



RECOMMENDATION

Cite as: Martín-Abad H (2024). A new study on the halecomorph fishes from the Triassic of Perledo (Italy) highlights important issues in Palaeoichthyology. *Peer Community in Paleontology*, 100323. DOI: 10.24072/pci.paleo.100323

Published: 4th June 2024

Based on reviews by:
Guang-Hui Xu and one anonymous reviewer

Correspondence:
hugo.martin@uam.es

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A new study on the halecomorph fishes from the Triassic of Perledo (Italy) highlights important issues in Palaeoichthyology

Hugo Martín-Abad^{1,2} 

¹ Unidad de Paleontología, Departamento de Biología, Universidad Autónoma de Madrid (UAM) – Madrid, Spain

² Centro para la Integración en Paleobiología (CIPb), Universidad Autónoma de Madrid (UAM) – Madrid, Spain

A recommendation of

López-Arbarello A and Brocke R (2024). New generic name for a small Triassic ray-finned fish from Perledo (Italy). *PaleoXiv* bxmg5, ver. 4, peer-reviewed by PCI Paleo. DOI: 10.31233/osf.io/bxmg5

Mesozoic fishes are extremely diverse. In fact, fishes are the most diverse group of vertebrates during the Mesozoic—just as during any other era. Yet, their study is severely underrepresented in comparison to other fossil groups. There are just too few palaeoichthyologists to deal with such a vast diversity of fishes. Nonetheless, thanks to the huge efforts they have made over the last few decades, we have come a long way in our understanding of Mesozoic ichthyofaunas. One of such devoted palaeoichthyologists is Dr. Adriana López-Arbarello, whose contributions have been crucial in elucidating the phylogenetic interrelationships and taxonomic diversity of Mesozoic actinopterygian fishes (e.g., [López-Arbarello, 2012](#); [López-Arbarello and Sferco, 2018](#); [López-Arbarello and Ebert, 2023](#)). In her most recent manuscript, Dr. López-Arbarello has joined forces with Dr. Rainer Brocke to tackle the taxonomy and systematics of the halecomorph fishes from one of the most relevant Triassic sites, the upper Ladinian Perledo locality from Italy ([López-Arbarello and Brocke, 2024](#)).

Fossil fishes were reported for the first time from Perledo in the first half of the 19th century ([Balsamocrivelli, 1839](#)), and up to 30 different species were described from the locality in the subsequent decades. Unfortunately, this is one of the multiple examples of fossil collections that suffered the effects of World War II, and most of the type material was lost. As a consequence, many of those 30 species that have been described over the years are in need of a revision. Based on the study of additional material that was transferred to Germany and is housed at the Senckenberg Research Institute and Natural History Museum, [López-Arbarello and Brocke \(2024\)](#) confirm the presence of four different species of halecomorph fishes in Perledo, which were previously put under synonymy ([Lombardo, 2001](#)). They provide new detailed information on the anatomy of two of those species, together with their respective diagnoses. But more importantly, they carry out a thorough exercise of taxonomy, rigorously applying the International Code of Zoological Nomenclature to disentangle the intricacies in the taxonomic story of

the species placed in the genus *Allolepidotus*. As a result, they propose the presence of the species *A. ruppelii*, which they propose to be the type species for that genus (instead of *A. bellottii*, which they transfer to the genus *Eoeugnathus*). They also propose a new genus for the other species originally included in *Allolepidotus*, *A. nothosomoides*. Finally, they provide a set of measurements and ratios for *Pholidophorus oblongus* and *Pholidophorus curionii*, the other two species previously put in synonymy with *A. bellottii*, to demonstrate their validity as different species. However, due to the loss of the type material, the authors propose that these two species remain as *nomina dubia*.

In summary, apart from providing new detailed anatomical descriptions of two species and solving some long-standing issues with the taxonomy of the halecomorphs from the relevant Triassic Perledo locality, the paper by López-Arbarello and Brocke (2024) highlights three important topics for the study of the fossil record: 1) we should never forget that world-scale problems, such as World Wars, also affect our capacity to understand the natural world in which we live, and the whole society should be aware if this; 2) the importance of exhaustively following the International Code of Zoological Nomenclature when describing new species; and 3) we are in need of new palaeoichthyologists to, in Dr. López-Arbarello's own words, "unveil the mysteries of those marvellous Mesozoic ichthyofaunas."

References

- Balsamo-Crivelli G (1839). Descrizione di un nuovo rettile fossile, della famiglia dei Paleosauri, e di due pesci fossili, trovati nel calcare nero, sopra Varenna sul lago di Como, dal nobile sig. Ludovico Trotti, con alcune riflessioni geologiche. *Il politecnico repertorio mensile di studj applicati alla prosperita e coltura sociale* 1, 421–431.
- Lombardo C (2001). Actinopterygians from the Middle Triassic of northern Italy and Canton Ticino (Switzerland): anatomical descriptions and nomenclatural problems. *Rivista italiana di Paleontologia e Stratigrafia* 107, 345–369. doi: 10.13130/2039-4942/5439.
- López-Arbarello A (2012). Phylogenetic interrelationships of ginglymodian fishes (Actinopterygii: Neopterygii). *PLOS ONE* 7, e39370. doi: 10.1371/journal.pone.0039370.
- López-Arbarello A and Brocke R (2024). New generic name for a small Triassic ray-finned fish from Perledo (Italy). *PaleorXiv* bxmg5, ver. 4, peer-reviewed by PCI Paleo. doi: 10.31233/osf.io/bxmg5.
- López-Arbarello A and Ebert M (2023). Taxonomic status of the caturid genera (Halecomorphi, Caturidae) and their Late Jurassic species. *Royal Society Open Science* 10, 221318. doi: 10.1098/rsos.221318.
- López-Arbarello A and Sferco E (2018). Neopterygian phylogeny: the merger assay. *Royal Society Open Science* 5, 172337. doi: 10.1098/rsos.172337.

Appendix

Reviews by Guang-Hui Xu and one anonymous reviewer, DOI: 10.24072/pci.paleo.100323.