O26 Mayflies and drought – how to survive in intermittent streams?

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Global climate change brings to Central Europe some changes in hydrological regime – more frequent floods and also a quite new phenomena – drying up of small watercourses. In the Czech Republic, the small streams and rivers (up to 4th Strahler order) constitute 80% of the length of all watercourses. According to climate models, we expect that drought will be a more acute problem in the future. The ongoing project "Drying up of streams during climate change" (BIODROUGHT) is focused on the impact of drought on macroinvertebrate communities. The main goal of this project is to develop a method of retrospective biological indication of dry episodes based on the analysis of the taxonomic and functional composition of macroinvertebrate assemblages. One of the most sensitive taxa to drying up are mayflies (Ephemeroptera).

In our project, we compared mayfly taxocenoses in permanent and intermittent streams in the Czech Republic. The dataset used for the comparison include data from samples for 13 pairs of permanent and intermittent streams collected in years 2012 – 2014. All samples were taken in spring and autumn and all sites were without an obvious pollution and/or hydromorphological impact.

The results show that drought has an apparent impact on mayfly taxocenoses. The number of total taxa and also the abundances were lower at the intermittent sites in comparison with the permanent ones. The representation of specific species-traits (for example voltinism) was different at both types of streams. Moreover, some sensitive taxa could be considered as permanency indicators (e.g. *Epeorus assimilis*). Using the combination of different metrics and approaches, it seems that it is possible to distinguish between intermittent and permanent sites on the basis of composition of mayfly taxocoenes.