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An updated conchostracan biostratigraphic subdivision for continental deposits of Late Carboniferous to Early Triassic age [oral presentation]

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Continental sedimentary deposits of Late Carboniferous to Early Triassic age are widely distributed in Central Europe. Often these sediments contain conchostracans (Crustacea: Branchiopoda). During the Late Carboniferous–Early Permian the conchostracans were well adapted to inhabit perennial lakes, where they often can be found in laminated, darkish grey clay- and siltstones. Since the end-Early Permian up to the Early Triassic they also occur in ephemeral subaquatic, shallow-water deposits such as playa lakes and smaller ponds of fluvial floodplains, which can show both reddish and greyish colours of fine-grained siliciclastics. Occurrences of conchostracans in brackish environments (i.e., lakes on coastal plains with an input of marine waters by storm floods) are known from Early to Middle Triassic deposits, but are considerably less frequently. Therefore, at least for the Late Carboniferous and Permian, occurrences of conchostracans are commonly accepted to serve as indicator of fresh water conditions.

Late Carboniferous–Early Triassic conchostracans preferably occur in quite-water deposits, due to their poor developed swimming capabilities. Their often observed occurrences in horizontal laminated clay- and siltstones are indicative for sediment settled down from suspension load, while also frequent desiccation cracks indicate local and temporary drying out. On the contrary, sandstones and conglomerates as well as deposits affected by pedogenesis are less suitable for conchostracan occurrences, due to both unfavourable ecological conditions and a much lower preservation potential. Additionally, conchostracans are known for their fast reproduction rate. Their desiccation resistant dormant eggs are adapted to withstand temporary drying out of shallow water habitats. This specialized reproduction strategy makes the conchostracans well adapted to the steppe-like, seasonally dry climates of the Late Permian–Triassic aridification in northern Pangaea. Moreover, high numbers of individuals per population and storm transport of the dormant eggs result in their fast geographical distribution and make conchostracans ideal tool for biostratigraphy. Their repeatedly proofed practicability for biostratigraphy of continental deposits results in the here presented Central European Late Carboniferous–Early Triassic biozonation.

According to preliminary results, the Late Carboniferous–Early Permian conchostracan faunas of Central Europe show high taxonomical diversity with a dominance of *Palaeolimnadiopsis* and *Lioestheria*. Accompanying leaiid forms with two prominent radial ribs were recorded from the Late Carboniferous to the Early Permian in Central Europe. This faunal composition increasingly changes in the Middle Permian and Late Permian towards a dominance of *Pseudestheria*. Unfortunately, the fossil record of conchostracans from the Middle Permian–Late Permian of Central Europe is still poor, because of both large stratigraphic gaps in the Upper Rotliegend I–II and hypersaline, restricted marine and sabkha conditions during the deposition of the Zechstein Group (Late Permian). Nevertheless, in the uppermost Zechstein (Upper Fulda Formation; Induan, Early Triassic) to Lower Buntsandstein of Central Europe, a change in the conchostracan fauna can be recorded, which contains *Euestheria*, *Palaeolimnadiopsis*, *Magniestheria*, *Cornia* and *Estheriella*, as well as forms similar to *Rossolimnadiopsis*. The respective index taxa of this Early Triassic fauna biostratigraphically correlate with continental deposits in Central Russia, Southern China, Jordan, and India. This demonstrates very well the high value of Late Carboniferous–Early Triassic conchostracans for biostratigraphy.