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EVOLUTION AND PHYLOGENY IN *CYPRIDEIS* (OSTRACODA) – PROJECT INTRODUCTION

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Ancient lakes are stages for radiation in various organisms due to their longevity and limited exchange with adjacent ecosystems. As a result, those lakes are a perfect setting to investigate evolutionary processes. Among many other biota, especially ostracods are prone to experience amazing species flocks in such lakes. These minute aquatic crustaceans with bivalved calcite shells have an excellent fossilisation potential, which makes them very attractive to explore evolutionary patterns in “deep time”.

In Miocene times the Palaeo-ancient lakes Lake Pannon (Central Europe) and Lake Pebas (Western Amazonia) were centres of ostracod diversification with lots of endemic species. Most of these taxa are based on qualitative descriptors of morphotypes and little attention was paid to their morphological plasticity. Consequently, robust phylogenies, convincing biostratigraphical zonal-schemes and sound palaeo(bio)geographical considerations are still missing.

To overcome these problems we will analyse the dynamics of ostracod assemblages with high-resolution samples down to 5 mm vertical sampling distance, representing time intervals of hundreds to tens of years. These results will be combined with palaeoenvironmental analyses based, e.g., on grain size distribution, carbonate, carbon, and sulphur contents, stable isotope ratios (oxygen, carbon) as well as, magnetic susceptibility and gamma ray emission. Related to ostracods we will focus on morphological traits of the cytherideid genus *Cyprideis* by using an extensive combination of traditional and geometric morphometrics, not neglecting qualitative characters at all. *Cyprideis* is chosen because it is the best-studied recent ostracod clade, dominating in aberrant environments and exhibiting a significant amount of intraspecific variability. Both in Lake Pannon and Lake Pebas *Cyprideis* is used for biostratigraphic dating and palaeo(bio)geographic reconstructions. We aim to evaluate changes in valve morphology on high-resolution key sections spanning in total several millions of years, try to explore possible extrinsic/intrinsic triggers and reconstruct evolutionary pathways. Extremely challenging and promising is the examination of the capacity of these phylogenetic lineages to respond to environmental changes.

Ideal candidates to test such interrelationships are Central Europe’s Lake Pannon and western Amazonia’s Lake Pebas, located in two completely different geographic areas

reflecting also different histories but somewhat comparable palaeoenvironmental settings. Our investigations might result in an improvement of species delineation, a better understanding of speciation and a well-constraint reconstruction of their phylogeny.

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