ACTA PALAEONTOLOGICA POLONICA

Revision of the thylacocephalan biota from the Upper Triassic Polzberg Konservat-Lagerstätte, Austria

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Acta Palaeontologica Polonica 69 (4), 2024: 713-730 doi: http://dx.doi.org/10.4202/app.1180.2024

Known for over 140 years, the Upper Triassic Polzberg Konservat-Lagerstätte is an exceptional early Carnian marine assemblage discovered in the Northern Calcareous Alps of Lower Austria. The Polzberg biota is composed of a diverse marine fauna, including two species of thylacocephalans, an enigmatic group of fossil euarthropods that was highly diversified during the Triassic and thus representing a major component of many marine faunas throughout the Triassic. Recent excavations at the Polzberg lead to the discovery of new thylacocephalan specimens. In this study, we examine in detail this new thylacocephalan material as well as the type material. Four thylacocephalan taxa are now reported from the Polzberg Biota, making it one of the most diverse faunas from the Late Triassic. *Paraostenia striata* nov. comb., which was previously assigned to *Austriocaris* and later to *Atropicaris*, and *Paraostenia* cf. *ambatolokobensis* correspond to the first mention of *Paraostenia* in the Late Triassic. A new taxon, *Atropicaris*? sp, is reported for the first time from Polzberg. In addition, the presence of gills and muscles of the posterior trunk in *Austriocaris carinata* and *Paraostenia* cf. *ambatolokobensis* is the first trace of soft tissue preservation in Polzberg thylacocephalans. Additionally, we discuss the similarities of the Polzberg thylacocephalan fauna with other Triassic and Jurassic faunas. It shows great similarity with the Late Triassic Kozja dnina fauna, but also more surprisingly with the Middle Jurassic La Voulte fauna. This can be explained by the connection between the Neotethys and the Alpine Tethys during the Early Jurassic.

Key words: Arthropoda, Thylacocephala, Austria, Carnian Pluvial Episode, Palaeobiota, Polzberg Konservat-Lagerstätte, Triassic.

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