

„Hol az a táj szab az életnek teret,  
Mit az Isten csak jókedvében teremt”

Válogatás az első tizenhárom MÉTA-túrafüzetből  
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A KÖTETET SZERKESZTETTE:  
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# Special Nature Reserve Slano Kopovo

SZERBIAI TERMÉSZETVÉDELMI INTÉZET (SZERK. STOJNIC, NIKOLA)

## Location

Slano Kopovo is situated in the northwestern part of Banat, in the vicinity of town Novi Bečej and the river Tisza. It is about 55 km from Novi Sad and about 32 km from Kikinda. Special Nature Reserve “Slano Kopovo” was proclaimed on the surface of 976.44 ha. It is bordered by highways Novi Bečej-Novo Miloševo and Novi Bečej-Bašaid.

## Protection

Reserve has been formed in 2001. It is divided into three zones by the different degrees of protection: I zone on 217 ha with the strictest regulations, II zone on 220 ha, and III zone on 539 ha.

Slano kopovo is designated as Ramsar site, Important Plant Area and Important Bird Area.

## Physical features

Slano Kopovo is situated on the alluvial plain of Tisza and Galacka. It includes the half-crescent, elongated depression in direction northwest - southeast, and actually represents the fossil meander of Tisza. One of the proofs of the former bed of river Tisza is about a dozen smaller or larger mounds in the vicinity, that used to follow the riverbed. Sedimentation since the very days of the Pannonian sea, and later also the Aeolian and especially water erosion, made a hollow with shallow sides and a wide bottom, which subsequently filled up with water. In the similar way there were numerous hollows and ponds in this region, which are together with marshes and swamps called “kopovi” (“pits”) by Banatians, and if water holds a larger quantity of salt, they are also called “slane” (“salty ones”). This led to the name Slano Kopovo, although the feature is also known as Slana, Kopovo, Sósokopó or Lesino Kopovo.

Basin of Slano Kopovo occupies the largest part of the eastern arm of the mentioned meander, whose shape reminds of the horseshoe with arms pointing toward southeast. In a parallel line to Slano Kopovo, on its eastern side, runs a smaller depression called Poštaš Kopovo or Malo Kopovo, which in contrast to Slano Kopovo does not have salty water. Poštaš Kopovo is a freshwater ecosystem with mirrors of open water and the floating vascular plants. These two Kopovos are separated by a higher loess boundary called Između Kopova (“In between of Kopovos”). The distance between two lakes is 350–900 m.

The eastern side of basin of Slano Kopovo has a very gentle slope. Above the western side there is a segment of the loess terrace, up to 6 m in relative height, including a down called Veliki Pesak, with the highest point on Maslar mound being 86.8 m above sea level. Toward the north and the south the lake basin gradually changes into the dry or occasionally flooded bottom of the fossil meander.

The lake Slano Kopovo stretches in direction southeast - northwest and is ellipsoid in shape. Toward the longer axis, at a medium water level, it is 3 km deep. The greatest width is in the northwestern part (625 m). The southeastern part of Slano Kopovo finishes at a narrow point where the width is only 50 m. The shoreline length is 7 km. The greatest depths of the lake are closer to the western shore. There in several places are so called “oka” (“eyes”) where depths are greatest. They also include “živa blata” (quick mud) which may be dangerous for life of humans and livestock that thread in there. The eastern half of the basin is shallower. The area of Slano Kopovo is 1.45 square kilometers.

In cases when the water balance of Slano Kopovo is negative, there is a regression, that is, negative movement of the water line. These fluctuations also manifest themselves in the dimensions of the lake: length, width, depth, length of coastline and the surface area. The most prominent movement of the coastline is in the parts where Slano Kopovo is shallowest, that is, east, southeast and northwest.

The whole depression whose deepest part is occupied by the lake basin is filled with very salty soil – solonchak and solonetz. According to the literature data, the bottom of the basin is filled with clay and has a very gentle slope.

## Ecological features

The Special Nature Reserve “Slano Kopovo” represents an authentic and unique ecosystem of salina ponds, pastures and downs with other types of wetland habitats, surrounded by arable land and small hills. Specificity and uniqueness of this area is manifested in presence of unique salina habitats, associations and species, which have almost completely disappeared in that way and on such a surface in the other parts of the Pannonian plain. Slano Kopovo enables either permanently or temporarily survival to a large number of species and their communities. Only among the birds, 210 species were recorded so far, and there are also about 25 species of mammals.

## Vegetation

Slano Kopovo has extraordinary biocenological characteristics. It is recognizable by the specific salina communities from the classis *Thero-Salicornietea*. The recorded plant associations of this area have the following syntaxonomic position:

Classis *Phragmitetea* R. Tx. Et Preising 1942,

Ass: ***Bolboschoenetum maritimi continentale* Soo (1927) 1957**

Classis: *Thero-Salicornietea* Tx. 1955 ex Oberd. 1958

Ass: ***Salicornietum prostratae* Soo (1924) 1964** (syn. : *Salicornietum europaeae* Soo 1945):

In Serbia it *is developed only in this locality.*

Ass: ***Salicornieto-Suaedetum maritimae continentale* Knežević, Boža 1988:** Also the *only locality in Serbia.*

Ass: ***Suaedetum maritimae* Soo 1927:**

Subass: *bolboschoenetosum* prov. and

Subass.: *asteretosum pannonicae* prov. Čapaković 1984.

Ass: ***Suaedeto-Kochietum prostratae* Knežević, Boža 1988:** It was recorded on the surface of only several square meters and composed of only 3 species.

According to the botanical literature, Common Glasswort *Salicornia europaea* and Annual Sea-blite *Suaeda maritima* replace each other in the field. However, the special feature of the vegetation of Slano Kopovo is actually their specific combination. Therefore, in 1988 a special association *Salicornieto-Suaedetum maritimae continentale* was recorded scientifically for the first time.

The association *Suaedetum maritimae* is characterized by increased general cover, which is related to the relative floristic richness of this phytocenosis. In smaller numbers it also includes species *Salicornia europaea* and *Salsola soda*.

The association *Suaedeto-Kochietum prostratae* is floristically poor as it is made out of only three species: *Suaeda maritima*, *Kochia prostrata* and *Puccinellia limosa*.

The azonal marsh vegetation is developed in the shore zone of Slano Kopovo and is represented either by typical reed beds (ass. *Scirpo-Phragmitetum phragmitetosum*), or the subassociation *bolboschoenetum*, which indicates a lightly salty substrate or flooding water. In the half-dry period, after the retreat of flooding water from the coastal areas, when the water level in the bed of Slano Kopovo is still high, there is breaking of parts of the shore due to waves. Humans accelerate this process, either by passage of agricultural machines or herding the cattle over that area. In these places, water is somewhat shallower and saltier due to quicker evaporation, so in time there are overgrowths of the association *Bolboschoenetum maritimi continentale* (syn: *Scirpetum maritimi* Tx. 1937), that demands this type of habitat.

The special characteristic of Slano Kopovo is the dominant halophytic (salina) vegetation. It is the component of biodiversity that makes the area recognizable in national and international scope. The main ecological factors, salt and water, directly or indirectly influence all the ecological parameters, and through that create the specific conditions for creation of the mentioned halophytic vegetation. It is

tied to solonchak and composed out of succulent and in lesser measure half-succulent halophytes, so it belongs to the type of ancestral plant cover that already almost completely disappeared from the Pannonian area. These are the associations of various salina phytocenoses from the classes *Thero-Salicornietea*.

## Flora

The plant species, cenoelements, belong mostly to annual, succulent halophytes. Depending on concentration of sodium-chloride in the substrate and the degree of its water content, that is, degree of salification process, 4 plant communities can easily be recognized in the field. Species characterizing the classis *Thero-Salicornietea* are among others *Salicornia europaea*, *Suaeda maritima*, *Suaeda pannonica*, and today they are real rarities. The species *Suaeda pannonica* is a Pannonian endemic species and is included in the Red Book of Serbian flora, together with *Salicornia europaea* as a critically endangered taxon (CR) (Stevanović 1999).

The species *Salicornia europaea* (Common Glasswort), due to its morphological features (succulent plant with no leaves) and dominance, determines the physiognomy of the association. This species is characteristic for the maritime salinas of the Mediterranean. As in Serbia it grows only on Slano Kopovo, where in a certain array of dry years it was threatened by lack of water, it is proclaimed a natural rarity protected by law. Besides it, as species specifically adapted to the extreme habitat conditions, there are euhalophytes *Crypsis aculeata* and *Puccinella limosa* (sometimes there is also *Spergularia media*). Before the soil become completely dry, Common Glasswort finishes its life cycle, and the role of builder of the scarce plant cover is taken by Annual Sea-blite *Suaeda maritima*. It appears fairly late, at the end of half-arid and beginning of arid phase (August-September). It spatially extends into the association of Common Glasswort and covers the habitats that are bare and well drained, as a second vegetation belt. When during the dry period water disappears, and the bottom of Kopovo becomes visible and covered with whitish, salty film, Annual Sea-blite makes a circle around this huge white depression. *Suaeda maritima* is on the Red List of Serbian Flora.

The recorded flora of Slano Kopovo includes the Schwarzenberg's Plaintain (*Plantago schwarzenbergiana*), a Transylvanian-Pannonian endemic species from the World Red List of Plants (IUCN, 1998), which is included in the list of species of FR Yugoslavia with international importance for preserving the global biodiversity (Stevanović and Vasić 1995).

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