

A new species of mixosaurid ichthyosaur from the Middle Triassic of Luxi County, Yunnan Province, South China

Ye-Wei Fang, Andrzej S. Wolniewicz, and Jun Liu

Acta Palaeontologica Polonica 69 (2), 2024: 263-280 doi:<https://doi.org/10.4202/app.01133.2024>

Ichthyosaurs, an iconic lineage of Mesozoic marine reptiles, were an important component of recovering ecosystems after the Permo-Triassic Mass Extinction event. Mixosauridae, a clade of small, early-diverging ichthyosaurs, were of particular significance for this process, being abundant predators in Middle Triassic shallow seas. Despite the abundance of well-preserved mixosaurid specimens from South China, *Mixosaurus panxianensis* remains the only comprehensively described species, hindering our understanding of the variability, taxonomy and diversity of mixosaurids from this region. Here, we report a new species of *Mixosaurus*, *Mixosaurus luxiensis*, from Luxi County, Yunnan Province, South China. The wider postorbital skull portion differentiates the new species from *Mixosaurus cornalianus* and *Mixosaurus kuhnschnyderi* from central Europe. The non-durophagous dentition, composed of tiny piercing mesial teeth and robust but pointed distal teeth, resembles the dentition of *M. cornalianus*. However, the distal teeth of *M. luxiensis* sp. nov. are twice the size of the mesial ones, in contrast to *M. cornalianus*, in which the mesial and distal teeth are approximately equal in size. The forelimb exhibits a unique morphology, including a proportionally narrow radius, the presence of a peripheral notch on the ulna, and a large metacarpal V. A preliminary phylogenetic analysis suggests a close affinity of the new taxon with *M. cornalianus* from Western Tethys. Our study introduces important, new anatomical information on *Mixosaurus* from South China, useful for future studies of mixosaurid diversity.

Key words: Ichthyosauria, Mixosauridae, marine reptile, phylogeny, biotic recovery, Guanling Formation, Anisian, Triassic.

Ye-Wei Fang [paleofang@gmail.com; ORCID: <https://orcid.org/0000-0002-8150-6331>]

and Jun Liu [junliu@hfut.edu.cn; ORCID: <https://orcid.org/0000-0001-7859-5209>]

(corresponding author), School of Resources and Environmental Engineering, Hefei University of Technology, 193 Tunxi Road, Hefei 230009, Anhui, China. Andrzej S.

Wolniewicz [asw49@cam.ac.uk; ORCID: <https://orcid.org/0000-0002-6336-8916>], School of Resources and Environmental Engineering, Hefei University of Technology, 193 Tunxi Road, Hefei 230009, Anhui, China; Department of Earth Sciences, University of Cambridge, Downing Street, Cambridge, CB2 3EQ, UK; Institute of Paleobiology, Polish Academy of Sciences, Twarda 51/55, 00-818 Warsaw, Poland.

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 \(4,154.0 kB\)](#) |

 [Supplementary file \(518.6 kB\)](#)