservation management for the protection of its breeding bird populations, and the continued function of the property as a stopover site for migratory birds. Specific regimes are in place for a number of different zones in the reserve, according to their conservation value. Key management requirements for the lake are to maintain and restore its water system to as natural a state as possible. Vegetation management is also needed to optimize the conservation value of the property to birds. Control of human use and the active prevention of poaching and illegal fishing are also required on an ongoing basis. Monitoring of activities to ensure management plan implementation is required in relation to the achievement of clear targets that should be defined and updated in the management plan.

Protection of the values of the property also relies on measures outside its boundaries. The buffer zone of the property is important in preventing the introduction of non-local plant or animal species, pollution from domestic, industrial or other types of waste, hunting during bird nesting and breeding periods, burning of reeds, and other activities that could disturb the nesting and breeding bird colonies. Some of these issues also require measures beyond the defined buffer zone of the property. The linkage of the property with other reserves on the Romanian side of the Danube, and within the wider Western Palaearctic migratory flyway, would also enhance its integrity and the protection of its natural values.

INTERNATIONAL DESIGNATIONS

1975/2000: Designated a Wetland of International Importance under Ramsar Convention (1,357 ha).

1977: Designated a Biosphere Reserve under the UNESCO Man & Biosphere Programme (902 ha).

IUCN MANAGEMENT CATEGORY:

Ia Strict Nature Reserve

BIOGEOGRAPHICAL PROVINCE

Middle European Forest (2.11.05)

GEOGRAPHICAL LOCATION

Lake Srebarna lies in the flood plain of the Danube 1 km south of the river, on the northeastern Bulgarian border with Romania, 18 km west of the town of Silistra and 85 km southeast of Bucharest: 44° 05'N by 27° 07'E.

DATES AND HISTORY OF ESTABLISHMENT

1942: Declared a Wildfowl Refuge;

1948: Established as a Managed Nature Reserve of 600 ha by the Ministry of Agriculture and Food by Decree 2-11-931;

- 1975: Designated a Ramsar Wetland site;
- 1977: Designated a UNESCO Biosphere Reserve;
- 1983: A buffer area of 542.8 ha was added around the Reserve;
- 1992-2001: Listed as an endangered World Heritage site because of degradation following drought and water loss due to works on the Danube upstream;
- 1993: Nature Reserve area increased by 302 ha by Ordinance 581. Site added to Montreux record of wetlands in danger;
- 2000: The Ramsar Wetland enlarged and renamed a Management Area;
- 2008: A buffer area of 673 ha added to the designated area.

LAND TENURE

State, in Silistra province. Administered by the Ministry of Environment and Waters.

AREA

638 ha including the Danube islands of Devna, Vetrine & Komlouka. The added buffer area is 673 ha.

ALTITUDE

11m to 13.2m.

PHYSICAL FEATURES

Srebarna is Bulgaria's largest river lake. It lies in the floodplain of the River Danube on sandy clay and clay over limestone. It was connected to the river until the construction of flood-control dikes in 1948 and 1978 which first hindered then prevented its annual flooding. From then on it was fed largely by underground springs with some run-off from the surrounding hills. But after drought between 1982 and 1994, the water fell to an average depth of one meter and became hyper-eutrophic with nitrogen and phosphorus from farm wastes, fertilisers, pesticides and sediment. The lake began to turn into a marsh with effects on phytoplankton, fish and bird life. It was reconnected with river water, partially in 1979 and completely in 1994. By 1999 the mean depth had recovered to 2.1m and the maximum was 3.3m. There are now about 120 ha of open water with over 400 ha of reed beds. The underlying soil is a 14m deep layer of loess. The surrounding land is marshy, and the islands in the river are regularly flooded. Just beyond the boundaries are low hills and farms (Bulg. Ac. Sci., 2000).

CLIMATE

Northern Bulgaria has a continental climate of hot summers and cold wet winters. The mean January temperature is ~ -2°C, the extreme minimum ~ -35°C. The mean July temperature is 23°C, the extreme maximum, 41°C. The average annual rainfall is 502mm. Summers have become drier over the last 25 years. (Bulg. Ac. Sci., 2000).

VEGETATION

Srebarna is floristically a region of the Ukraine-Kazakh biotic province and is the only protected tract of natural land of any size in the lower Danube wetlands of northeastern Bulgaria. The Ramsar 2002 site description notes that 2,748 taxa have been recorded. These include 53% of Bulgaria's wetland species in a variety of wetland habitats: standing and temporary open water with submerged vegetation, river, seasonal marsh, stable and floating reed beds, swamp, flooded willow woodlands, hay meadows and poplar plantations. The dominant vegetation, covering two thirds of the reserve and forming a thick barrier around the lake, is the reed community *Phragmites australis* with lesser and greater reed-mace *Typha angustifolia* and *T. latifolia* and *Schoenoplectus* spp. It has mats of water lily *Nymphaea alba*, *Potamogeton pectinatus*, *Hydrocharis* and *Lemna* spp. and bushes of goat willow *Salix caprea*, grey willow *S. cinerea* and purple osier *S. purpurea*. There are 2 internationally and 11 nationally threatened species of plants (Bulg. Ac. Sci., 2000). Komlouka Island has a flood-forest of *Salix* and *Populus* species.

FAUNA

The avifauna is very rich: 233 species, some 52,350 being waterbirds. These include 80 migratory species, (55% of Bulgarian species), 24 of which give the Reserve its unique status as refuge for threatened or vulnerable species. The Reserve is an Important Bird Area and refuge for 12

internationally and 57 nationally threatened species (Kostadinova, 1996; Bulg. Ac. Sci., 2000). It is especially important for breeding waterbirds. There are 99 breeding species, and the only Bulgarian colonies of Dalmatian pelican *Pelecanus crispus* (VU: 120 breeding pairs in 2000) and great egret *Casmerodius albus* (10-20 pairs). The reserve is the only nesting place in Bulgaria for great cormorant *Phalacrocorax carbo* (over 560 pairs) and ferruginous duck *Aythya nyroca* (VU: 60 pairs), and is the largest wintering ground for red-breasted goose *Branta ruficollis* (EN:1,000 individuals). It is an important breeding ground for little cormorants *Phalacrocorax pygmaeus* (300 pairs), night heron *Nycticorax nycticorax* (60-100 pairs), little egret *Egretta garzetta* (80-100 pairs), squacco heron *Ardeola ralloides* (150 pairs), little bittern *Ixobrychus minutus* (20 pairs), glossy ibis *Plegadis falcinellus* (15-25 pairs), Eurasian spoonbill *Platalea leucorodia* (25-35 pairs), corncrake *Crex crex*, great bustard *Otis tarda* (VU) and five other heron species with some 1,000 nests. Important wintering species include mute swan *Cygnus olor*, white-fronted and greylag goose *Anser albifrons* and *A. anser* (505 birds) and white-tailed eagle *Haliaeetus albicilla* (1-5 pairs, winter 2004). In 1999, a breeding colony of whiskered tern *Chlidonias hybrida* established itself. The figures from the Ramsar 2002 site description generally improve on those cited from the 1990s by Birdlife International.

There are 41 species of mammals - nearly half of Bulgaria's fauna: 4 carnivores, 7 mustelids, 3 ungulates and 18 or more rodents. There are 6 nationally and 4 internationally threatened mammals: otters *Lutra lutra* are occasionally found, steppe polecat *Mustella eversmannii*, marbled polecat *Vormela peregusna* and European wild cat *Felis silvestris*. Jackals *Canis aureus*, muskrats *Ondatia zibethica*, and racoon dogs *Nyctereutes procyonoides* have invaded the area, preying on the birds when they can. Wild boar *Sus scrofa*, roe deer *Capreolus capreolus*, red deer *Cervus elaphus* and hares *Lepus* sp. are still hunted nearby. There are 18 species of fish and 15 species of reptiles, 6 being endangered in Bulgaria including the rare asp *Aspius aspius*, and the Aesculapian ratsnake *Zamenis longissimus*; plus 12 amphibians: one, the eastern spadefoot toad *Pelobates syriacus*, was recently discovered in Bulgaria for the first time and is listed in the Red Book for Bulgaria. 36 species of the Odonata are recorded (Bulg. Ac. Sci., 2000).

CONSERVATION VALUE

The Reserve combines wetlands with large inaccessible reed beds, making it a breeding ground for 99 species of birds, several of which are globally threatened. The population of the Dalmatian pelican is 9.6% of the Black Sea/Mediterranean total. Some 80 other bird species migrate and seek refuge here every winter. The Park is a UNESCO Biosphere Reserve, is contained by a Ramsar Wetland and lies within a WWF Global 200 Freshwater Eco-region.

CULTURAL HERITAGE

Roman and later remains have been found just northeast of the Reserve at the fishing village of Vetren. Local people preserve traditional customs and dress, and there is an old settlement of the ultra-conservative Old Russian Believers in Tatarista, in next village east (Bulg. Ac. Sci, 2000).

LOCAL HUMAN POPULATION

Srebarna, a village of 1,100 inhabitants, lies on the southwest edge of the marsh. Farming is the main occupation, supplemented by illegal fishing. Reeds may no longer be harvested from the lakeside.

VISITORS AND VISITOR FACILITIES

There is a natural history museum in Srebarna which records 15,000 visitors a year, a third being students, and many being foreigners. There is a hide for viewing the pelicans, but tourism, hunting and commercial activities in the Reserve are strictly prohibited. The riverbanks are popular for fishing and picnicking. There are hotels at Vetren and Silistra.

SCIENTIFIC RESEARCH AND FACILITIES

The Reserve is a relatively fragile ecosystem and only carefully controlled scientific research is allowed. It has been studied for several years mainly to establish the numbers of different species and the ecological conditions necessary for their long-term preservation. There is a field station of the Central Laboratory for General Ecology in Srebarna village which monitors the wetland ecosystem.

MANAGEMENT

Partial reconnection of the lake with the Danube in 1978, completed in 1994, was done to prevent the lake drying up and to restore its plant, fish and bird populations. But droughts, especially between 1985 and 1990, were destructive. In 1989 only 29 pairs of Dalmatian pelicans nested. However, artificial nesting platforms were built and fenced round and an average of 80 pairs now breed

successfully. Other mitigation was also successful, the lake's level restored and a management plan incorporating detailed research was funded following a WHC/IUCN/Ramsar mission in 1997. The whole reserve is well fenced and there is a buffer zone of 545 ha. Shooting is prohibited and access and the reserve is strictly limited to scientific staff with permits. In both 1998 and 2001 WHC/IUCN/Ramsar missions to the site were progressively impressed by the improvements achieved.

The establishment with Romania of a trans-boundary Danube Wetland World Heritage site has been suggested by the World Heritage Committee, including both banks and islands in the river (UNESCO, 1999). The Management Plan was published in 2000. It is well researched and documented, detailing 24 categories of natural resource with recommendations for their treatment. It recorded the total recovery of the Dalmatian pelican population and the gradual recovery of the Reserve. Conditional on commitment of the funding needed for future action, Srebarna was removed from the danger list in June 2002.

MANAGEMENT CONSTRAINTS

The causes of the degradation of the lake and its wildlife were many but have now been largely overcome: cutting off water from the site by a flood-control dike in 1948, abandoning the reed harvest from 1975, dislocation of the seasonal flooding regime by the Iron Gates dam upstream in Romania, which also lowered the river bed, pumping of the lake's underground supply, increased pollution of the diminishing lake from farm wastes, fertilisers, pesticides and silt from eroded slopes with resulting infilling of the lake. Further threats have included fires, poison set for rodents, shooting, human disturbance and a long period of droughts between 1982 and 1994. Together these induced many harmful changes in the ecosystem. Severe nutrient enrichment followed which degraded the hydrology and biological productivity of the lake; there was rapid acceleration in vegetational succession, the formation of algal blooms and toxic gases, dieback of higher submerged vegetation and bottom fauna, depriving the fish and birds of food, and increase in the size and density of the fringing reed beds. This allowed foxes and jackals, wild boars and wild cats, to prey on nests and on the 100-year old Dalmatian pelican colony. Many species of birds declined or disappeared. The lake began to dry into a marsh. International attention and a program of constant monitoring under the new plan should ensure that none of these recur (Bulg. Ac. Sci., 2000). By 2005 the electrical generator needed for rapid sluice-gate action to prevent future pollution from the river had been provided through WHF funding. E.U. and Ukrainian commercial pressures to modify or canalise parts of the Danube to improve its use for transport may still revive these threats.

STAFF

In 2000 there was a resident manager and two guards; also four scientists in the Ecological Field Station and five staff, including a biologist, in the Natural History Museum (undated information).

BUDGET

In 1997 SF30,000 was granted towards a management plan from the Ramsar Small Grants Fund.

LOCAL ADDRESSES

The Manager, Srebarna Reserve Management Authority, Srebarna Village, 7587 Silistra Region, Bulgaria.

The Director, Regional Inspectorate of Environment & Waters, 20, Priduvski St. 7000, Rouse, Bulgaria.

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DATE

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