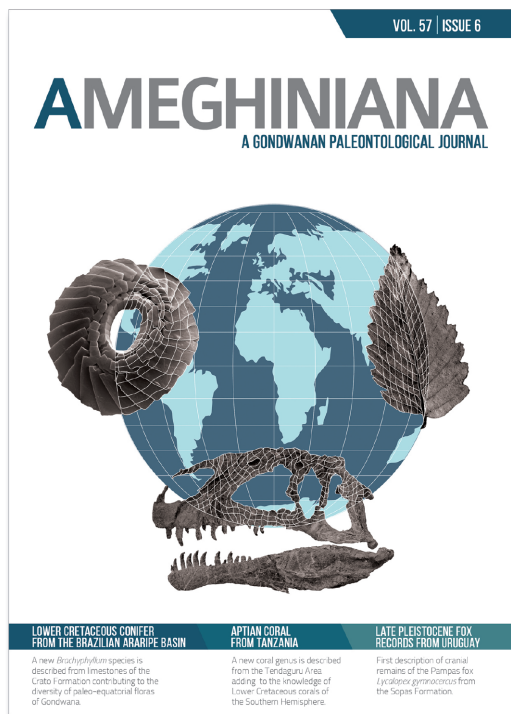




# AMEGHINIANA

A GONDWANAN PALEONTOLOGICAL JOURNAL



## THE LATE TRIASSIC WORLD. EARTH IN A TIME OF TRANSITION

*Lawrence H. Tanner (Editor)*. 2018. 805 pp. Topics in Geobiology 46. Springer International Publishing. ISBN 978-3-319-68008-8..

ADRIANA CECILIA MANCUSO

IANIGLA, CCT-CONICET-Mendoza, Avda. Ruiz Leal s/n Parque Gral. San Martín (5500) Mendoza, Argentina.

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### LOWER CRETACEOUS CONIFER FROM THE BRAZILIAN ARARIPE BASIN

A new *Brachyphyllum* species is described from limestones of the Crato Formation contributing to the diversity of paleo-equatorial floras of Gondwana.

### APTIAN CORAL FROM TANZANIA

A new coral genus is described from the Tendaguru Area adding to the knowledge of Lower Cretaceous corals of the Southern Hemisphere.

### LATE PLEISTOCENE FOX RECORDS FROM URUGUAY

First description of cranial remains of the Pampas fox *Lycalopex gymnocercus* from the Sopas Formation.

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The Late Triassic World (~237–201.3 Ma) was the scenario of critical changes in Earth history. The supercontinent Pangea, with a unique paleogeographic configuration, was formed by a gigantic landmass with a nearly pole-to-pole arrangement. This paleogeographic configuration combined with a hothouse global climate producing a strong seasonality regime. During Late Triassic, the large igneous province (LIP) eruptions caused greenhouse gasses and increased atmospheric CO<sub>2</sub>, sea surface temperature, euxinic oceans, among other effects. Dizzying changes occurred, such as the origin and diversification of many modern clades, both in the ocean and land, including calcareous nannoplankton, scleractinian corals, neopterygian fishes, lissamphibians, lepidosaurs, turtles, dinosaurs, and mammaliaforms. Therefore, the Late Triassic is essential in order to understand the evolution of Mesozoic ecosystems.

*"The Late Triassic World. Earth in a Time of Transition"* is volume 46 of Topics in Geobiology. The volume comprises 15 pre-review papers (chapters) produced by 39 researcher contributors, which summarize the Late Triassic knowledge mainly as reviews and compilations and some new data. This volume includes an opening with five chapters (chapters 1 to 5). They introduce a general overview of the Late Triassic Earth, considering the Late Triassic Timescale and introducing the different proposals; the global plate tectonics supply a general overview of Late Triassic tectonic context; and the climate chapter developed the background about the Late Triassic climate, but also introduce the proxies and their potential problems. The Central Atlantic Magmatic Province supply a general review, and finally, chapter 5 introduces the knowledge about the Late Triassic bolide impacts in Northeastern Quebec, Canada.

Subsequently, the second group of four chapters (chapters 6 to 9) offers a general description of the Late Triassic marine ecosystems. This overview includes the Conodont Biozonation, an essential tool in defining the Geological

Time Scale. The distribution, biostratigraphy, and biotic event reported for the Late Triassic Ammonoid record were described, including not only their importance in marine geological correlations but also the main evolutionary events in their history. The vertebrate marine record is explored with the emerged marine reptiles that marked the development of more complex ecosystems. Finally, the extraordinary preservation of the Zorzino Limestone Actinopterygian Fauna reveals a step in the evolution of bony fishes.

Finally, six chapters (chapters 10 to 15) form the last group describing the different aspects of terrestrial environments. First, the biostratigraphic and biochronologic framework based on terrestrial tetrapods is developed. Chapter 11 offers a detailed overview of the Cynodonts as a key group in understanding the early mammal evolution. An exhausting review of nonmarine ichnology records supplies an integrated view of trace fossils in terrestrial ecosystems. The Late Triassic Flora chapter introduces the main floristic provinces and turnovers into a global context. This volume includes a remarkable chapter about the expansion of arthropod herbivory based on the Molteno biota. Finally, the end-Triassic mass extinction is re-evaluated for marine and terrestrial ecosystems.

Lawrence H. Tanner (Editor) manifests his interest in the Late Triassic because he considers it as a unique interval in Earth history. I completely agree; the Triassic and particularly the Late Triassic World was the scenario of significant changes in Earth history. This volume was proposed to bring together the biotic and abiotic evidence of this exceptional time. The 15 chapters offer a general overview of some fundamental knowledge of the Late Triassic World. However, some of the chapters limit the alternative proposals and the problems with historical proxies used. Moreover, as dizzying changes occurred during Late Triassic, in the last years, dizzying changes occurred in the Late Triassic knowledge

based on a large number of publications that trigger a knowledge revolution. Despite this, I believe that volume 46 of Topics in Geobiology offers a handy review and compilation to professionals and students interested in the Late Triassic World as a starting point to expand the search.

Adriana Cecilia Mancuso  
IANIGLA, CCT-CONICET-Mendoza,  
Avda. Ruiz Leal s/n Parque Gral. San Martín  
(5500) Mendoza, Argentina  
*amancu@mendoza-conicet-gov.ar*