ACTA PALAEONTOLOGICA POLONICA

On Triassic *Murchisonia*-like gastropods—surviving the end-Permian extinction to become extinct in the Late Triassic

Alexander Nützel and Baran Karapunar
Acta Palaeontologica Polonica 68 (3), 2023: 539-559 doi:10.4202/app.01087.2023

High-spired *Murchisonia*-like slit-band gastropods are an important component of late Paleozoic gastropod faunas. Twenty-seven genera of such gastropods have been reported from the Permian, most of which representing the caenogastropod family Goniasmatidae. Only four genera, *Trypanocochlea, Wannerispira, Laschmaspira,* and *Altadema* crossed the Permian/Triassic boundary. Based on the study of newly collected specimens and material from natural history collections, we studied the surviving genera as well as the Triassic recovery of this group. Two new species (*Laschmaspira lirata* sp. nov. and *Altadema hausmannae* sp. nov.) and one new subfamily (Cheilotomoninae) are introduced. *Murchisonia*-like caenogastropods, chiefly Goniasmatidae, were diverse and abundant until the Permian, barely survived the end-Permian extinction, regained a certain generic diversity within the Triassic with the evolution of several new genera but failed by far to regain their Permian generic diversity. This once successful and diverse group shares a similar fate (surviving the end-Permian extinction, a reduced Triassic diversity and extinction during Late Triassic crises) as conodonts, orthoceratids, conulariids, and others. This diversity pattern does not qualify for the “Dead Clade Walking” phenomenon, i.e., the extinction shortly after a major mass extinction event (survival without recovery) because they have survived for ca. 30 Ma (at least until the Norian) and even produced a number of new genera. The exact time of their extinction is unknown but there are no safe Rhaetian occurrences. Their extinction is part of a long-term selective trend against the character “shell-slit”.

Key words: Gastropoda, Goniasmatidae, diversity, recovery, end-Permian extinction, Triassic, Italy, Austria.

Alexander Nützel [nuetzel@snsb.de; ORCID: https://orcid.org/0000-0002-8852-7688], SNSB-Bayerische Staatssammlung für Paläontologie und Geologie, Richard-Wagner-Str. 10, 80333 Munich, Germany; Ludwig-Maximilians-Universität München, Department of Earth and Environmental Sciences, Palaeontology & Geobiology, Richard-Wagner-Str. 10, 80333 Munich, Germany; GeoBio-Center LMU, Richard-Wagner-Str. 10, 80333 Munich, Germany. Baran Karapunar [karapunar@snsb.de ; ORCID: https://orcid.org/0000-0001-9711-1492], SNSB-Bayerische Staatssammlung für Paläontologie und Geologie, Richard-Wagner-Str. 10, 80333 Munich, Germany; Ludwig-Maximilians-Universität

München, Department of Earth and Environmental Sciences, Palaeontology & Geobiology, Richard-Wagner-Str. 10, 80333 Munich, Germany; GeoBio-Center LMU, Richard-Wagner-Str. 10, 80333 Munich, Germany; Universität Hamburg, Institute for Geology, Department of Earth System Sciences, Hamburg, Germany.

This is an open-access article distributed under the terms of the Creative Commons Attribution License (for details please see creativecommons.org), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Full text (1,858.7 kB)