



Biodiversity and endemism of the Silurian vertebrates in the Siberian palaeocraton

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Vertebrate fossil record in the Silurian successions of northwestern Mongolia, Tuva, central and southern parts of the East Siberia between Yenisey and Lena rivers (Siberian platform) comprises large diversity of endemic fish species and genera. All this present day territories are inferred to have existed as united Siberian palaeocraton, an independent geological terrane in the Palaeozoic. Comparative isolation of the Siberian palaeocontinent throughout the Palaeozoic also meant that the area was colonised by marine faunas, which are not found elsewhere on Earth (Cocks & Torsvik, 2007).

A separate palaeobiogeographical province has been suggested, and can be confirmed by the abundance, content, and distribution of early fish. Majority of vertebrate groups, such as thelodonts and acanthodians, reported from the region (Karatajūtė-Talimaa, 1978; Karatajūtė-Talimaa & Smith, 2003; Žigaitė, in press) are diverse, abundant and restricted to the province, showing palaeobiogeographical unity of the territory. Distinct in their taxonomic content, but less common are chondrichthyans (Žigaitė & Karatajūtė-Talimaa, 2008). Finally, the most peculiar types of early vertebrates as mongolepids, tesakoviaspids, and tesserated galeaspids (Afanasieva & Janvier, 1985; Karatajūtė-Talimaa et al., 1990; Karatajūtė-Talimaa & Smith, 2004; Karatajūtė-Talimaa & Žigaitė, 2005), also specific heterostracans refer the region to strong faunal endemism and favours consideration of the separate palaeobiogeographical province.

The biodiversity of vertebrates indicates warm and productive palaeobasins, which most likely have been existed as well connected epeiric seas on the integral Siberian palaeocraton. It might have been a proper place for origin and radiation of at least some early vertebrates in the Silurian (Žigaitė & Blicek, 2006). Nevertheless, recent palaeogeographical studies place Siberia at high northern latitudes, inferring the inherent endemic brachiopod Tuvaella Fauna as a cold-water one (Cocks & Torsvik, 2007). Yet, the results of present study tend to contradict this assumption.

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