ACTA PALAEONTOLOGICA POLONICA

New, large actinopterygian fishes from the upper Carboniferous of Nýřany, Czech Republic

Pavel Barták, Martin Ivanov, Eva Tihlaříková, Martin Olbert, and Vilém Neděla
Acta Palaeontologica Polonica 69 (3), 2024: 501-522 doi:10.4202/app.01162.2024

The lacustrine coal deposits at Nýřany, Czech Republic, yielded a diversified vertebrate assemblage of the Middle Pennsylvanian (Moscovian) age, represented by the remains of early tetrapods, as well as numerous freshwater ichthyofauna, including xenacanthiform sharks, acanthodians, dipnoans, and ray-finned fishes. However, unlike some other upper Carboniferous localities, the actinopterygian diversity is limited to the three small-bodied species, most of them endemic to Nýřany locality and the equivalent strata elsewhere, indicating that the true taxonomic diversity of the group at the locality may be biased. Here we describe first skeletal remains of large actinopterygian fishes from the site, including a new genus and species, *Stambergichthys macrodens* gen. et sp. nov., which is represented by a well-preserved mandible with teeth. The micro-computed tomographic techniques revealed in the specimen a presence of a complex neurovascular system innerving the teeth and the jaw, and supplying both with blood vessels. The dentition consists of a single row of massive, homodont, conical teeth, which possess simplexodont plicidentine on their base, the characteristics supporting the predatory ecology of the new species. The isolated skeletal remains of large-bodied actinopterygians expand the knowledge on the diversity of the group in Nýřany, and their occurrence in coal deposits of relatively shallow lake indicates they represent allochthonous, poorly known aquatic vertebrate association, likely originating from the braided river system. These findings underline the importance of less complete skeletal materials occurring in wellknown vertebrate assemblages of the upper Carboniferous coal-bearing localities.

Key words: Actinopterygii, dentition, continental basins, morphology, neurovascular system, palaeoenvironment, plicidentine, Palaeozoic.

Pavel Barták [bartak.pavel@mail.muni.cz; ORCID: https://orcid.org/0009-0009-3738-4849] and Martin Ivanov [mivanov@ sci.muni.cz; ORCID: https://orcid.org/0000-0001-9108-9239], Department of Geological Sciences, Faculty of Science, Masaryk University, Kotlářská 267/2 611 37 Brno, Czech Republic. Eva Tihlaříková [tihlarik@isibrno.cz ; ORCID: https://orcid.org/0000-0002-7983-2971], Martin Olbert [olbert@isibrno.cz ; ORCID: https://orcid.org/0000-0003-2280-3341], and Vilém Neděla [vilem@isibrno.cz ; ORCID: https://orcid.org/ 0000-0001-6029-5435], Environmental Electron Microscopy Group, Institute

of Scientific Instruments of the Czech Academy of Sciences, Královopolská 147, 612 00 Brno, Czech Republic.


Full text (2,226.0 kB)