Central European fen mollusc and plant assemblages in modern and quaternary perspective

Michal Horsák, Michal Hájek & Petra Hájková

Institute of Botany and Zoology, Faculty of Science, Masaryk University, Kotlářská 2, CZ-61137 Brno, Czech Republic, e-mail: horsak@sci.muni.cz

INTRODUCTION

Fens are nutrient-limited wetlands fed by mineral-rich groundwater, with a tight response of species richness and composition to the water chemistry. Fen habitats support species-rich assemblages of both plants and molluscs, including many globally threatened habitat specialists and glacial relicts.

PATTERNS OF SPECIES RICHNESS AND COMPOSITION

Species richness generally increases towards alkaline fens and rather weak geographic signal can be found in species composition. While a clear species turnover is characteristic for plants, molluscs express the nested subsets along the calcium gradient.

The main ecological gradient at fens correlates with the changes in groundwater calcium content from acidic fens to highly calcareous fens.

Relationship between calcium content and the number of recorded mollusc species (left) and the main variation of their assemblage composition (right) (Horsák & Hájek 2003).

Mollusc assemblages at fen sites with less calcium are subsets of those at sites with more calcium (Horsák & Černohorsky 2008).

REFERENCES


FENS AS TERRESTRIAL ISLAND-LIKE HABITATS

The number of habitat specialists in these insular systems increases with habitat age (at the Holocene scale) and/or area, with habitat age becoming more important as species dispersal ability decreases (Horsák et al. 2012).

FENS IN PALAEOECOLOGY

As fens accumulate organic sediments with a rich fossil material, an exact dating and the reconstruction of their development are easily possible. The Late-Glacial origin of the oldest temperate fens maintains the existence of many glacial relicts, surviving there in isolated populations. The occurrence and number of these relicts was found to be associated with the age of fens and/or a continuous presence of suitable fens during the Holocene.

The fen sites studied in the Western Carpathian Mts. The number of possible relict plant and land-snail species linked to older fens than would be expected by chance was identified (Hájek et al. 2011). The effect of the various transformations of fen area in the null model was considered.

Molluscs

Vascular plants

REFERENCES