

RECOVERY OF THE MARINE BIVALVE FAUNAS IN THE NEUQUÉN BASIN (ARGENTINA) AFTER THE END-TRIASSIC MASS EXTINCTION

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The end-Triassic mass extinction event is one of the “big five” in the history of life, but it is not so well known as the others, and most of the published research was exclusively based on European data. Bivalves have been the subject of several studies in this context, mainly focused on the extinction itself, but there is no information about the development and local characteristics of this phenomenon in South America. On the basis of a detailed analysis of bivalve species diversity changes recorded zone by zone in latest Triassic and early Jurassic sediments of the Neuquén Basin (San Juan, Mendoza and Neuquén provinces, Argentina), the survival and recovery phases after the extinction event are studied and locally characterized. The extinction itself took place during the late Rhaetian, after the beginning of the local transgression which followed the extensive Triassic regression. We do not have enough data below the extinction level to quantitatively evaluate its type (catastrophic vs. gradual), and the present analysis is centered on the survival and recovery phases which followed. There is only one species which locally survived the extinction, and the faunal turnover, almost complete at the species level, was not so great at the generic level. The relatively low specific diversity which bivalves had just before the extinction was only reached again during middle-late Hettangian (*Waehneroceras-Schlotheimia* Zone), and thus the survival phase lasted at least all early Hettangian. No disaster taxa were recognized, but there are several holdover genera which survived the end-Triassic crises to become extinct during the next extinction event (early Toarcian). From the *Badouxia canadensis* Zone onwards, diversity steadily increased, shaping the recovery phase, during which several progenitor taxa produced a local radiation. Whenever possible, the ecological preferences of progenitor and holdover taxa are analyzed, in order to understand the nature of the environmental conditions during the survival and recovery phases. After that, there are two diversity peaks, the first one during late Sinemurian times (*Epophioceras* Zone) and a larger one during late Pliensbachian times (*Fanninoceras* Zone). The latter was followed by a remarkable loss in specific diversity during early Toarcian times, corresponding to the next extinction event, which is better known in South America and worldwide. A fairly good correlation (though not exact synchronicity) was observed between the Hettangian to Toarcian diversity changes and sea level curves. The local results on the recovery phase after the end-Triassic mass extinction are also roughly congruent with those previously known from Europe, the only continent with enough comparable information. In both regions, extinction affected more the endemic than the cosmopolitan taxa, and the recovery phase was remarkably slow for bivalves.