

Subfossil chironomids of Central American lakes: taxonomic composition and driving factors

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Due to often complicated political situation and extreme remoteness, the composition of chironomid assemblages of Central American lakes is only poorly known. However, the area that represents a bridge between two main biogeographical realms, the Nearctic and the Neotropical regions, can be particularly interesting for ecological and biogeographical studies and deserves more attention. Thus, here we present the preliminary results of the study on the taxonomic structure of subfossil Chironomidae from the surface sediments of lakes in Guatemala, El Salvador and Honduras. Ekman grab samples were taken in autumn 2013 from lakes representing broad environmental conditions situated along a 3000 m long altitudinal gradient from lowlands to mountain regions. Samples were taken usually both from the littoral and profundal part of the lakes, if possible. Parallel with the sampling, basic environmental variables, such as temperature, pH, conductivity, oxygen concentration and salinity were measured.

A total of more than 60 chironomid taxa of 3 subfamilies were present in the surface sediment samples. The subfamily Chironominae dominated with 41 taxa, followed by Tanypodinae (12 taxa) and Orthoclaadiinae (9 taxa). The average number of taxa per lake was 10, taxon richness of particular lakes varied from 3 to 19. Taxonomic richness decreased with altitude. The most common taxa were *Ablabesmyia* sp. (71% of all lakes) and *Goeldichironomus* sp. (59%) followed by *Labrundinia* sp., *Procladius* sp., *Chironomus anthracinus*-type, *C. plumosus*-type, *Cladotnyctarus mancus*-type, *Cladopelma lateralis*-type, and *Dicrotendipes nervosus*-type being present in more than 30% of the surveyed lakes.

The overall biological variability was driven by altitude and related variables. As expected, in high altitude lakes taxa of the Orthoclaadiinae subfamily dominated, while Chironominae were much more common in lowland lakes. An interesting feature is a complete lack of the Diamesinae subfamily in the study lakes. The ecological requirements of particular morpho-types were also defined.

We believe that our contribution can serve as a stepping stone for future limnological and paleolimnological survey as well as monitoring actions of the quality of freshwater ecosystems carried out in Central America.

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