22nd International Symposium on Chironomidae

June 17-19, 2024 in **Niš, Serbia**

BOOK OF ABSTRACTS

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Late-Glacial to Holocene transition in the Western Carpathians (central Europe) evidenced in the subfossil chironomid record from an alpine lake

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We analysed subfossil chironomids from a sedimentary record of an alpine lake in the Tatra Mountains (Nižné Temnosmrečinské pleso, 1674 m a.s.l.) with an aim to reconstruct past environmental changes during the Late-Glacial/Holocene transition. The low organic matter content and low chironomid abundances in the sediments before ~14,950 cal yr BP suggest oligotrophic conditions with limited aquatic productivity due to extreme climatic conditions. The assemblage structure represented by both cold-adapted and rheophilic taxa (*Diamesa, Pseudodiamesa*, *Micropsectra radialis*-type and *Pseudokiefferiella parva*) indicates that the lake ecosystem was strongly affected by an intensive inflow of cold glacial meltwater. The significant change at ~13,700 cal yr BP is indicated by the replacement of cold-adapted taxa by taxa with wider thermal tolerance, such as *Procladius* and *Tanytarsus lugens*-type. This change could be attributed to the transition between the cold Oldest Dryas and warm Bölling period. The short-lasting cooling during the Older Dryas, not always clearly visible in the stratigraphic diagrams, could be indicated by the rapid increase and dominance of the cold stenothermal *Pseudodiamesa* (~13,200 cal yr BP). The chironomid shift after ~12,000 cal yr BP can be associated with climate warming on the onset of the Holocene. The gradual disappearance of cold-adapted taxa is connected to decreasing influence of meltwater from mountain glacier and/or snowfields. The dramatic increase of organic matter content suggests increased lake productivity, reflected by significant structural changes and newly appeared taxa inhabiting a wide range of habitats.

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