IUCN Conservation Outlook Assessment 2017 **(archived)**
Finalised on 09 November 2017

Please note: this is an archived Conservation Outlook Assessment for Srebarna Nature Reserve. To access the most up-to-date Conservation Outlook Assessment for this site, please visit https://www.worldheritageoutlook.iucn.org.

Srebarna Nature Reserve

SITE INFORMATION

Country:
Bulgaria
Inscribed in: 1983
Criteria:
(x)

Site description:
The Srebarna Nature Reserve is a freshwater lake adjacent to the Danube and extending over 600 ha. It is the breeding ground of almost 100 species of birds, many of which are rare or endangered. Some 80 other bird species migrate and seek refuge there every winter. Among the most interesting bird species are the Dalmatian pelican, great egret, night heron, purple heron, glossy ibis and white spoonbill. © UNESCO

SUMMARY

2017 Conservation Outlook

Good with some concerns

The majority of the World Heritage and other important biodiversity values of the property enjoy good conservation status. There is an overall trend of improvement of the conservation status of most of the bird populations. However, when assessed against the best-recorded historical conservation state, the conservation status of the Squacco Heron and Black Tern has deteriorated. Additional information is needed to make reliable assessment of the conservation state of the Ruddy Shelduck, White-tailed, Corncrake, Lesser White-fronted Goose, and Fieldfare. In addition, there is concern about the health of the ecosystem that underpins these values in the long term.
The current threats within the property and its buffer zone may result in significant negative effects on the site's integrity in the long term unless issues related to hydrological management, eutrophication and siltation are resolved. This may be exacerbated by climate change in the future.
The current management system is of some concern, and may be insufficient to maintain the values and integrity of the property over the long-term. The principle concerns include updating and resourcing the management system, law enforcement, and closer involvement of local stakeholders in conservation management.
The overall conservation outlook is at the border of "good with some concerns" and "Significant concern", but given the relatively good conservation status of the main World Heritage values and ongoing initiatives to improve management, the former is chosen as the overall assessment.

Current state and trend of VALUES

Low Concern
Trend: Data Deficient

The majority of the bird populations of the property enjoy good conservation status, and some of them have superseded their size at the time of inscription.

However, when assessed against the best-recorded historical conservation state, the conservation status of the Squacco Heron (Ardeola ralloides) and Black Tern (Chlidonias niger) has also deteriorated. Furthermore, the conservation state of Ruddy Shelduck (Tadorna ferruginea), White-tailed Eagle (Haliaeetus albicilla), Corncrake (Crex crex), Lesser White-fronted Goose (Anser erythropus), and Fieldfare (Turdus pilaris) could not be assessed reliably due to lack of or contradictory information. Finally, there are some concerns about the overall state of the ecosystem at the reserve, which underpins the state of all the populations contributing to its Outstanding Universal Value under World Heritage criterion x.

Overall THREATS

High Threat

Most significant threats to the values of the property are related to the on-going active management of the hydrological conditions in and around the property, as well as the changed hydrological regime of the Danube, on which the area depends. The lack of proper maintenance and operation of the sluice gates at the Dragaika canal connecting the property with the Danube River jeopardizes the continuation of the water level regime prescribed by the management plan. Furthermore, the expected lowering of the water level in the Danube due to climate change is likely to disrupt the regular seasonal flooding of the property and potentially trigger significant ecological change. In the long-term the accretion of sediments is likely to result in accelerated eutrophication and significant negative impacts on multiple values and the integrity of the property. The combined effect of these threats is likely to impede the on-going recovery of the ecological conditions and values of the property. Illegal fishing and invasive alien species also have negative, though limited, impacts on the integrity and values of the property. The threats in the area beyond the property and the surrounding buffer zone pose additional risks to its values and the integrity, but currently their impacts are moderate and reversible.

Overall PROTECTION and MANAGEMENT

Some Concern

Seven of the 15 aspects of protection and management, including the key aspects of "management system", "management effectiveness" and "enforcement", are of "Some Concern" according to this assessment. At the same

time, the legal and administrative arrangements for the protection of the values and integrity of the property and its buffer zone, as well as important adjacent areas in Bulgaria and Romania, are considered sufficiently effective. The boundaries of the property and its buffer zone are considered adequate. The principle concerns include updating and resourcing the management system, law enforcement, and closer involvement of local stakeholders in conservation management. Therefore, the protection and management of the property is assessed as of "Some Concern".

FULL ASSESSMENT

Description of values

Values

World Heritage values

- **An important wetland on the Western Palaearctic bird migratory flyway**
  Criterion:(x)

  Srebarna Nature 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 rich bird life supported by Srebarna Nature Reserve is the basis for its international significance. The property holds populations of some birds that are considered critical to species survival (SoOUV, 2009).

- **Dalmatian Pelican, Pelecanus crispus**
  Criterion:(x)

  The property hosts the only breeding colony of the Dalmatian Pelican in Bulgaria (WHC 1983a, WHC 1983b, WHC 2009, Michev and Simeonov 2011, Michev and Kamburova 2012). The Dalmatian Pelican is classified globally Vulnerable, with a decreasing population trend (IUCN 2017). The population of this species in Bulgaria is classified in the category Critically Endangered (Michev and Simeonov 2011). The property hosts 100 % of the national breeding population: at the average, in the property there were 67 breeding pairs for the period 1954-2005 (Michev and Simeonov 2011) and 108 breeding pairs for the period 2007-2011 (Michev and Kamburova 2012). During the breeding season the colony forages in the adjacent wetlands along the Danube river in Romania: Lacul Mostiştea, Lacul Gălățui, Iezerul

Călăraşi and Ciocăneşti Dunăre (Michev and Kamburova 2012). Some 200 individuals stage at the property during the migration season (Michev and Kamburova 2012).

► Pygmy Cormorant, Phalacrocorax pygmeus

Criterion:(x)

The property hosts the largest and most stable breeding colony of the Pygmy Cormorant in Bulgaria (WHC 2009, Nikolov et al. 2011). Globally, the Pygmy Cormorant is Least Concerned (IUCN 2017) whereas the population in Bulgaria is classified in the category Endangered (Nikolov et al. 2011). The property hosts 180/60-300 breeding pairs, 37/3-70 wintering individuals and 9/2-17 individuals stage at the property during the migration season (EEA 2013). The bottom-growing reedbeds microhabitat, found in all littoral parts of the Srebarna Lake, is the breeding habitat for the Pygmy Cormorant (Kambourova 2012).

► Ferruginous Duck, Aythya nyroca

Criterion:(x)

The property hosts the largest and most stable breeding colony of the Ferruginous Duck in Bulgaria (WHC 2009, Cheshmedziev 2012). Globally, the Ferruginous Duck is classified as Near Threatened, with a decreasing population trend (IUCN 2017), whereas the population in Bulgaria is classified in the category Vulnerable (Petkov 2011). The property hosts 25-40 breeding pairs (>15% of the breeding population in Bulgaria; Cheshmedziev 2012); the number of wintering individuals is small (2). Data on number of individuals that stage in the property during the migration season vary.

► Eurasian Spoonbill, Platalea leucorodia

Criterion:(x)

The Eurasian Spoonbill is a species of pan-European conservation importance - rare (BirdLife International 2004, WHC 2009). The population of this species is concentrated in Europe and has unfavourable conservation status at the pan-European level (BirdLife International 2004). Globally, the Eurasian Spoonbill is Least Concern (IUCN 2017). In Bulgaria this species is classified in the category Critically Endangered (Boev and Michev 2011). There are 20-24 breeding pairs in the property and its buffer zone (100 -15%

of the national population), and 18/7-30 individuals stage at the property during the migration season (EEA 2013).

► Glossy Ibis, Plegadis falcinellus

Criterion:(x)

The Glossy Ibis is a species of pan-European conservation concern - rare (BirdLife International 2004, WHC 2009). The population of the Glossy Ibis is not concentrated in Europe, but has unfavourable conservation status at the pan-European level (BirdLife International 2004). Globally, the Glossy Ibis is Least Concern; the population is decreasing (IUCN 2017). In Bulgaria this species is classified in the category Critically Endangered (Michev et al. 2011a). There are 19/10-28 breeding pairs in the property and its buffer zone and 100 wintering individuals (EEA 2013).

► Purple Heron, Ardea purpurea

Criterion:(x)

The Purple Heron is a species of European conservation concern (SoOUV, 2009). The population of the Purple Heron is not concentrated in Europe, but has unfavourable conservation status at the pan-European level (BirdLife International 2004). Globally, the Purple Heron is Least Concern; the population is decreasing (IUCN 2017). In Bulgaria this species is classified in the category Endangered (Boev et al. 2011). There are 8-50 breeding pairs in the property and its buffer zone.

► Ruddy Shelduck, Tadorna ferruginea

Criterion:(x)

The Ruddy Shelduck is a species of pan-European conservation concern (BirdLife International 2004, WHC 2009). The population of this species is not concentrated in Europe, but has unfavourable conservation status at the pan-European level (BirdLife International 2004). Globally, the Ruddy Shelduck is Least Concern (IUCN 2017). In Bulgaria this species is classified in the category Critically Endangered (Zehtindjiev et al. 2011). According to the EEA (2013), there are 2/0-4 breeding pairs in the property and its buffer zone, and 9/1-17 individuals stage at the property during the migration season. However, according to Zehtindjiev et al. (2011), about half of the national breeding population inhabits the open terrains of Northeastern Bulgaria and

the largest densities of breeding habitats are around the town of Glavinitsa, Silistra region. This species also breeds in the region around Burgas and in the microreservoirs near Karnobat and Aytos; the property is not mentioned as a current breeding site (Zehtindjiev et al. 2011).

► Little Bittern, Ixobrychus minutus

Criterion:(x)

The Little Bittern is a species of pan-European conservation concern (BirdLife International 2004, WHC 2009). The population of this species is not concentrated in Europe, but has unfavourable conservation status at pan-European level (BirdLife International 2004). Globally, the Little Bittern is classified by IUCN in the category Least Concern; the population is decreasing (IUCN 2017). In Bulgaria this species is classified in the category Endangered (Boev 2011a). There are 50/30-70 breeding pairs in the property and its buffer zone, which represents a small share of the national population (EEA 2013).

► Squacco Heron, Ardeola ralloides

Criterion:(x)

The Squacco Heron is a species of pan-European conservation concern - rare (BirdLife International 2004, WHC 2009). The population of this species is not concentrated in Europe, but has unfavourable conservation status at pan-European level (BirdLife International 2004). Globally, the Squacco Heron is classified as Least Concern; the population trend is unknown (IUCN 2017). In Bulgaria this species is classified in the category Endangered (Michev 2011a). There are 115/30-200 breeding pairs in the property and its buffer zone (15-2 % of the national population; EEA 2013).

► Little Egret, Egretta garzetta

Criterion:(x)

The Little Egret is a species of European conservation concern (SoOUV, 2009). The population of this species is not concentrated in Europe, and has otherwise favourable conservation status at the pan-European level (BirdLife International 2004). Globally, the Little Egret is Least Concern; the population is increasing (IUCN 2017). In Bulgaria this species is classified as Vulnerable (Michev 2011b). There are 130/60-200 breeding pairs in the property and its

buffer zone (EEA 2013).

▶ Great White Egret, Casmerodius albus

Criterion:(x)

The Great White Egret is a species of European conservation concern (SoOUV, 2009). The population of this species is not concentrated in Europe and has otherwise favourable conservation status at the pan-European level (BirdLife International 2004). Globally, the Great White Egret is Least Concern (IUCN 2017). In Bulgaria this species is classified as Critically Endangered (Michev 2011d). There are 7/2-12 breeding pairs in the property and its buffer zone (the only breeding population in Bulgaria), 2/0-5 wintering individuals, and 10 individuals stage at the property during the migration season (Kambourova 2005; EEA 2013).

▶ Whiskered Tern, Chlidonias hybridus

Criterion:(x)

The Whiskered Tern is a species of European conservation concern (SoOUV, 2009). The population of this species is not concentrated in Europe, but has unfavourable conservation status at pan-European level (BirdLife International 2004). In Bulgaria this species is classified as Vulnerable (Vasilev and Ivanov 2011), while it is considered Least Concern globally (IUCn 2017). There are 120/40-200 breeding pairs in the property and its buffer zone, and 9/1-17 individuals stage at the property during the migration season (EEA 2013).

▶ Black Tern, Chlidonias niger

Criterion:(x)

The Black Tern is a species of European conservation concern (SoOUV, 2009). The population of this species is not concentrated in Europe, but has unfavourable conservation status at pan-European level (BirdLife International 2004). Globally, the Black Tern is classified by IUCN in the category Least Concern; the population is decreasing (IUCN 2017). In Bulgaria this species is Critically Endangered (Ivanov 2011). There are 5/0-9 breeding pairs in the property and its buffer zone, and 1,100 individuals stage at the property during the migration season (EEA 2013).

► White-tailed Eagle, Haliaeetus albicilla

Criterion:(x)

The property was considered as a site of the largest breeding population of the White-tailed Eagle in Bulgaria (SoOUV, 2009). Globally, the White-tailed Eagle is classified by IUCN in the category Least Concern (IUCN 2017), whereas the population in Bulgaria is classified in the category Vulnerable (Ivanov et al. 2011). According to EEA (2013), there is one breeding pair in the property and its buffer zone. However, other sources on the occurrence of this species on the territory of the property and its vicinity do not support this claim. For instance, Kambourova (2012) has not observed this species in the property or its vicinity during her ornithological study from 2004-2006. According to Ivanov (2007), a pair bred in the nearby islands of Vetren/Bialata (Romania) and Devnja (Bulgaria) in the Danube until 1967. Since the late 1980s, some individuals regularly rest in the island of Vetren and hunt in Lake Srebarna, indicating the presence of a breeding pair in the island of Vetren, that is, in the vicinity of the property, outside its buffer zone (Ivanov 2007).

► Corncrake, Crex crex

Criterion:(x)

The property was considered as a site of the largest breeding population of the Corncrake in Bulgaria (SoOUV, 2009). Globally, the Corncrake is classified by IUCN as Least Concern (IUCN 2017), whereas the population in Bulgaria is classified as Vulnerable (Delov 2011). According to the EEA (2013) there are 3 breeding pairs in the property and its buffer zone. However, other sources on the occurrence of this species on the territory of the property and its vicinity do not support this claim. For instance, Kambourova (2012) has not observed this species in the property or its vicinity during her ornithological study from 2004-2006. According to Delov (2011), the more significant habitats of this species are found in the Sofia region, the Western and the Central Balkan range, Ponor Mountain, and along the Tran-Breznik line to the state border. The species has comparatively low numbers along the Danube banks and the Black Sea coast, in Dobrudzha and the Eastern Rhodopes (Delov 2011).

► Greylag Goose, Anser anser

Criterion:(x)

The wintering population of the Greylag Goose has a notable presence in the property (SoOUV, 2009). The population of the Greylag Goose is not concentrated in Europe and has otherwise favourable conservation status at the pan-European level (BirdLife International 2004). Globally, the Greylag Goose is classified by IUCN in the category Least Concern; the population is increasing (IUCN 2012). In Bulgaria this species is classified in the category Endangered (Ivanov and Dereliev 2011). There are 3/2-5 breeding pairs in the property and its buffer zone, 43/20-800 wintering individuals, and some 500 individuals stage at the property during the migration season (EEA 2013).

► Red-breasted Goose, Branta ruficollis

Criterion:(x)

The property is a wintering site for the globally threatened Red-breasted Goose (WHC 2009). Globally, the species is classified by IUCN in the category Vulnerable (IUCN 2017). The population of this species in Bulgaria is also classified in the category Vulnerable (Dereliev and Simeonov 2011). The property hosts less than 2% of the national wintering population (4/0-60 individuals; EEA 2013).

► Fieldfare, Turdus pilaris

Criterion:(x)

The wintering population of the Fieldfare has a notable presence in the property (SoOUV, 2009). The wintering population of the Fieldfare is concentrated in Europe and has favourable conservation status at the pan-European level (BirdLife International 2004). Globally, the Fieldfare is classified by IUCN in the category Least Concern; the population is stable (IUCN 2017). The property hosts less than 2% of the national wintering population – 7,500 individuals (EEA 2013).

Other important biodiversity values

► Other bird species

The Saker Falcon is a species of global conservation concern. It is classified by IUCN as globally threatened in the category Endangered (IUCN 2012). The population of this species in Bulgaria is classified in the category Critically Endangered (Domuschiev et al. 2011). There are 0-1 breeding pairs in the property and its buffer zone (2-0 % of the national population; EEA 2013). The White Stork is classified in Bulgaria in the category Vulnerable (Petrov et al. 2011a). There are 2/1-3 breeding pairs in the property and its buffer zone (2-0 % of the national population), and 1000 individuals stage at the property during the migration season (EEA 2013). Black Stork is classified in the category Critically Endangered (Petrov et al. 2011b). There are 30 individuals in the property and its buffer zone during the migration season (between 2 and 0 % of the national population; EEA 2013). There are 15/10-20 breeding pairs of Lesser Grey Shrike in the property and its buffer zone (2-0 % of the national population; EEA 2013) and 1-2 breeding pairs of Wood Lark. Night Heron is classified in Bulgaria in the category Vulnerable (Michev et al. 2011b). There are 75/50-100 breeding pairs in the property and its buffer zone (15-2 % of the national population; EEA 2013). Eurasian Eagle Owl is a species of pan-European conservation importance. Globally, the Eurasian Eagle Owl is classified by IUCN in the category Least Concern; but the population is decreasing (IUCN 2012). In Bulgaria this species is classified in the category Endangered (Boev et al. 2011b). There is a pair which resides in the property and its buffer zone throughout the year (EEA 2013).

► Mammal species

The Eurasian Otter (Lutra lutra) is a species of European conservation concern, classified as Near Threatened globally (Temple and Terry 2007, IUCN 2017). In Bulgaria this species is classified in the category Vulnerable (Spiridonov and Spassov 2011a). There are 6/7 resident individuals in the property and its buffer zone (EEA 2013). The Marbled Polecat (Vormela peregusna) is a species of European conservation concern, globally Vulnerable; the population trend is decreasing (Temple and Terry 2007, IUCN 2017). In Bulgaria, the Marbled Polecat is also classified in the category Vulnerable (Spiridonov and Spassov 2011b). The property and its buffer zone

host between 2-0 % of the national population (EEA 2013).

► Amphibians and reptiles

The Hermann's Tortoise and the Spur-thighed Tortoise are both species of European conservation concern, classified in the category Near Threatened amd Vulnerable, respectively (IUCN 2017). In Bulgaria, these species are classified in the category Endangered (Beschkov 2011a). Both species are resident species in the property and its buffer zone (EEA 2013). The Danube Crested Newt (Triturus dobrogicus) is a species of European conservation concern, classified as Near Threatened; the population has a decreasing trend (IUCN 2017). In Bulgaria this species is classified in the category Vulnerable (Beschkov 2011d). The Danube Crested Newt is a resident species in the property and its buffer zone (EEA 2013).

► Fish species

The Ukranian Stickleback (Pungitius platygaster) is a species of European conservation concern, and globally Least Concern (IUCN 2017). In Bulgaria this species is classified as Endangered (Stefanov and Trichkova 2011c). It has recently become extremely rare there, showing a continuous decline of its range; the property hosts a significant share of the national population (Stefanov and Trichkova 2011c). The European Mudminnow (Umbra krameri) is globally Vulnerable (IUCN 2017) and nationally Critically Endangered (Stefanov and Trichkova 2011b). It is a resident species; its population in the property and buffer zone accounts for 15-2% of the national population (EEA 2013).

► Waterwheel, Aldrovanda vesiculosa

The Waterwheel is globally Endangered, with a decreasing population trend (IUCN 2017). In Bulgaria, this species is classified as Critically Endangered (Meshinev 2011).The property hosts the only population of the species in Bulgaria (EEA 2013, Meshinev 2011, Valchev et al. 2012).

Assessment information

Threats

Current Threats

High Threat

A number of current threats to the values of the property are related to the on-going active management of the hydrological conditions in the property. The lack of proper maintenance and operation of the sluice gates at the Dragaika canal connecting the property with the Danube jeopardizes the continuation of the water level regime prescribed by the management plan. In addition, the existing hydrological regime for the property does not address the problem of sediment trapping which is further exacerbated by the delays in the implementation of actions for sediment removal envisaged in the management plan. The combined effect of the two threats is the unstable and delayed recovery of the ecological conditions and values of the property. This condition heightens the risks from other current and potential threats to the property, such as regular flooding from the Danube and the associated process of accelerated eutrophication. Another set of clear threats is related to poaching. Illegal fishing in particular persists as a threat to the values of the property, impacting both nesting and wintering birds and also food availability for fish-feeding birds. Invasive aliens species, such as the Grey Willow, and pressure from predators pose minor threat to the nesting colonies of some birds, most notably the Dalmatian Pelican and Pygmy Cormorant and are likely to be some localized but reversible negative impacts on these values and integrity of the property. The threats in the area beyond the property and the surrounding buffer zone pose additional risks to its values and the integrity, but currently their impacts are moderate and reversible. Since the threats related to the hydrological regime of Srebarna Nature Reserve itself - including the related eutrophication problem - and to the hydrological regime of the Danube River, on which it depends, affect the property in a non-additive (interactive) manner in relation to other threats, and since most of these have been assessed as

"High", the overall assessment of current threats can only be "High".

► Tourism/ visitors/ recreation

Low Threat
Inside site, extent of threat not known
Outside site

Recreation and tourism activities disturb the nesting population of the Spoonbill (Triplet et al. 2008). According to EEA (2013) walking and cycling have low and negative influence in small parts of the property and its buffer zone.

► Housing/ Urban Areas

Low Threat
Outside site

The area around the property covered by human settlements with houses and yards has increased by 156% since 1948; the trend continues (Biserkov and Naumov 2012). These changes have had significant impact on habitats size and quality in the area around the property and its buffer zone (Biserkov and Naumov 2012). The current urbanized area is not habitable by many mammals, reptiles and amphibians (Biserkov 2012, Biserkov and Naumov 2012). These developments also affect the ecological connectivity of ecosystems in the property with those in the surrounding area. According to EEA (2013) urbanised areas and human habitation (including such effects as disturbance, resource use, noise and pollution which are threated here in other threat categories) have high, but neutral influence on the area around the property and its buffer zone.

► Crops

Low Threat
Outside site

Since 1948, the area around the property covered by non-irrigated farmland has increased by 919%; the trend continues (Biserkov and Naumov 2012). Those modifications and the consolidation of areas under cultivation have created marginally suitable or unsuitable habitats for the mammal, reptilian and amphibian populations around the property and its buffer zone (Biserkov 2012, Biserkov and Naumov 2012). Agricultural expansion affects the quality

of habitat suitable for the Eurasian Spoonbill around the property and its buffer zone (Triplet et al. 2008). According to EEA (2013) agricultural cultivation (in general) has medium negative level of influence on some 5% of territory of the buffer zone of the property.

► Crops

Low Threat
Outside site

Since 1948, the area around the property covered by Vineyards has increased by 157%; the current trend is unknown (Biserkov and Naumov 2012). Those modifications have created marginally suitable or unsuitable habitats for the mammal, reptilian and amphibian populations around the property and its buffer zone (Biserkov 2012, Biserkov and Naumov 2012). Agricultural expansion affects the quality of habitat suitable for the Eurasian Spoonbill around the property and its buffer zone (Triplet et al. 2008). According to EEA (2013) agricultural cultivation (in general) has medium negative level of influence on some 5% of territory of the buffer zone of the property.

► Hunting (commercial/subsistence)

Low Threat
Inside site, extent of threat not known
Outside site

Goose- and duck hunters often shoot from a pier or a boat on the Danube (CLGE 2001). The Greylag Goose and other species are disturbed by hunters (Ivanov and Dereliev 2011).

► Forestry/ Wood production

Low Threat
Outside site

The area under coniferous plantations around the property and its buffer zone has expanded significantly in the past (Biserkov and Naumov 2012). This has created marginally suitable or unsuitable habitats for the mammal, reptilian and amphibian populations around the property and its buffer zone (Biserkov 2012, Biserkov and Naumov 2012).

► Roads/ Railroads

Low Threat
Outside site

Since 1948, the area covered by the road and highway network (1st to 4th grade) in the area around the property has increased by 240%; the trend continues (Biserkov and Naumov 2012). This area is certainly no suitable as a habitat for all mammal, reptile and amphibian species present in the property and its surrounding area (Biserkov 2012, Biserkov and Naumov 2012). The gravel road around the property contributes to wildlife disturbance by noise, cars, recreationists and poachers (IUCN Consultation 2013). Concerning the measures for the protection of the Great Bittern in Bulgaria, Shurulinkov (2012) recommends speed reduction and control along the road from Silistra to Ruse, in the section close to the property. Infrastructure in general is mentioned as a threat to Eurasian Spoonbill (Triplet et al. 2008) and EEA (2013) reports high influence from transport networks in the area outside the property and its buffer zone, although this is classified as neutral.

► Fishing / Harvesting Aquatic Resources

Low Threat
Outside site

Many individuals of the Ferruginous Duck get entangled and drowned in fishnets while diving/foraging in the Danube or the neighbouring wetlands and fishponds in Romania (Cheshmedziev 2012). Due to commercial fishing in the area surrounding the property and its buffer zone, the quantity of fish available to waterfowl is reduced. This forces the birds to forage in other areas (e.g. in Romania) which is more energy demanding (IUCN Consultation 2013). According to EEA (2013) commercial fishing has high negative influence in the area around the property and its buffer zone.

► Dams/ Water Management or Use

Low Threat
Inside site, throughout(>50%)
Outside site

The natural hydrology in the watershed of the property has been significantly

modified through construction of 9 dams (Nikolova et al. 2010), as well as the draining of the Aydemir Lowland (EU 2015). According to EEA (2013) the modifying structures of inland water courses have medium negative influence on the area surrounding the property and its buffer zone.

► Water Pollution

High Threat
Inside site, throughout(>50%)
Outside site

The eutrophication resulting from increased nutrient input and retention compromises ecosystem function and accelerates the process of succession of the lake ecosystem to swamp to mire to wet meadow (LT Konsult Ltd. 2012, Kamburova 2012, EU 2015). According to EEA (2013) eutrophication has high negative influence on 50% of the territory of the property and its buffer zone.

► Dams/ Water Management or Use

High Threat
Inside site, throughout(>50%)
Outside site

The construction of Iron Gates dam lowered the river erosion basis and the frequency of (seasonal) flooding of the property which, in effect, disturbs the natural hydrological connectivity of the property with the river and has triggered significant changes in its ecosystem, including nutrient and sediment accumulation (Christensen and Rossler, 1998, Vasilev et al. 2012, IUCN Consultation 2013, EU 2015).

► Household Sewage/ Urban Waste Water

Low Threat
Inside site, throughout(>50%)
Outside site

In 2003 began the construction of a treatment plant for the wastewater from Srebarna Village; it is not yet operational however. Furthermore, in case of high water level in the property, the effluent from the wastewater treatment may discharge into the lake and thus contribute to its eutrophication (IUCN Consultation 2013).

► Agricultural effluents

Low Threat
Inside site, throughout(>50%)
Outside site

Nutrients from the pig farm near Kalnezha reach Lake Srebarna via the River Kalnezha and groundwater, and thus contribute to the eutrophication of the lake (RIS 2002, Kraleva et al. 2012, IUCN Consultation 2013).

► Utility / Service Lines

Data Deficient
Outside site

EEA (2013) reports high influence from electricity lines on the area outside the property and its buffer zone, although this is classified as neutral. No specific information is available on the effects of the values of the property.

► Poaching

Low Threat
Outside site

The principal game species around the property and its buffer zone are the Wild Boar, Hare, Ring-necked Pheasant, Greylag Goose, and Quail (CLGE 2001). According to Ivanov and Dereliev (2011) hunting disturbs the Greylag Goose wintering population; poaching (including both illegal hunting and illegal fishing) as an important source of disturbance for all wildlife (IUCN Consultation, 2013).

► Other

Low Threat
Outside site

In the past, one of the reasons for the decrease of bird species composition and abundance in the property were the direct and indirect toxic effects of rodenticides applied in 1989 (Michev et al. 1998). In 2003, three Lesser White-fronted Geese were found dead at Srebarna among 123 dead Greater White-fronted Geese; it is thought the birds had been poisoned by rodenticides, either in Bulgaria or Romania (Jones et al. 2008).

► Hyper-Abundant Species

Low Threat
Inside site, widespread(15-50%)
Outside site

The pressure from predators (wild boars in particular, but also jackals, crows, foxes) account (partly) for the low success of the chicks of the Dalmatian Pelican at the property (destroying nests with eggs or killing chicks; Crivelli 1996, Triplet et al. 2008, Michev and Kamburova 2012). This has been (partly) resolved with the construction of artificial (wooden) platforms (Simeonov 2011).

► Dams/ Water Management or Use

Low Threat
Outside site

Valuable habitats are lost due to the removal of riparian vegetation around the farms in the vicinity of the property and its buffer zone (MoEW et al. 2012, Biserkov 2012). According to EEA (2013) management of aquatic and bank vegetation for drainage purposes have medium negative influence in the area surrounding the property and its buffer zone.

► Dams/ Water Management or Use

Low Threat
Outside site

Groundwater plays an important role in the maintenance of the water level in the property (Nikolova et al. 2010). For the restoration of the water balance in the lake it is necessary to limit the groundwater consumption in the catchment of the lake (Vasilev et al. 2012).

► Invasive Non-Native/ Alien Species

Low Threat
Inside site, throughout(>50%)
Outside site

Forest formation of the Grey Willow combined with hydrophyte formations are key factor for the degradation of the lake (closing off of water body, increasing of bottom substrate etc.; Zhelezov 2010, Kamburova 2012). The

Silver berry outcompetes the local and typical species and causes fragmentation of the reed bed where Dalmatian Pelicans and other fish-feeding birds breed (MoEW et al. 2012, IUCN Consulation 2013). The ecological change in the property is also brought about by the forestation and afforestation of extensive areas in the vicinity of the property using alien tree species, such as Austrian Pine, Hybrid Poplar, Black Locust, Common Gloxinia, and Oleaster (IUCN Consultation 2013). According to EEA (2013) invasion by exotic species has medium negative influence on the property and its buffer zone.

► Solid Waste

Low Threat
Inside site, widespread(15-50%)
Outside site

The illegal dumping of household waste form the village of Srebarna is a source of organic pollution of the property, and thus contributes to its eutrophication (RIS 2002, MoEW et al. 2012, IUCN Consultation 2013, Birds in Bulgaria 2013). It also introduces many alien plant species in the property and its buffer zone (Birds in Bulgaria 2013).

► Identity/ Social Cohesion/ Changes in local population and community

Low Threat
Inside site, widespread(15-50%)
Outside site

Illegal fishing is related to poverty among the local residents (CLGE 2001)

► Dams/ Water Management or Use

High Threat
Inside site, throughout(>50%)

The existing dams along the Danube disturb the natural hydrological connectivity of the property with the river. This has triggered significant changes in the ecosystem (Triplet et al. 2008, Kalchev et al. 2010, IUCN Consultation 2013), and has turned the Srebarna wetlands into a nutrient trap (EU 2015). In the long-term, the disturbance of the water regime could lead to deterioration and even loss of valuable habitats in the property (Kalchev et al. 2012, BSPB 2013). The seasonal flooding used to remove sediments and nutrients from the lake and maintained the riverine forests on

the island (BSPB 2013). According to EEA (2013) dams have high negative influence on some 60% of the property and its buffer zone. The curent hydrological connection of Lake Srebarna with the Danube is not optimal, due to improper design and lack of maintenance of the sluice gates at the connecting canal Dragaika (Kabourova 2012, IUCN Consultation 2013).

► Agricultural effluents

Low Threat
Inside site, throughout(>50%)
Outside site

Nutrients and pesticides from the farms throughout the watershed reach Lake Srebarna via surface water (e.g. the River Kalnezha) and groundwater, and thus contribute to its eutrophication (RIS 2002, Kraleva et al. 2012, IUCN Consultation 2013). According to EEA (2013) water pollution has low negative influence on some 50% of the territory of the property and its buffer zone and medium negative influence in their surrounding areas.

► Fishing / Harvesting Aquatic Resources

High Threat
Inside site, throughout(>50%)
Outside site

Birds, otters and terrapins get entangled and drowned in fishnets while diving (Robinson and Hughes 2005, Cheshmedziev 2012, IUCN Consultation 2013, Birds in Bulgaria 2013). Due to illegal fishing in the property and its buffer zone, the quantity of fish available to waterfowl is reduced forcing some birds to forage in other areas (e.g. in Romania) which is more energy demanding (IUCN Consutlation 2013). Illegal fishing is a source of disturbance to the Greylag Goose (Ivanov and Dereliev 2011), Spoongbill (Triplet et al. 2008), other waterfowl (MoEW et al. 2012) and wildlife in general (IUCN Consultation 2013). The impact to waterfowl is particularly high during the nesting period (Cheshmedziev 2012). According to EEA (2013), trapping, poisoning, and poaching (including illegal fishing) have medium negative influence on 80% of the territory of the property and its buffer zone.

► Air Pollution

Very Low Threat

Inside site, throughout(>50%)
Outside site

The property is situated in the sphere of influence of industrial zones of Silistra, Calarash and Ruse (Ivanceva et. al. 2006, Hiebaum et al. 2012). According to EEA (2013) industrial pollution has low negative influence on the property and its buffer zone.

► Solid Waste

Low Threat
Inside site, widespread(15-50%)
Outside site

Fishermen often improperly dispose plastic bags and other kinds of waste in the property, adding to the nutrient load of the lake (IUCN Consultation 2013). Reportedly decreasing trend (State Party of Bulgaria 2014).

► Dams/ Water Management or Use

High Threat
Inside site, throughout(>50%)
Outside site

Water level management is necessary but at the same time means that the hydrological system of Srebarna is not functioning naturally (State Party of Bulgaria 2014). There are conflicting arguments - and a lack of an agreed vision (LT Consult Ltd. 2012) - for the current water level management. The maintenance of the water level of the Lake “in a state closest to the maximum level” (CLGE 2001), negatively affects the lifecycle of amphibians, water snakes and terrapins (Biserkov and Naumov 2012). Also it negatively affects the lifecycle of rodents which in turn affects the mammalophagous predators, such as the marbled polecat, the eastern fourlined ratsnake and the owls (Biserkov 2012). However, the significant fluctuation of the water level in the property enables the expansion of the willow and the reed at the expense of open water areas (MoEW et al. 2012). Also, low water level negatively affects the heronry, in particular the populations of the Glossy Ibis, Eurasian Spoonbill and terns (Kamburova 2012). Furthermore, the maintenance of a high water level helped the Dalmatian Pelican recover and expand its population compared to the period when the levels were low. Yet, according to Michev and Simeonov (2011), the unusually high water level violates the integrity of the breeding places for the Dalmatian Pelican in the

property. The hydrological connection of Lake Srebarna with the Danube is not optimal due to improper design and lack of maintenance of the sluice gates at the connecting canal Dragaika (Kabourova 2012, IUCN Consultation 2013).

Potential Threats

Data Deficient

Extreme weather conditions due to climate change, such as storms and floods are likely to have localized but reversible negative impacts on these values and integrity of the property. On the other hand, the expected lowering of the water level in the Danube would interrupt the regular seasonal flooding of the property and potentially trigger significant ecological change. However, since most of these potential threats have been assessed as "Data Deficient", the overall assessment is also "Data Deficient".

► Fire/ Fire Suppression

Low Threat
Inside site, extent of threat not known
Outside site

Potential threat for the area is the burning of the floating reedbeds in spring or summer that may destroy the Pelican colony, or the mixed heron colony (RIS 2002, Michev and Simeonov 2011, MoEW et al. 2012, IUCN Consultation 2013, Birds in Bulgaria 2013). According to EEA (2013) human induced fires have medium negative influence in the surrounding areas of the property and its buffer zone.

► Dams/ Water Management or Use

Data Deficient
Outside site

Deepening the bottom of the Danube, planned by the Government with EU funds, will cause further disturbance of the water regime and deterioration of the wetland habitats (Birds in Bulgaria 2013). No details were available on the project.

► Invasive Non-Native/ Alien Species

Data Deficient
Inside site, widespread(15-50%)
Outside site

The reconnection of the lake with the Danube in 1994 heightens the risks from the introduction of new alien species, such as: Silver Carp, Grass Carp, Round Gobby, Stone Moroko, and Chinese Sleeper (Pehlivanov and Pavlova 2012). This could enhance eutrophication, compromise ecosystem functioning, and hence affect all biota of the property.

► Droughts

Data Deficient
Inside site, throughout(>50%)
Outside site

Climate change is expected to lead to lower water level in the Danube and thus low frequency of flooding of the property (Nikolova et al. 2010). This will cause radical lowering of the water level and intensification of the eutrophication (Hiebaum et al. 2012). Currently there are no models predicting the drought-related effects of climate change on the property.

► Storms/Flooding

Data Deficient
Inside site, throughout(>50%)
Outside site

The high water level and extreme storms can detach some reed islets in which the Dalmatian Pelican colony nests (IUCN Consultation 2013). This has been (partly) resolved with the construction of artificial (wooden) platforms (Simeonov 2011). No models currently predict the exact extent of future storm exposure of the area.

► Storms/Flooding

Low Threat
Inside site, throughout(>50%)
Outside site

There are potential threats to the colonies of the Dalmatian Pelican and Eurasian Spoonbill due to event of extreme flooding triggered by climate

change (Triplet et al. 2008, Michev and Simeonov 2011, Hiebaum et al. 2012). According to EEA (2013) flooding has medium and neutral influence on some 50% of the territory of the property and its buffer zone.

Protection and management

Assessing Protection and Management

► Relationships with local people

Some Concern

The existing legal framework provides opportunity for public participation in the preparation and adoption of the management plan (RBNA 2002). However, there are no formal mechanism and procedures providing for participation of local stakeholders in the management of the property (WHC 2001, RBNA 2002). The State party described cooperation with local people as "fair" in 2014, with only some input of locals in management decisions (State Party of Bulgaria 2014).

► Legal framework

Mostly Effective

Land of the property and its buffer zone is entirely state owned. As of April 2013, the territory of property and its buffer zone have been included, partly or entirely in several legal designation: (1) Managed Nature Reserve Srebarna (892.05 ha), designated in 1948 (ordinance No.11931), increased in area in 1993 (ordinance No.581), re-categorized in 1999 (ordinance No.367), management plan endorsed in 2011 (No.РД-958) and ; decreased in area in 2005 (ordinance No.РД-1135); (2) Protected Site Pelikanite (542.8 ha), buffer zone of Nature Reserve Srebarna established in 1983 (decree No ДВ-3), designated as a Protected Site in 2007 (ordinance No.527). The territory of property and its buffer zone have been recognized, partly or entirely under several international treaties: (1) Wetland of International Importance Srebarna – 1975 (under the Ramsar Convention; Ramsar Site proper – 600 ha; Ramsar Site buffer zone – 542.8 ha); (2) UNESCO Biosphere Reserve – 1977 (under the UNESCO MAB Programme); (3) World Heritage of Srebarna Nature Reserve – 1983 (under the World Heritage Convention; 219bis;

property - 638 ha; buffer zone – 673 ha); (4) Special Protected Area Srebarna – 2007 (under the EC Birds Directive; ordinance - No.РД-564; Id BG0000241; 1448.2177 ha); (5) Special Area of Conservation Srebarna - 2008 (under the EC Habitats Directive; ordinance - No.РД-564; Id BG0000241; 1448.2177 ha). The State Party considered in 2014 that the legal framework is adequate or better to maintain the OUV of the site, but that it could be strengthened for the areas surrounding the buffer zone (but affecting the property) (State Party of Bulgaria 2014).

► Enforcement

Some Concern

Enforcement capacity was considered acceptable with some deficiencies by the State Party (2014). At the same time, ranger numbers are considered relatively low, and some illegal activities reportedly continue at the property (see threats section), which leads to an overall assessment of "Some Concern".

► Integration into regional and national planning systems

Mostly Effective

The property was formally Integrated into the Silistra Municipal Development Plan 2007-2013 (MCS 2008), Tourism Development Strategy for Silistra Municipality 2008-2013 (Municipality of Silistra 2013b), and Regional Development Plan of the North-East Planning Region 2007-2013 (BG-CoM 2005), The State Party considered in 2014 that coordination of management (not only planning) with other relevant State authorities exists but that it could be improved (State Party of Bulgaria 2014). Therefore, the overall assessment is "Effective".

► Management system

Some Concern

The Regional Inspectorate of Environment and Water – Ruse (RIEW-Ruse) is the Management Authority of the property; the staff includes one site manager (office in Ruse) and 2 rangers. RIEW-Ruse is also responsible for the management of the territory of the property and its vicinity covered by other national and international designations. The Institute for Biodiversity and Ecosystem Research (formerly Central Laboratory of General Ecology - CLGE)

of the Bulgarian Academy of Sciences is responsible for research and monitoring activities (IBER-BAS 2013). The existing management plan (2001-2010) has expired; a new management plan is currently being developed. The existing national legal framework provides opportunity for public participation in the preparation and adoption of the management plan. However, there are no specific mechanism and procedures providing for participation of local stakeholders in the management of the property. The inclusion of the territory of the property and its buffer zone in the NATURA 2000 ecological network is likely to contribute to an improved capacity for addressing threats outside the property both at national and transboundary context. The State Party reported in 2014 that the management plan - in spite of being outdated at the time - was fully adequate to maintain the property's OUV, and was fully implemented through annual work plans (State Party of Bulgaria 2014). However, the fact that there appears to have been no up-to-date management plan for a considerable time is of some concern.

► Management effectiveness

Some Concern

It appears that the managment system of the property is outdated, and the State Party considered in 2014 that the financial and personnel situation at the property were acceptable and below optimum, respectively (State Party of Bulgaria 2014). Some important actions prescribed in the management plan have not been implemented: (1) removal of sediments (high priority project); (2) control of the Grey Willow; (3) restoration of the natural water regime; and others (Kambourova 2012, IUCN Consultation 2013). The reserve is staffed by only two guards active from 8:00-17:00 which is only partly effective in the control of illegal activities in the property and its buffer zone (IUCN Consultation 2013). No formal management effectiveness assessment is documented from the site, and the State Party stated in 2014 that monitoring the status of indicators of the OUV could be improved (State Party of Bulgaria 2014). Based on the above, overall management effectiveness is of "Some Concern".

► Implementation of Committee decisions and recommendations

Mostly Effective

The State Party has implemented most of the decisions and

recommendations of the World Heritage Committee related to the property. However, no information is available on the progress concerning the WHC recommendation that State Party explores the ways and means to collaborate with other States Parties sharing resident and migratory bird species and populations to collectively consider the merits of a “serial-like” or composite transboundary “Danube Wetland World Heritage Site” (WHC 2001). Additional data is needed for a reliable assessment of this topic.

► Boundaries

Mostly Effective

The boundaries of the property and its buffer zone are mostly effective in relation to the management and protection of its values, as also stated by the State Party in 2014 (WHC 2014). The property is included in other legal protection regimes which cover areas beyond its buffer zone and which are managed in ways that enhance property protection. The management and protection of its values can be improved through cooperation and coordination of activities in other adjacent protected areas along the Danube in Bulgaria and Romania. Progress has been made in this area under the Danubeparks initiative (Danubeparks 2013). However, the State Party considered in 2014 that the borders of the buffer zone are not sufficiently known by locals (State Party of Bulgaria 2014).

► Sustainable finance

Some Concern

Costs have been estimated only for a few priority actions prescribed by the management plan (CLGE 2001). Financial resources from the Ministry of Environment and Water have not been available for the implementation of some priority actions envisaged in the management plan. The funding provided by international organizations has narrowed the financial gap in the implementation of the management plan (e.g. Simenonov 2011). The State Party considered in 2014 that the financial resources for the property were acceptable but could be further improved (State Party of Bulgaria 2014).

► Staff training and development

Some Concern

The number of staff (3 - State Party of Bulgaria 2014) appears small for an

area of this size. Staff capacity was considered adequate to manage the site (IUCN Consultation 2013). Capacity building and training has been provided for the staff through projects and networking (Danubeparks 2013). Training needs previously identified include: fundraising, use of GIS in decision-making; development of tourism; and participatory conservation management (WHC 2006). The availability of training opportunities was considered "medium" by the State Party for most training areas in 2014; only in "conservation" and "administration" it was considered "high". There is no special capacity development plan, and a high reliance on external contractors to conduct management activities (State Party of Bulgaria 2014).

► Sustainable use

Some Concern

The State Party considered in 2014 that there was some flow of economic benefits to locals (State Party of Bulgaria 2014). Recreational fishing and tourism are the primary types of resource use that do not jeopardize property values. Due to the illegal fishing, however, the cumulative use of fish resources is unsubstantial and affects food availability for fish-feeding birds. A fish stock assessment is needed to ensure adequate food for birds and estimate the quantity available for recreational fishermen (IUCN Consultation 2013).

► Education and interpretation programs

Mostly Effective

In 1983 the Municipality of Silistra opened the Natural History Museum of the Biosphere Reserve Srebarna (Municipality of Silistra 2013). This was renovated in 2014, with EU funds (State Party of Bulgaria 2014). In addition, the Institute for Biodiversity and Ecosystem Research (IBER-BAS) opened an information and education centre in the building of the Field Ecological Station (Laboratory, Education Centre and Field Station of IBER-BAS). The exhibition in the Education Centre has three aquariums, 2 terrariums and 23 posters, which present the history and biological diversity of the reserve. There are information materials, posters that present the history, biological diversity of the Reserve, past and current scientific research that implement in the region of Srebarna Biosphere Reserve and some aquariums. The State Party considered in 2014 that the education and awareness programme of

the site partly met its needs, that the World Heritage status could used more effectively in this regard, and that overall awareness of the World Heritage status of the site ranged from "poor" to "excellent) among the various stakeholder groups (State Party of Bulgaria 2014). There were also excellent trails and information materials, according to the State Party. This suggests that the education and interpretation programmes at the site are "Effective" overall.

► Tourism and visitation management

Mostly Effective

In 1983 the Municipality of Silistra opened the Natural History Museum of the Biosphere Reserve Srebarna. In the period 2004-2007, 22.324 people visited the Museum (MCS 2008, Municipality of Silistra 2013). In 2000 there were five staff members, including a biologist, in the Museum (UNEP-WCMC and IUCN 2013). The wetland is a hotspot for bird watching and recreation, mainly by foreign tourists . The Danube riverbank, part of which is within the buffer zone of the property is a popular destination for anglers. According to the State Party, there was a minor increase in visitation in 2012-13 (State Party 2014), with no more recent data available. There is visitor management - based on the corresponding sections of the outdated management plan - but it could be improved, according to the State Party (2014). The visitor management appears to be effective overall, also in light of the low overall visitor numbers. existing legal constraints to visitation (this being a managed reserve not a national park) and the remoteness of the area.

► Monitoring

Mostly Effective

The comprehensive monitoring program (1998-2007) in the Srebarna wetland involved measurement of a set of abiotic parameters and a wide range of biodiversity parameters (CLGE 2013). The monitoring is conducted with the support from the permanent Ecological Station at Srebarna Biosphere Reserve Sciences (established in 1961). In 2007 there were 3 permanent staff members working in the field station (CLGE 2007). The laboratory is equipped to monitor the following parameters: nutrients, phytoplankton and zooplankton composition, water level and temperature,

quantitative estimations of bird populations. In addition NGOs and volunteers regularly assist in this monitoring program for the property and its buffer zone. The State Party stated in 2014 that monitoring the status of indicators of the existing comprehensive programme could be improved (State Party of Bulgaria 2014). Therefore, the monitoring of Srebarna is assessed as "Effective" overall.

► Research

Mostly Effective

The Institute for Biodiversity and Ecosystem Research of the Bulgarian Academy of Sciences conducts regular ecological research which is relevant for the conservation of property values (CLGE 2013). The research is conducted with the support from the permanent Ecological Station at Srebarna Biosphere Reserve (established in 1961). In 2007 there were 3 permanent staff members working in the field station (CLGE 2007). In addition NGOs and volunteers regularly assist in this exemplary on-going research program for the property and its buffer zone. However, not many peer-reviewed articles in international scientific journals have been produced as a result of these activities, and there are knowledge gaps regarding the property, according to the State Party (State Party of Bulgaria 2014). Research is assessed as "Effective" overall.

Overall assessment of protection and management

Some Concern

Seven of the 15 aspects of protection and management, including the key aspects of "management system", "management effectiveness" and "enforcement", are of "Some Concern" according to this assessment. At the same time, the legal and administrative arrangements for the protection of the values and integrity of the property and its buffer zone, as well as important adjacent areas in Bulgaria and Romania, are considered sufficiently effective. The boundaries of the property and its buffer zone are considered adequate. The principle concerns include updating and resourcing the management system, law enforcement, and closer involvement of local stakeholders in conservation management. Therefore, the protection and management of the property is assessed as of "Some Concern".

► Assessment of the effectiveness of protection and management in addressing threats outside the site

Mostly Effective

The active participation of the management authority in transboundary and international initiatives and projects has contributed to an improved cooperation and coordination of activities with adjacent protected areas along the Danube River in Bulgaria and Romania. Furthermore, the inclusion of the territory of the property and its buffer zone in the NATURA 2000 ecological network is likely to contribute to an improved capacity for addressing threats outside the property both at national and transboundary context. At the same time, there are some deficiencies in the implementation of the legal framework outside the property's and buffer zone's boundaries, according to the State Party (2014).

► Best practice examples

The on-going research and monitoring activities represent a good example of sound scientific work at a World Heritage property.

State and trend of values

Assessing the current state and trend of values

World Heritage values

► An important wetland on the Western Palaearctic bird migratory flyway

Low Concern
Trend:Data Deficient

Srebarna Nature Reserve remains an important wetland that provides nesting grounds and seasonal habitat to a large number of bird species. The conservation status of the majority of populations is good, but there are concerns about the overall functionality of the ecosystem of the reserve (particularly in terms of hydrological regime, eutrophication and siltation), which lead to an overall assessment of "Low Concern". It is difficult to define

a trend as this has clearly deteriorated in the very long term (since the 1940s), but has been periodically improving or stable over the more recent past.

▶ Dalmatian Pelican, Pelecanus crispus

Good
Trend:Stable

According to the EEA (2013) the conservation status of this species in the property was good then. The size of the breeding colony (108 pairs in average for the period 2007-2011, according to Kambourova 2012; 80-128 for the period 2001-2005 and 30-80 for the period 2006-2010) was larger than pre-nomination level (100-1050 pairs, according to WHC 1983a; 67 pairs according to WHC 1983b; app. 60 pairs according to Michev and Kamburova 2012, Kamburova 2012); the trend was improving, although significant fluctuations occur (Kamburova 2012). The colony size at the end of 19th century and the first half of the 20th century was comparable or somewhat larger (100-150 pairs, Kamburova 2012) then at the time. No information that the good status has changed was received prior to the 2017 assessment.

▶ Pygmy Cormorant, Phalacrocorax pygmeus

Good
Trend:Improving

According to the EEA (2013) the conservation status of this species in the property was good at that time. The size of the breeding colony (60-300 pairs for the period 2001-2003; 105 in 2004 and 100 in 2005, according to Kambourova 2012) had been significantly larger than at the time oof inscription (10-20 pairs in the second half of the 20th century, according to Kambourova; 20 pairs in 1983 according to WHC 1983a, WHC 1983b); the trend is improving (Kamburova 2012). There is no indication that this would have changed since.

▶ Ferruginous Duck, Aythya nyroca

Good
Trend:Improving

According to the EEA (2013) the conservation status of this species in the property was good at the time. The size of the breeding colony (35-60 pairs

for the period 2001-2003; 47 in 2004; 40 in 2005 and 53 in 2006, according to Kambourova 2012) had been somewhat larger than at the time of inscription (40-50 pairs in the second half of the 20th century, according to Kambourova); the trend is improving. No more recent evidence that this trend has changed has emerged.

▶ Eurasian Spoonbill, Platalea leucorodia

Good
Trend:Improving

According to the EEA (2013) the conservation status of this species in the property was good then. The size of the breeding colony (20-24 pairs for the period 2001-2003; 15 in 2004; 10 in 2005 and 20-30 in 2006, according to Kambourova 2012) had been somewhat larger than pre-nomination level (10-15 pairs in the second half of the 20th century, according to Kambourova; 3-10 pairs according to WHC 1983a). No more recent evidence that this trend is changing has been reported.

▶ Glossy Ibis, Plegadis falcinellus

Data Deficient
Trend:Data Deficient

According to the EEA (2013) the conservation status of this species in the property was good then. However, according to other sources the size of the breeding colony (10-28 pairs for the period 2001-2003; 13 in 2004; 30 in 2005 and 5-10 in 2006, according to Kambourova 2012) had decreased compared to the pre-nomination level (50-500 pairs in the second half of the 20th century; WHC 1983a, Kambourova 2012). Therefore, the status is assessed as Data Deficient overall.

▶ Purple Heron, Ardea purpurea

Good
Trend:Improving

According to the EEA (2013) the conservation status of this species in the property was good then. The size of the breeding colony (8-50 pairs for the period 2001-2003; 15 in 2004 and 3 in 2005, according to Kambourova 2012) had been larger than pre-nomination level (4-9 pairs in the second half of the 20th century; Kamburova 2012); the trend was improving (Kamburova 2012),

and no more recent evidence that this has reversed since is available.

▶ Ruddy Shelduck, Tadorna ferruginea

Data Deficient
Trend:Data Deficient

According to the EEA (2013) there were 2/0-4 pairs breeding in the property then and the conservation status of the species was good. No breeding pairs were recorded in the period 2001-2003 and only one pair bred irregularly during the pre-nomination period (Kamburova 2012). More recently, Zehtindjiev et al. (2011) has not included the property as a breeding site of the Ruddy Shelduck. There are no sufficient data on the current trend.

▶ Little Bittern, Ixobrychus minutus

Good
Trend:Data Deficient

According to the EEA (2013) the conservation status of this species in the property was good then. The size of the breeding colony (20-25 pairs for the period 2001-2003; 30 in 2004 and 25 in 2005, according to Kambourova 2012) had been larger than at the pre-nomination level; at the end of the 19th century 2-3 pairs bred in the property (Kamburova 2012). There are no data on the current trend of the population.

▶ Squacco Heron, Ardeola ralloides

High Concern
Trend:Deteriorating

According to the EEA (2013) the conservation status of this species in the property was good at that time. However, the size of the breeding colony (30-200 pairs for the period 2001-2003; 67 in 2004 and 70 in 2005, according to Kambourova 2012) had decreased compared to the pre-nomination level (21-548 pairs in the second half of the 20th century); it was numerous at the end of 19th century (Kamburova 2012). Therefore, over the period of 100 years, the trend has been deteriorating (Kamburova 2012). Current threats include eutrophication, sediment accumulation and water level management.

▶ Little Egret, Egretta garzetta

Good
Trend:Improving

According to the EEA (2013) the conservation status of this species in the property was good then. The size of the breeding colony (60-200 pairs for the period 2001-2003; 78 in 2004 and 85 in 2005, according to Kambourova 2012) was larger than at the pre-nomination level (8-127 pairs in the second half of the 20th century; Kamburova 2012).

► Great White Egret, Casmerodius albus

Low Concern
Trend:Deteriorating

According to the EEA (2013) the conservation status of this species in the property was good at the time. The size of the breeding colony (2-12 pairs for the period 2001-2003, 7 in 2004 and 4 in 2005) was comparable to the pre-nomination level (10-15 pairs, according to WHC 1983a; 3-5 pairs in the second half of the 20th century; Kamburova 2012). The colony size at the end of 19th century was larger – 28 breeding pairs (Kamburova 2012). Thus, over the period of 100 years, the trend was deteriorating (Kamburova 2012). Current threats include habitat deterioration due to invasion by invasive species.

► Whiskered Tern, Chlidonias hybridus

Good
Trend:Improving

According to the EEA (2013) the conservation status of this species in the property was good then. The size of the breeding colony increased in the early 2000-s (25 pairs for the period 2001-2003, min. 35 in 2004; 38 in 2005, and more than 50 in 2006, according to Kambourova 2012) being larger than at the pre-nomination level (5-20 pairs in the second half of the 20th century; Kamburova 2012). No more recent information is available to the assessor.

► Black Tern, Chlidonias niger

High Concern
Trend:Deteriorating

According to the EEA (2013) the conservation status of this species in the property was good then. However, no breeding pairs were recorded in the period 2001-2003 and 1-25 pairs bred in the property during the pre-nomination period (Kamburova 2012). According to the EEA (2013) there are

5/0-9 pairs breeding in the property. This species was numerous at the end of 19th century (Kamburova 2012). Therefore, over the period of 100 years, the trend has been deteriorating (Kamburova 2012), and there is no documented evidence that this trend has been reversed since. Current threats are likely to include eutrophication, sediment accumulation and water level management.

► White-tailed Eagle, Haliaeetus albicilla

Data Deficient
Trend:Data Deficient

According to the EEA (2013) the conservation status of this species in the property was good then. However, no breeding pairs were observed in the property in the zears preceding 2014. According to WHC (1983a) there was one breeding pair at the time of nomination of the property. Existing data are not conclusive on the presence of this species in the property (WHC 2009, Kambourova 2012, Ivanov 2007, EEA 2013).

► Corncrake, Crex crex

Data Deficient
Trend:Data Deficient

Available data are not conclusive on the presence of this species in the property (WHC 2009, Kambourova 2012, Delov 2011, EEA 2013). There are no data on the current state of conservation or the trend of the population.

► Greylag Goose, Anser anser

Good
Trend:Data Deficient

According to the EEA (2013) the conservation status of this species in the property was good then. The size of the breeding colony (1-2 pairs for the period 2001-2003, 3 in 2004; 3 in 2005, and 4 in 2006, according to Kambourova 2012) was comparable to that of pre-nomination level (1-15 pairs in the second half of the 20th century; Kamburova 2012). There are no data on the current trend of the population.

► Red-breasted Goose, Branta ruficollis

Good
Trend:Data Deficient

According to the EEA (2013) the conservation status of this species in the property was good then. The property hosted 4/0-60 wintering individuals (EEA 2013). There are no data on the current trend of the population.

► Fieldfare, Turdus pilaris

Data Deficient
Trend:Data Deficient

The property hosts some 7,500 wintering individuals (EEA 2013). No information was available on the current state of conservation and the trend of the population.

Summary of the Values

► Assessment of the current state and trend of World Heritage values

Low Concern

Trend: Data Deficient

The majority of the bird populations of the property enjoy good conservation status, and some of them have superseded their size at the time of inscription. However, when assessed against the best-recorded historical conservation state, the conservation status of the Squacco Heron (Ardeola ralloides) and Black Tern (Chlidonias niger) has also deteriorated. Furthermore, the conservation state of Ruddy Shelduck (Tadorna ferruginea), White-tailed Eagle (Haliaeetus albicilla), Corncrake (Crex crex), Lesser White-fronted Goose (Anser erythropus), and Fieldfare (Turdus pilaris) could not be assessed reliably due to lack of or contradictory information. Finally, there are some concerns about the overall state of the ecosystem at the reserve, which underpins the state of all the populations contributing to its Outstanding Universal Value under World Heritage criterion x.

► Assessment of the current state and trend of other important biodiversity values

Low Concern

Trend: Data Deficient

Following the information concerning the NATURA 2000 site Srebarna (EEA

2013), the vast majority of the other important values of the property enjoy good conservation status. The Water-Fan (Aldrovanda vesiculosa) is a notable exemption from the overall good conservation state. This species has low reproductive potential and also low competition potential and can be replaced by widely distributed floating water plants in the property. Furthermore, there are some concerns for the conservation status of the following species: Saker Falcon (Falco cherrug), White Stork (Ciconia ciconia), Black Stork (Ciconia nigra), Romanian Hamster (Mesocricetus newtoni), European Mudminnow (Umbra krameri). The concerns about overall ecosystem health as expressed above for the World Heritage values also affect the other important biodiversity values of the site.

Additional information

Benefits

Understanding Benefits

► Outdoor recreation and tourism

In the period 2004-2007, 22,324 people visited the Natural History Museum. The wetland is a hotspot for bird watching and recreation, mainly by foreign tourists. The property is also popular with recreational fishermen. Tourism is a source for additional household income (e.g. Pelican Lake Guesthouse, Srebarna Guesthouse, etc.).

Based on information on current threats, it is considered likely that the benefits depending on the values that are affected by these threats are also impacted.

► Importance for research, Contribution to education

In 1961 the biological station ‘Srebarna’ was established by the Institute of Zoology of the Bulgarian Academy of Sciences. In 1978 the station was transferred to Central Laboratory of General Ecology. It has conducted continuous monitoring of breeding colony of Dalmatian Pelican since 1955. In

1998 the ecological monitoring has being carried out by the former Institute of Ecology (later Central Laboratory of General Ecology, now Institute of Biodiversity & Ecosystem Research) in Srebarna. The on-going research and monitoring activities represent a good example of scientiic research at a natural World Heritage site. The research in the site has contributed to knowledge building on wetland ecology in general, even if few peer-reviewed articles in international scientific journals have been produced as a result.

Based on information on current threats, it is considered likely that the benefits depending on the values that are affected by these threats are also impacted.

Summary of benefits

The site provides a number of benefits that are compatible with the long-term conservation of the values and the integrity of the property. Direct benefits for the local community include jobs and income from tourism and recreation activities. Nature conservation in the property is recognized and valued among conservationists and environmentalists in Bulgaria and internationally. The field station located at the property serves a base for research and monitoring of biodiversity and ecosystem processes in the reserve and adjacent wetlands and also for training of MSc and PhD students from Bulgaria and other countries. The provision of these important services is affected by the same threats that also affect the ecosystem functioning and biodiversity values on which they depend.

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	Regional Inspectorate for Environment and Waters – Ruse		Project Title: Activities for sustainable management of the Managed Reserve Srebarna and Reserve Beli Lom.

№	Organization/ individuals	Project duration	Brief description of Active Projects
2	Dr. Varadinova, E., Team-leader Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences		Project Title: Monitoring of macrozoobenthos in lakes/reservoir as a part of the national monitoring program of surface water in Bulgaria for 2012. Start date: 2012 Date of completion: 2013
3	Regional Inspectorate for Environment and Waters – Ruse WWF Bulgaria, Danube-Carpathian Programme, Bulgaria		Project Title: Control of the negative effects of invasive species and establishment of natural habitats through replanting of local species in the Managed Reserve Srebarna. Start date: 15.07.2009 Date of completion: 15.04.2013

Compilation of potential site needs

№	Site need title	Brief description of potential site needs	Support needed for following years
1	NA	Identification of capacity needs for the management authority, Natural History Museum of the Biosphere Reserve Srebarna and Education Centre and Field Station of IBER-BAS, which may include organizational development and resourcing, staff training needs, cooperation with local residents etc. Development, resourcing and implementatoin of an action plan to address the needs.	
2	NA	Development and implementation of a comprehensive community outreach, education and participation programme, so that the value and uniqueness of the property to all stakeholders is sufficiently understood and safeguarded by them.	
3	NA	A fish stock assessment study to ensure fish populations are managed adequately as to availability of food for fish-feeding birds and subsequently develop a plan for recreational fisheries. The potential presence of alien fish species could also be checked during this assessment	
4	NA	Development and implementation of a joined agreed vision for hydrological management. This may involve restoration of the stable bottom and natural depth through removal of sediments accumulated in the open-water area of the lake outside the breeding period, if ecologically feasible (see LT Consult Ltd. 2012), and was included in the now expired management plan (project 2.2.1 for the period 2001-2010). The future of this issue may be determined during the development of the new management plan.	

№	Site need title	Brief description of potential site needs	Support needed for following years
5	NA	Update and full implementation of the management system of the site, including the outdated management plan.	From: 2017 To: 2022

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