ACTA PALAEONTOLOGICA POLONICA

# Osteology and phylogeny of Late Jurassic ichthyosaurs from the Slottsmøya Member Lagerstätte (Spitsbergen, Svalbard)

Lene L. Delsett, Aubrey J. Roberts, Patrick S. Druckenmiller, and Jørn H. Hurum
*Acta Palaeontologica Polonica* 64 (4), 2019: 717-743 doi:https://doi.org/10.4202/app.00571.2018

Phylogenetic relationships within the important ichthyosaur family Ophthalmosauridae are not well established, and more specimens and characters, especially from the postcranial skeleton, are needed. Three ophthalmosaurid specimens from the Tithonian (Late Jurassic) of the Slottsmøya Member Lagerstätte on Spitsbergen, Svalbard, are described. Two of the specimens are new and are referred to *Keilhauia* sp. and Ophthalmosauridae indet. respectively, whereas the third specimen consists of previously undescribed basicranial elements from the holotype of *Cryopterygius kristiansenae*. The species was recently synonymized with the Russian *Undorosaurus gorodischensis*, but despite many similarities, we conclude that there are too many differences, for example in the shape of the stapedial head and the proximal head of the humerus; and too little overlap between specimens, to warrant synonymy on species level. A phylogenetic analysis of Ophthalmosauridae is conducted, including all Slottsmøya Member specimens and new characters. The two proposed ophthalmosaurid clades, Ophthalmosaurinae and Platypterygiinae, are retrieved under some circumstances, but with little support. The synonymy of three taxa from the Slottsmøya Member Lagerstätte with *Arthropterygius* is not supported by the present evidence.

**Key words:** Ichthyosauria, Ophthalmosauridae, *Undorosaurus, Keilhauia*, basicranium, phylogenetic analysis, Juras sic, Norway.

Lene L. Delsett [l.l.delsett@nhm.uio.no], Natural History Museum, P.O. Box 1172 Blindern, 0318 Oslo, Norway; Centre for Ecological and Evolutionary Synthesis, Department of Biosciences, University of Oslo, P.O. Box 1066 Blindern, 0316 Oslo, Norway. Aubrey J. Roberts [aubrey.roberts@nhm.ac.uk ], The Natural History Museum, Earth Sciences, Cromwell Road, London SW7 5BD, UK. Patrick S. Druckenmiller [psdruckenmiller@alaska.edu], University of Alaska Museum, Fairbanks, Alaska, USA; Department of Geosciences, University of Alaska Fairbanks, Alaska, USA. Jørn H. Hurum [j.h.hurum@nhm.uio.no], Natural History Museum, P.O. Box 1172 Blindern, 0318 Oslo, Norway.

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 (3,593.1 kB) |
Supplementary file (1,021.3 kB)