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Tímea Chamutiová & Ladislav Hamerlík (eds.)



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Subfossil chironomid assemblages as indicators of environmental changes during the early Holocene deglaciation in the High Tatra Mountains

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Here we present the results of a palaeolimnological survey of the sediments of Batizovské pleso (1886 m a.s.l.), Tatra Mts., Slovakia. We analysed chironomid remains to reconstruct environmental changes in the transition between the Lateglacial and the Holocene and the timing of the valley glacier retreat. A 219 cm sequence from the total of 320 cm sedimentary sequence was analysed. According to the ¹⁴C-dating, the sedimentary interval 137–211 cm corresponds to ca. 12,500 to 9,375 cal. y BP. A total of 3,880 chironomid head capsules belonging to 12 taxa were found in the sediment sequence. The dominant taxa were *Micropsectra radialis*-type and *Pseudodiamesa nivosa* with an overall abundance of more than 82%. The bottom samples (90–267 cm) are characterized by cold stenothermic, ultraoligotrophic and extremely poor chironomid assemblages (up to 4 taxa) dominated by *Micropsectra radialis*-type and *Pseudodiamesa nivosa*. This community structure is nowadays rare and restricted to the coldest Tatra lakes and we hypothesise that in the sediment sequence it indicates glacial conditions in the catchment. The uppermost samples at around 90 cm are remarkable for sudden increase of taxonomic richness and appearance of new taxa. The relative abundance of the dominant *Micropsectra radialis*-type remains unchanged, while the abundance of *Tanytarsus lugens*-type starts to increase. The abundance of *Pseudodiamesa nivosa* gradually decreases toward the younger samples. The remains of *Procladius* sp., *Zavreliomyia* sp., *Heterotrissocladius marcidus*-type, *Tanytarsus mendax*-type and *Micropsectra contracta*-type occur just in the uppermost samples. We hypothesise that the appearance of these thermally plastic taxa is linked to the significant reduction or even disappearance of the valley glacier, since identical patterns were found in other Tatra lakes. Our research indicates that the biggest changes in Batizovské pleso environment took place not during the transition of Lateglacial to Holocene period but thousands of years later, some 7600 years BP. The study was supported by projects APVV-15-0292 and VEGA 1/0341/18.