Recovery and diversification of marine communities following the late Permian mass extinction event in the western Palaeotethys

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Recovery and diversification of marine communities following the late Permian mass extinction event in the western Palaeotethys

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Abstract

The recovery of benthic invertebrates following the late Permian mass extinction event is often described as occurring in the Middle Triassic associated with the return of Early Triassic Lazarus taxa, increased body sizes, platform margin metazoan reefs, and increased tiering. Most quantitative palaeoecological studies, however, are limited to the Early Triassic and the timing of the final phase of recovery is rarely quantified. Here, quantitative abundance data of benthic invertebrates were collected from the Middle Triassic (Anisian) succession of the Mecsek Mountains (Hungary), and analysed with univariate and multivariate statistics to investigate the timing of recovery following the late Permian mass extinction. These communities lived in a mixed siliciclastic-carbonate ramp setting on the western margin of the Palaeotethys Ocean. The new data presented here is combined with the previously studied Lower Triassic succession of the Aggtelek Karst (Hungary), which records deposition of comparable facies and in the same region of the Palaeotethys Ocean. The Middle Triassic benthic fauna can be characterised by three distinct ecological states. The first state is recorded in the Viganvár Limestone Formation representing mollusc-dominated communities restricted to above wave base,