



PALÆO VERTEBRATA

Special Volume 1-2025



22ND
EAVP

KRAKÓW
2025
30.06 – 5.07



ISEA PAS

Book of Abstracts of the XXII Annual Meeting
of the European Association of Vertebrate Palaeontologists,
30 June–5 July 2025, Kraków, Poland



[Poster] [non-student]

A new plesiosaur from the Toarcian of Holzmaden sheds light on plesiosauroid diversity in the Early Jurassic European epicontinental seas

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Keywords: Plesiosauroidea, Toarcian, phylogeny reconstruction, Holzmaden, Germany.

The lower Toarcian (upper Lower Jurassic) Posidonia Shale (Posidonienschiefer Formation) of Southwest Germany, particularly the fossil-rich deposits near Holzmaden, is among the most significant Lagerstätten for Early Jurassic marine amniotes. These deposits have yielded remarkably complete and well-preserved skeletons of numerous taxa, including members of all three major plesiosaur lineages: plesiosauroids (*Microcleidus brachypterygius*, *Plesiopterys wildi*, *Seeleyosaurus guilelmiimperatoris*), a pliosaurid (*Hauffiosaurus zanoni*), and a rhomaleosaurid (*Meyerasaurus victor*). While these taxa are well documented, recent studies indicate that the full extent of plesiosaur diversity recorded in the Posidonia Shale is still not fully known. We provide the first detailed osteological description of SMNS 51945, a nearly complete and largely articulated skeleton of an osteologically immature plesiosauroid. The specimen was discovered in 1978 in a quarry at Holzmaden and has been housed in the collections of the Staatliches Museum für Naturkunde Stuttgart ever since. Although previously studied, the specimen had not yet been described in detail or assessed from the taxonomic viewpoint. Our examination of SMNS 51945 reveals an unusual combination of morphological characters (including one potential local autapomorphy) that are not affected by ontogeny or preservation. Stratigraphically, the specimen derives from the Lias εII₁, corresponding to the lowermost Posidonienschiefer Formation. This makes it the oldest known plesiosaur specimen from the Holzmaden area. The recognition of SMNS 51945 as a new plesiosauroid taxon not only expands the known taxonomic diversity of lower Toarcian plesiosaurs but also highlights the importance of continued investigation of historically collected material from long-studied localities.

Funding: The study is supported through National Science Centre, Poland, grant no. 2023/51/B/NZ8/00899.