



THE DIFFERENT FORMS OF RARITY OF THE PLANKTONIC ALGAE SPECIES IN THE CARPATHIAN BASIN

A plankton algák ritkaságának különböző formái a Kárpát medencében

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Algae plays a significant role in freshwater ecosystems (aquatic food web, oxygen production, natural purification processes). Currently, few data are available regarding to the distribution of freshwater algae, even less of those that inhabit specific, sometimes endangered waterbodies.

In order to explore the rarity and commonness of planktonic algal species, using the available literature we created a unified database, which contains the occurrences of all phytoplankton species observed in the Carpathian Basin. The database includes 2292 species and 1108 habitats. The habitats were divided into 25 categories, while species were classified into 12 functional groups.

Our goal was to determine: (1) how many species inhabit in the different water types; (2) how many species are considered to be rare in the Carpathian Basin; (3) and which functional traits dominate the different water types?

Most of the species occurred in streams and watercourses, which have diverse and dynamic appearances. Whereas the smallest water bodies, telmas and water-filled pits, which are particularly sensitive for changes in the environment, contained the fewest species.

An interesting result was obtained during the investigation of rare species. Based on the database, there are many rare species and only a few common species in the Carpathian basin. From the 2292 observed species, more than 1.000 taxa occurred in only one habitat type. No species were found that occurred in all of the 25 water types, but were 2 species, *A. hantzschii* and *P. morum*, which occurred in 23 habitat types. The rarity function shows an exponential increase in the direction of rarity.

In terms of functional properties, the majority of water types (20 water types) were dominated by single, mixotrophic species, which are larger than 40 µm, whereas 3 water types (spring-water, pools and snow) were dominated more by filamentous algae. Flagellated algae usually dominated only in the water-filled pits, while colonial phytoplankton species predominated only in Lake Fertő.