Additional information

General ecological features of the Site

Great wetlands characterize the site with high biodiversity both in species and habitat levels. By today most of the natural connections to the specific swamp and marsh areas have ceased, but this region still belongs to the wettest regions of the country even in its current condition. Lake Kolon is greatly expansive swamp and marsh area even in national terms. The complex of habitats includes a large reed bed; species rich wet meadows, fen woods, pastures, and hay meadows, sand dunes. The lake itself, which suffered from drainage, is now nearly completely overgrown by vegetation giving breeding and feeding habitats for a large variety of insect, fish, amphibian, and bird species. For the long-term the aim is to restore and maintain Lake Kolon as a wetland of great biodiversity with open water, reedbeds and fenwoods. Biodiversity will be improved through habitat restoration with the dual objective to restore previous natural conditions and to foment the recovery of rare species. In addition to the new excavation of open water area (43.8 ha), it is hoped that in the future a more flexible water management will be possible that also allows higher water levels in support of different species of waterfowl.

Physical features of the Site:

Geology, hydrogeology, pedology
Following the withdrawal and the sedimentation of the last lake, the so-called Late Miocene Lake Pannon in this region on the Great Plain, approximately 4.5 million years ago, the ancestor structures of the Danube, the ancient Tisza and the tributaries of the latter appeared. From this point on the previous lake sediment supply was replaced by river sedimentation (primarily by the Danube). Until the Günz-Minden Interglacial Episode in the Pleistocene Ice Age following Pliocene Epoch the Danube ran southeast-bound towards Szeged, cutting the region in half, and supplied river sedimentation in a width of some 1000 metres. In the Günz-Minden Interglacial Episode of the Ice Age a major change occurred: with the development of the region's southwestern depression (Kalocsa depression) the Danube gradually started to drift westward by leaving its previous diagonal flow direction and took over its present north-south position. The Danube had already filled up the previous areas. River sedimentation ceased on the alluvial fan replacing these, situated east of the region, which remained higher than the Trans-Tisza region, and a thick eolic sedimentary layer was deposited on it (in the areas undisturbed by water).

This sedimentary layer consists of sand blown out of the Danube valley in the ice-free periods of the Ice Age, which was structured as a series of sand piles in the north-south direction according to the dominant wind direction, as well as loess developed during the ice formation periods, their transformed (e.g. soil) varieties and sediments washed out by local precipitation.

The sediment pattern delivered by the Danube-Tisza interfluvial winds protrudes slightly east of the current Tisza route, between the river layers of the Tisza. Therefore a geological situation developed in the smaller eastern section of the region where the Tisza, through its westbound movement, entered the alluvial fan of Danubian origin and in certain locations cut up and destroyed the surface of Danubian origin from the late Pleistocene period and enriched it with its own sediments (occassionally in an astonishing thickness of several hundred metres).

Based on geological evolution, the geological structures covering the surface and the morphological conditions the region can be divided into three major geological units:

- Danube Valley (a tectonic and erosional depression along the Danube river in a width of some 20-30 km) with an average height of 90-100 m above sea level,
- Danube-Tisza Interfluve Ridge. An area with a varied surface protruding some 30 m above the Danube Valley and almost 40 m above the Tisza sedimentary layer smoothing into the loess Bácska plain in the SW direction. Due to its position and surface features this is also the natural divide of the region, which is roughly sketched going from north to south by a line between the communities of Ladánybene, Fülöpháza, Helvécia, Bócsa, Tázlár, Kéleshalom and Bácsalmás. Its average height above sea level is 110-135 m.

Typical calcareous swamp plains, fens and marshes, intertwined in a chain-like pattern, have developed in a width of 8-10 km and in a length of some 120 km along the periphery of the old Danube floodplain, the Danube Valley sodic plains and the Ridge sand regions. Danube floodwaters entering the sand dune series, preserved in the depressions, and the Danube tributaries that developed provided a foundation for the formation of swamps and marshlands in the late Pleistocene period. Following the Danube river control in the 19th century the connection of these regions was cut off from the river, however, the ground water movement towards the Danube Valley from the Ridge provided an adequate and continuous supply of water reserves for the marshland subsequently, as well. By today most of the natural connections to the specific swamp and marsh areas have ceased, but this region still belongs to the wettest regions of the country even in its current condition.

Climate

The climate variations are limited in the region of the Carpathian Basin. The macroclimate can be considered a homogenous basic feature in terms of surface and fauna evolution, as well. The region has a temperate continental climate. Its unique features are limited cloudiness, a relatively high number of sunshine hours, high daily and annual temperature variation, relative dryness and very low humidity values.

This region is the area with the least cloudiness in Hungary. The annual average cloudiness is 52-57%. The annual average number of sunshine hours is approx. 2050. At the same time this is one of the warmest areas in the country. No significant variations exist in this region. The annual average temperature is between 10-11oC. The mean temperature of the coldest month (January) is between minus 1.5 and minus 2oC, while that of the warmest month (July) is 21-22oC. Characteristically of areas with a continental climate, the annual average temperature variance is quite significant (23-24oC). The region can be classified within Hungary as one with a short winter and a long summer. The number of winter days is only 26-31, however, major frosts are common. Spring comes early, and the average temperature rises above 10oC in the whole region between 7-12 March. The number of summer days is 81-84. In the fall the daily average temperature falls below 10oC again generally between 17-21 October.

The region is one of the parts of the country having the least precipitation. Under normal conditions the annual precipitation is between 500-600 mm in the region. The rainfall of the summer semester (April-September), the so-called breeding period, is around 300-350 mm. The winter precipitation occurs mainly in the form of snow. The number of snow-cover days is 30-40. The precipitation conditions therefore are relatively disadvantageous. This is further intensified by low humidity values, with an annual average of many years at 71-74%. Based on

this data we may declare that the balance of precipitation and evaporation is negative in the region. The wetlands that have developed and exist can thank their subsistence to supplementary water influences (e.g. ground water).

Physical features of the catchment area:

Prior to the river control of the Danube the Danube Valley used to be the river's normal floodplain, then it was an area covered with inland waters on a regular basis subsequently, as well. Also, as a result of its pedological (mainly calcareous-sodic plains developed on a fine granule rock bed) and geological structure (the significant presence of a fine waterproof clay layer) precipitation filter downwards with difficulty and may remain permanently in the depressions. It is generally true that due to the winter precipitation and the high ground water level in the spring significant water volumes appear in the depressed areas (in the isolated depressions of lake beds and old water flows).