

Abstract

The Danubian Plain is northern part of the Pannonian Plain and in terms of palaeobotanical research it is an entirely unexplored area. However, this region is assumed to contain cryptic glacial refugia and migration routes of thermophilous biota northward after the Last Glacial Maximum. The late-glacial and Holocene natural long-term succession and temporal changes in the composition of plant communities of lowland lakes in the Slovakia is unknown.

Šúr, a National Nature Reserve is a former lake, presently overgrown by alder carr forest. Successional development since the late-glacial was studied along two profiles. Macrofossil analysis was carried out on lake sediments extending to the Middle Pleniglacial (OIS 3). Using knowledge of the modern ecological requirements of taxa, past environmental conditions were reconstructed. The historical biogeography of selected plant species in Europe during the late-glacial and Holocene is also discussed.

During the Middle Pleniglacial *Myriophyllum spicatum* and *Chara* sp. grew in the lake. During the late-glacial shallow basin contained a calcareous, meso- to eutrophic lake with *Potamogeton filiformis*, *P. praelongus*, *Ranunculus* subgen. *Batrachium* etc. During the early Holocene these elements disappeared and thermophilous plants immigrated, such as the facultative halophytic macrophytes *Najas marina* and *Zannichellia palustris*. At the beginning of the middle Holocene the thermophilous species *Trapa natans* and *Nymphaea alba* expanded. These high biomass producing taxa accelerated natural progressive infilling of the lake, which led to the creation of a habitat mosaic with shallow pools, areas of fen vegetation, or even small islands with alders and shrubs at the end of the Atlantic period. Annual water-level fluctuations occurred allowing exposed mud-bottom species belonging to class *Bidentetea tripartitae* to colonise. The lake was overgrown at the beginning of Subatlantic period and became occupied by alder carr forest.

Vegetation development of this lake during the late-glacial and Holocene followed well-known hydrosere processes of long-term succession in eutrophic lakes. The lake was probably slightly brackish and annual water level fluctuations significantly affected the entire ecosystem.