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The Middle Miocene lacustrine mollusc fauna of the Kupres Basin: palaeobiogeography, palaeoecology, and taxonomic implications (Dinaride Lake System, Bosnia and Herzegovina)

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During the Early and Middle Miocene the Dinaride Lake System displayed one of the largest freshwater systems in the Neogene of Europe, forming a palaeogeographic barrier between the Paratethys and the Mediterranean seas. It is widely known for its exceptional mollusc fauna, which experienced major radiations resulting in a high level of endemicity. Despite advanced investigations in that region our knowledge on the mollusc fauna is still fragmentary or out-dated. A major problem for taxonomic revisions is the complex geographic and geologic setting with numerous basins. Therefore, most authors were unable to assign already described taxa and localities in the literature to discrete basins and palaeo-lakes.

The herein presented results give insight into the outstandingly preserved mollusc fauna of the Kupres Basin. Except for few descriptions, partly dating back to the early 20th century, and a preliminary list of species, a concise taxonomic frame is entirely missing. Consequently, the presented results provide the base for a systematic revision of several supraspecific taxa among the Hydrobiidae. Moreover, the faunal composition allows inferences on palaeobiogeography and hydrological connections within the Dinaride Lake System during the early Middle Miocene. About one third of the described taxa are restricted to the Kupres basin. The other taxa document faunistic relations to the coeval faunas of the Sinj, Drniš, and Džepi basins. Phases of hydrological isolation, indicated by carbonate dominated lithology, coincide with a high frequency of sculptured morphologies within the gastropods. Phases of increased aridity led to high evaporation, a lowered lake level and enhanced carbonate production which seem to have promoted strongly calcified shells. The stratigraphic ranges of the species imply a depositional age of 15.5 $\pm$ 0.2 Ma (earliest Middle Miocene; Langhian).