

## Fossil Fauna of « La Petite Morée », Glovelier (Jura)

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The karstic fillings of “La Petite Morée” are located in the limestone quarry of Glovelier, in the Swiss Jura. One of its karstic pockets, called “pocket 1”, is still accessible. With its 2.5-3.0 meters-high, the pocket is rich in fossils indicating sedimentary influence both from continental and marine environments. The small mammal assemblage correlates to the MN4 zone, which corresponds to the late Early Miocene. Whereas the marine foraminifera and sharks point at a Burdigalian age. The pocket was thus depositing during the transgression phase of the Upper Marine Molasse (OMM) and represents one of the rare continental records of the period (equivalent to the Upper Freshwater Molasse (OSM)). With both terrestrial and marine fossils, Glovelier is already a unique deposit. Moreover, it was set as the reference locality for the “*Democricetodon franconicus* – *Megacricetodon collongensis*” interval zone by Kälin & Kempf (2009). The aim of this study is thus to provide more data on its vertebrate faunistic assemblage and palaeoenvironment.

New samples of the horizon have been screen-washed and supplied more fossil material.

The faunistic elements were used to interpret the paleoenvironment of the time. First, qualitative interpretation of the paleoecology of each taxon was done based on actualism and plotted on Holdridge diagram. The overlapping environmental range, fitting all the taxon, was secondly refined by quantitative interpretation. With the poor preservation of the herpetological fauna, only one method for the estimation of the paleotemperatures could be used with cricetids (method of Legendre et al. 2005). Finally, the vertebrate assemblage of “La Petite Morée” has been compared to similar assemblages in Europe to discuss its age.

To conclude, the continental fauna of vertebrate is represented by salamanders, frogs, aves, lizards, snakes, turtle, glirids, lagomorphs, cricetids, eomyds, talpids, erinaceids, chiropters and artiodactyls. Pocket 1 contains both taxa with Asian affinities (e.g. cricetids, *Varanus*) as well as truly European forms (*Simplomys*). Thus, “La Petite Morée” provide an exceptional window of MN4 in the Swiss Jura at 17.5Ma. It shows a seasonal cool temperate climate, which is slightly colder than expected for the time. The environment was an intermediate between forest and steppe. Its fauna is unique and has no equivalent in North Alpine Foreland Basin. There is still material available from the karst that could not be used for this study. Its analysis could bring more details on “La Petite Morée” assemblage and bring important clues on the history of some taxon (e.g. *Prolagus*). However, after 22 years since its discovery, “La Petite Morée” has finally unveiled its vertebrate fauna and is now in the collection of the JURASSICA Museum.

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