22nd International Symposium on Chironomidae

June 17-19, 2024 in **Niš, Serbia**

BOOK OF ABSTRACTS

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Reconstructing Holocene environmental changes in an alpine lake (Tatra Mountains, Slovakia) using subfossil chironomid remains

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Sediment deposits from Popradské pleso (High Tatra Mountains, Slovakia), a lake of glacial origin, were investigated using subfossil chironomid remains to determine the duration of the glacier influence on the lake, as well as to reconstruct the impact of Holocene climatic oscillations. Chironomid analysis was done on two sediment cores, which were then merged based on loss-on-ignition and total organic carbon results, to span the entire epoch. During Early Holocene the sedimentary deposits consisted of fine laminated mud, and their chironomid community was species-poor and dominated by *Micropsectra radialis*-type and *Pseudodiamesa nivosa*, indicating very cold, ultra-oligotrophic and oxygen-rich conditions. The transition from a glacially influenced lake system occurred at ~9,900 cal years BP, lasting until ~9,700 cal years BP, with sediments consisting of homogenous mud. In the chironomid record, this was marked by a decrease in abundance of previously dominant taxa, and a concurrent increase of abundances of *Tanytarsus lugens*-type and *Psectrocladius psilopterus*-type, suggestive of a shift towards more productive conditions, with higher water temperatures. Post-transition, the chironomid community of the organic-rich gyttja deposits was dominated by thermally plastic *T. lugens*-type, *P. psilopterus*-type and *Heterotrissocladius marcidus*-type, and by an overall increase in taxonomic richness. Though Holocene climatic oscillations did not significantly impact the community, an increase in abundance of *H. marcidus*-type in the youngest parts of the sediment core is attributable to decreased productivity caused by lower temperatures during the Little Ice Age.

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