

Vertebrate biozonation of the Permo-Carboniferous lakes of the Czech Republic – new data

Vertebrální biozonace permokarbonských jezerních sedimentů České republiky – nové údaje



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Abstract: The Upper Stephanian *Sphaerolepis-Watsonichthys* biozone is renamed for *Sphaerolepis-Elonichthys*. The lower *Watsonichthys* subzone is adequately renamed for *Elonichthys* subzone. The upper boundary of the Lower Sakmarian *Xenacanthus decheni* biozone is shifted to a higher position due to new shark findings in the Krkonoše Piedmont and Intra-Sudetic Basins. The Asselian Lower Letovice Formation (Boskovice Basin) yielded special vertebrate association of the upper *Acanthodes gracilis* biozone, not known from the other basins yet.

Key words: biostratigraphy, Upper Carboniferous, Lower Permian, Bohemian Massif

The Upper Carboniferous and Lower Permian local biozones based on aquatic vertebrates were established by ZAJÍC (1990) and defined by ZAJÍC (2000). Validity of the local biozones relates to the Central and Western Bohemian area, Grabens area (including Austrian section near Zöbing), and Sudetic area (including the North Sudetic Basin in Poland) of the Bohemian Massif. For the geographic position of the Czech and Moravian basins see fig. 1 in ZAJÍC (2000). Validity of these biozones in the German basins of Saxonia and Thuringia also pertaining to the Bohemian Massif has not been tested yet.

The Upper Stephanian *Sphaerolepis-Watsonichthys* biozone (range-zone) must be renamed here. The generic name *Watsonichthys* was found as incorrect for any actinopterygian of the Bohemian Massif. ŠTAMBERG (1994) named two related species originally described by FRITSCH (1895) as *Watsonichthys krejci* and *Watsonichthys sphaerosideritarum*. The generic names of the two species were recently changed by BOY & SCHINDLER (2000) and by ŠTAMBERG (2004 and oral communication 2004) for *Elonichthys*. The name of the Upper Stephanian biozone is therefore changed for *Sphaerolepis-Elonichthys*. The lower *Watsonichthys* subzone (acme-zone) was adequately renamed for *Elonichthys* subzone. Ages and boundaries of both units remain unchanged (see ZAJÍC 2000).

The upper boundary of the Sakmarian *Xenacanthus decheni* biozone was erected as the last appearance of the nominal taxon (for stratigraphic charts see ZAJÍC 2000). The Kalná Horizon (Upper Prosečné Formation; Krkonoše Piedmont Basin), the Ruprechtice Horizon (Upper Olivětín Member of the Broumov Formation; Intra-Sudetic Basin), and the horizons of the Middle Letovice Formation (Boskovice Basin) were considered as the youngest lithostratigraphic units of the *Xenacanthus decheni* biozone (ZAJÍC 2000). The Kalná Horizon is developed over most of the area of the Krkonoše Piedmont Basin.

Another fossiliferous unit of the similar stratigraphic position was described by RIEGER (1968) as the Veselá Horizon from the small western area of the basin. This area is separated from the rest of the basin by the basaltandesite and trachyandesite Kozákov Belt. Both the Kalná and Veselá Horizons were traditionally paralleled. No shark remains were found at the localities of the Veselá Horizon in the latest 20th century. The same situation (no shark remains) was found in the uppermost part of the fossiliferous beds of the Kalná Horizon or in their close hanging-wall (about 27 metres) at the locality of Klášterská Lhota (central part of the Krkonoše Piedmont Basin). The absence of sharks (and amphibians as well) from the Otovice Horizon in the Intra-Sudetic Basin was long known. The first who described this situation was FRIC (1912). The distance between the Otovice Horizon and the underlying Ruprechtice Horizon (with the typical *Xenacanthus decheni* biozone faunal community) is only 30 to 40 metres as documented by boreholes (TÁSLER et al. 1979). The seven fossiliferous localities of the Otovice Horizon including their research history were thoroughly described by ŠTAMBERG (1999). Abundant fauna consisted of only two taxa of actinopterygian fishes (*Amblypterus vratislaviensis* and *Paramblypterus* sp.) until recently. The surprising find of xenacanthid shark remains was made by private collector Mr Jiří Holub at the Otovice “Chmelnice” outcrop (ŠTAMBERG 1999; Otovice I according to label of Mr. Holub), located above the raceway, opposite the police station. Mr Holub from Velké Poříčí was kind to provide these finds (poorly preserved teeth and occipital spine) for study. Another occipital spine with a coracoid of a xenacanthid shark (*non vidi*) was found by Mr Jiří Spíšek from the Broumovsko CHKO (protected area) at the locality of Otovice, Černý potok (Štamberg, oral communication 2003). Shark teeth were recently found also in the upper fossiliferous bed of the Klášterská Lhota outcrop and at the locality of Veselá (Štamberg, oral com-

munication 2000).

Recent stratigraphic and sedimentological research of the Boskovice Basin (see ZAJÍC & ŠTAMBERG 2004) allows to define the lithostratigraphic units and to correlate them with the local vertebrate biozonation. The Asselian Lower Letovice Formation yielded special vertebrate association of the upper part of the *Acanthodes gracilis*. No fossiliferous equivalent is known from the other Bohemian basins yet. For details including the boundaries of the biozones see ZAJÍC & ŠTAMBERG (2004).

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