

1. **COUNTRY**  
Yugoslavia - Republic Serbia

2. **DATE**  
September 9, 1994

3. **REFERENCE**  
~~Allocated by the Institute of Nature Protection of the Republic of Serbia~~

4. **CONTACT**  
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5. **NAME**  
Stari Begej - Čarska Bara Special Nature Reserve

6. **DATE OF RAMSAR DESIGNATION**  
March , 1996

7. **COORDINATES**  
The area is located on the floodplain at the river mouth of the Begej into Tisa, between 45°13'15" and 45°17'10" North and 20°21'55" and 20°26'20" East, with the central coordinate 45°15'20" North and 20°23'40" East (after Greenwich).

After Gauss-Kruger kilometer coordinates, geographical location of the area is:

(CP) Central Point: 7452,700/5012,600  
(SP) South Point: 7450,500/5007,900  
(NP) North Point: 7453,600/5015,900  
(WP) West Point: 7450,200/5008,200  
(EP) East Point: 7456,000/5014,750

But, geographical location of the buffer zone is:

(SP) South Point: 7447,750/5007,550  
(NP) North Point: 7454,200/5020,950  
(WP) West Point: 7444,600/5015,250  
(EP) East Point: 7457,150/5016,650

8. **LOCATION**  
The area is located in the central part of the Vojvodina Province - the northern part of Serbia, between the Tisa and Begej rivers, southwest of the settlement of Zrenjanin.

9. **AREA**  
The total surface of the Stari Begej-Čarska Bara Special Nature Reserve is 1,767 ha, while its buffer zone covers another 7,532 ha.

## 10. WETLAND TYPE

Type 16

Type 18

Type 19

## 11. ELEVATION

The altitude of this area varies from 73 to 78 m.

## 12. OVERVIEW

In the past low terrains and depressions between the Tisa and Begej rivers were flooded during the spring months. The Begej riverbed regulation and other hydrotechnical works, carried out during the last two centuries, led to a significant reduction of the flooded areas and changes in their flora and fauna. But, however, certain basic changes in the low course of the Begej River occurred after the comprehensive works in the period of 1971-1974, when the Begej River was cut off at 15th km and guided to a newly excavated riverbed, i.e. canal. The old Begej riverbed, being 10 km long, was surrounded with the embankments and separated from the flows of the Begej and Tisa rivers, and its water regime became controlled.

The flooded area at the river mouth of the Begej into Tisa, particularly Carska Bara, its part, was well-known by ornithofauna. Thanks to that fact, Carska Bara was protected by the law in 1955. In 1986 the area of the total surface of 1,386 ha, comprising the old Begej riverbed, Carska Bara swamp and other periodically flooded terrains, and having original very well-preserved nature values, was protected by the law as the Stari Begej Regional Park with the Carska Bara Strict Nature Reserve, being of great ecological, scientific and educational importance. Since 1990, the Carska Bara Strict Nature Reserve has been on the ICBP Shadow List of European and North-African Wetlands of International Importance.

## 13. PHYSICAL FEATURES

The Stari Begej-Carska Bara Speciale Nature Reserve, as a remnant of once flooded area in the low course of the Begej River, is characterized by the mosaic spread fishpond-, river-, swamp-, marsh-, forest-, meadow-, steppe-, halophilous- and agro- ecosystems, intersected by canals, embankments and field roads and by the complex micro- and meso-relief. It is a typical marshy area divided by the embankment into the two following parts: (1) the old Begej riverbed and the Carska Bara swamp, with the water regime depending on the underground waters regime and on the controlled regime of the flooded waters; (2) the Botoški Rit and Farka'dinski Rit, with the water regime depending on the underground waters regime and the amount of rainfalls.

## 14. ECOLOGICAL FEATURES

On the basis of physicochemical parameters and limnological investigations which included bacterio-, phyto- and zoo- plankton, bottom fauna, macro- flora and fauna, the waters of this protected area could be ranked as B-, B-Å-mesosaprob, with a slight tendency to quality decrease.

In the waters of the StaRi Begej - Carska Bara Special Nature Reserve 379 species varieties and forms of planktonic algae (Cyanophyta, Pyrrophyta, Xantophyta, Chrysophyta, Bacillariophyta, Euglenophyta and Chlorophyta) were recorded. The phytoplankton community was characterized by both qualitative and quantitative domination of the algae from the Chlorophyta and Bacillariophyta groups.

The results of the recent flora investigations play an important role in the recognition of environment change causes and effects, because certain plant species, and particularly their communities, are very good indicators of their habitats synecological conditions.

The water ecosystems common phenomenon is the exuberant growth of the aquatic flowering plant stands, particularly of those of the following associations: *Salvinio-Spirodeletum polyrrhizae*, *Nymphaeetum albo-luteae*, *Hydrocharo-Nymphoidetum peltatae* and *Trapaetum natantis*.

*Scirpo-Phragmitetum* association is a dominant one in the swampy ecosystems of this protected area, while *Acoro-Glycerietum aquaticae* association, endangered in this country, is their significance, and is important as a differential phytocoenosis, regarding the same vegetation type in Mid Europae.

In accordance with the water regime, micro- and meso- relief of this protected area, the stands of the associations: *Salicetum albo-amygdalinae*, *Salicetum albae* and *Populetum nigro-albae* developed. In the forest clearings, the meadow vegetation of the orders: *Arrhenatheretalia* and *Agrostietalia stoloniferae* developed.

The spreading of fragile communities is very limited in this protected area. In its parts called Perleski Rit and Tiganjica the halophilous vegetation of the orders: *Festuco-Puccinelieta* and *Artemisio-Festucetalia pseudovinae* is present, while in the one called Boto{ki Rit the stands of the steppe vegetation of *Festucion rupicolae* association are present. The fragile communities preservation is of great importance for this protected area biodiversity preservation.

#### 15. LAND TENURE

The Government of the Republic of Serbia in 1994 declared the protection of this area as the Stari Begej-Carska Bara Special Nature Reserve, due to its being of great importance for the Republic.

98.89 %, out of 1,676.0026 ha, is the government property, while 1.11 % is private.

#### 16. CONSERVATION MEASURES PROPOSED

On the basis of various investigations and a number of literature data, the Institute of Nature Protection of the Republic of Serbia has elaborated Proposal for the Stari Begej-Carska Bara Special Nature Reserve Protection.

In order to provide an effective preservation, improvement, management and wise use, certain protective measures have been determined for different parts of this protected area (see map).

In the parts of I protective degree (703.7044 ha), being of great ecological, scientific and educational importance as well-preserved ecosystems and the habitats of rare species, any use, excepting scientific and educational purposes, is prohibited.

In the parts of II protective degree (371.8332 ha) very a limited use (controlled recreation, birdwaching, wildlife viewing) is possible.

In the parts of III protective degree (600.4650 ha) a wide range of controlled activities, particularly the traditional ones, are possible.

The buffer zone function, first of all, is disturbing factors elimination. Activities, having negative influence on the protected area of the Stari Begej-Carska Bara Special Nature Reserve, are prohibited.

## 17. CONSERVATION MEASURES TAKEN

In order to provide an effective preservation, improvement, management and wise use, the Management Authority has elaborated the Five-years Plan on the Stari Begej-Carska Bara Special Nature Reserve Protection and Development.

The area is being nominated for designation as a Ramsar site.

## 18. CURRENT LAND USE

Current uses on the site are predominantly recreational, birdwatching, wildlife viewing, sport fishing and some traditional agricultural activities.

In the buffer zone the activities such as traditional land uses, sport hunting, commercial fishing are present.

## 19. DISTURBANCE/THREATS

The main threat in this protected area is a poor water quality. Namely, all water ecosystems within the protected area are supplied, directly or indirectly, with the waters from nearby fishpond and the Tisa River loaded with nutrients.

The aquatic vegetation plentiful growth slows down the water flow, changes both the light and temperature regime, and dead plant parts and dead whole plants increase organic matter contents in the waters and the depth of the muddy layers. In such eutrophic conditions, the macrophytic vegetation covers the water surfaces, which is the progradation phase towards the swampy vegetation.

## 20. HYDROLOGICAL/PHYSICAL VALUES

One of principal values of this area is the mosaic spread of different ecosystems. The area is characterized by the complex micro- and meso- relief, as well as by the presence of different hydrological objects being of great importance for the wildlife. Among them, the old Begej riverbed and Carska Bara swamp are the most valuable, while numerous small pools and canals complete values of this area.

## 21. SOCIAL/CULTURAL VALUES

Due to recreational possibilities, birdwatching, wildlife viewing, sport fishing and hunting the area is an important tourist object. It is important for fisheries production because of fishponds located in the buffer zone of the Stari Begej - Carska Bara Special Nature Reserve.

## 22. NOTEWORTHY FAUNA

The basic nature phenomenon of the Stari Begej-Carska Bara Special Nature Reserve is its ornithofauna. Among 250 recorded species, 140 of them being nesters and 110 passagers, the representatives of the orders: *Galiformes*, *Podicipediformes*, *Pelecaniformes*, *Ciconiformes*, *Anseriformes*, *Falconiformes*, *Gruiformes*, *Charadriiformes* and *Passeriformes* are dominant. Globally endangered species: *Oxyura leucocephala*, *Anser erythropus*, *Phalacrocorax pygmaeus* and *Haliaeetus albicilla*, listed in the World and European Red Data Books, as well as the species endangered in the Pannonian Plain: *Podiceps griseigena*, *Ardeola ralloides*, *Platalea leucorodia*, etc represent very important nature values of this protected area. The main characteristic of this protected area is nesting of all the eight European heron species and the species *Anser anser*. Besides the waterfowl species, numerous in the migration time the species inhabiting different ecosystems are also important. (Detailed review of according to the Convention important ornithofauna is given as appendix).

The ichthyofauna of the Stari Begej-Carska Bara Special Nature Reserve is characterized by the presence of 24 fish species of the families: Esocidae, Cyprinidae, Cobitidae, Siluridae, Ictaluridae, Centrarchidae and Percidae. Cyprinidae family, represented with 16 species, is the dominant one. Six of eight allochthonous species introduced in the waters of Vojvodina are present in the old Begej riverbed. The species: *Carassius auratus gibelio* and *Lepomis gibbosus* have adapted and become the integral part of the ichthyofauna of this protected area. The species such as *Esox lucius*, *Cyprinus carpio*, *Rhodeus sericeus amarus*, *Misgurnus fossilis*, *Silurus glanis*, *Stizostedion lucioperca*, being rare, vulnerable and endangered, are listed for the Red Data Books in most of the Danubian countries, and one of them is the Red Data Book of the Republic of Serbia.

The area is also habitat to the entomofauna species, such as *Dytiscus marginalis*, *Hydrous piceus*, *Dorcus parallelipedus*, *Apatura metis*, which are the nature rarities in the most of European countries

The rare and endangered species of herpetofauna, being protected by the Law in Serbia, such as amphibian species: *Hyla arborea*, *Bufo bufo*, *B. viridis*, *Bombina bombina* and reptile ones: *Lacerta agilis*, *Natrix natrix*, *N. tessellata*, *Elaphe longissima*, have been also identified in this area.

It is necessary to emphasize the presence of the following mammalian species: *Lutra lutra*, *Citellus citellus* and *Felis sylvestris*, which are very rare species in Europe.

### 23. NOTEWORTHY FLORA

The biotope diversity in this area results in the high plant species diversity. About 500 plant taxa were recorded in this area. Among them, the species: *Nymphaea alba*, *Nuphar luteum*, *Adonis vernalis*, *Dactylorhiza incarnata*, *Orchis laxiflora*, *Cirsium brachycephalum*, *Acorus calamus*, *Trapa natans* agg., *Hippuris vulgaris*, being nature rarities in Serbia, have been protected by the Law, while the species: *Nymphoides flava*, *Camphorosma annua*, *Urticularia vulgaris*, *Hypericum elegans* and *Ranunculus pedatus* have been listed for the Red Data Book of the Flora of Serbia. *Cirsium brachycephalum* species is on the European Red List.

### 24. CURRENT RESEARCH/FACILITIES

The Institute of Nature Protection of the Republic of Serbia carries out various investigations in the area, such as monitoring of the water quality and state of other nature values.

The Management Authority plans to organize detailed inventory and evaluation of the nature values (flora, vegetation, fauna).

### 25. CONSERVATION EDUCATION

The area has great educational possibilities. It meets specific educational needs for school groups of varying levels and sizes.

### 26. RECREATION/TOURISM

The area offers extensive recreational possibilities, including wildlife viewing, fishing, hunting, camping, rowing, photography and hiking. Powered vessels are prohibited. The area is visited by about 30,000 people annually.

### 27. MANAGEMENT AUTHORITY

Deoničarsko Društvo Ribarsko Gazdinstvo "Ečka";  
23000 Lukino Selo  
Yugoslavia

## **28. JURISDICTION**

The area is jointly managed on two levels, by the Government of the Republic of Serbia and Board of the Deoničarsko Društvo "Ečka".

## **29. REFERENCES**

Budakov, Lj. *et al.* (1993): Proposal for the Stari Begej-Carska Bara Special Nature Reserve Protection, The Institute of the Nature Protection of the Republic of Serbia: 1-82. Novi Sad.

## **30. REASONS FOR RAMSAR INCLUSION**

The Stari Begej-Carska Bara Special Nature Reserve meets all basic Criteria for the registration as an internationally important wetland.