Ostracod assemblages of "Lake" Pebas (Western Amazonia; Late Miocene): Taxonomy, sedimentology and palaeoenvironments

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During the Miocene, a vast wetland existed in Western Amazonia, which is called "Lake Pebas". Its sedimentary environments are still heavily disputed and models range from a "mega-lake" (Wesselingh et al. 2002), a "mega-wetland" (Hoorn et al. 2010) with some marine incursions (Hovikoski et al. 2010) to a "wetland on a mega-fan" (Latrubesse et al. 2010). Equally, stratigraphical correlations as well as its palaeogeographical configuration remain matter of debate. However, "Lake" Pebas represented an enormous inland water system for millions of years and faced spectacular speciation events (e.g., gastropods, bivalves as well as ostracods; Wesselingh & Ramos 2010). Among ostracods, especially the genus Cyprideis experienced a species flock with c. 20 described species (e.g., Purper 1979; Muñoz-Torres et al. 1998).

We investigated six outcrops located around Eirunepé (SW Amazonas state, Brazil; upper part of the Solimões Formation; Late Miocene). The low diverse ostracod fauna (~15 species) comprise of typically freshwater dwellers (*Alicenula*, *Cypria*, *Pelocypris*, *?Heterocypris*, *Cytheridella*) as well as the anomalohaline genus *Cyprideis*. The latter genus is recorded with 8 species, which frequently co-occur within one sample. Traditional (qualitative) descriptors of morpho-species (e.g., shape, ornamentation, hinge, spines) enable a clear species differentiation, which can be also used to distinguish associated juvenile valves. Based on these observations, we suggest that we are dealing with (in some way) genetically separated populations. Interestingly, valve size (of the same species) varies considerably even within one layer, while other diagnostic characters remain stable. This may hint to high-frequency fluctuations of – until now unclear – ecological parameters. Our systematical evaluation reveals several taxonomical problems, which makes an adjustment of the current biostratigraphical zonation as well as of palaebiogeographical considerations necessary.

Nevertheless, ostracod assemblages and very light $\delta^{18}O$ and $\delta^{13}C$ values, measured on *Cyprideis* valves, refer to exclusively freshwater conditions. Based on sedimentological analyses, these sediments are interpreted as fluvial deposits, possibly of an anastomosing river system. Lacustrine environments are restricted to local floodplain ponds/lakes (GRoss et al. 2011). Hence, the existence of a long-lived lake ("Lake Pebas") or any influx of marine waters can be excluded – at least – for that region during the Late Miocene.

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