

A new semionotid fish (Actinopterygii) from the Upper Triassic of northern Italy

Cristina LOMBARDO & Andrea TINTORI

Abstract

We describe a new genus of semionotiform on the basis of well-preserved specimens from the Calcare di Zorzino (Zorzino Limestone, Norian, Upper Triassic) of the Bergamo Prealps, northern Italy. *Semiolepis brembanus* gen. et sp. nov., is characterized by a moderately deep body, dorsal ridge scales showing well-developed spines, an incomplete circumorbital series, a single suborbital bone, and multiple extrascapulars. *Semiolepis* gen. nov. is peculiar among semionotids in having very deep infraorbital bones and a strong heterodont dentition. In addition, a new character of the caudal fin, an additional incomplete scale row on the posterior margin of the axial body lobe, is described. The new taxon shows intermediate characters between *Semionotus* and *Lepidotes*. The systematic assessment of this new taxon, owing to its peculiar combination of anatomical features, stresses once more the problems concerning the unsatisfactory diagnosis of the order Semionotiformes as well as the taxa currently interpreted as semionotiforms.

Introduction

The choice of the characters diagnosing the Semionotiformes, and the Semionotidae in particular, has been debated in the last years, following the description of new taxa or the revision of previously known ones. When WOODWARD (1890) erected the family Semionotidae he included the genera *Acentrophorus*, *Semionotus*, *Aphnelepis*, *Serrolepis*, *Pristisomus*, *Sargodon*, *Colobodus* (= *Paralepidotus*, in part), *Lepidotus*, *Dapedius* (= *Dapedium*), *Cleithrolepis*, *Aetheolepis* and *Tetragonolepis*. Recently, a new taxon, *Sangiorgioichthys aldae*, from the upper Ladinian of Monte San Giorgio, has been included in this family (TINTORI & LOMBARDO 2007). Some of those genera (e.g., *Cleithrolepis* and *Serrolepis*) have been moved to Perleidiformes (BROUGH 1931, LOMBARDO & TINTORI 2004); others, such as *Dapedium*, *Tetragonolepis* and *Acentrophorus*, have been deleted from the Semionotidae (BERG 1940, WENZ 1968, PATTERSON 1973, among others) and placed in the families Dapedidae and Acentrophoridae, with very different phylogenetic positions. For instance, *Dapedium* has been proposed as a potential sister group of teleosts (e.g., GARDINER et al. 1996).

OLSEN & MCCUNE (1991) considered the Semionotidae as constituted by only two genera, *Semionotus* and *Lepidotes*, on the basis of two synapomorphies: the dorsal ridge scales and the presence of a large posteriorly directed process on the epiotic. As stressed by WENZ (1999), the first synapomorphy is not present in all semionotids and the identification of the second one is rarely possible, depending on the kind of preservation of the specimens. In fact, new genera have been recently added to the family: *Paralepidotus* (TINTORI 1996), *Araripelepidotes* (WENZ & BRITO 1996) and *Pliodetes* (WENZ 1999). The assignment of these taxa to the Semionotidae led WENZ (1999) to discriminate three groups within the family, according to the number of suborbitals: one (*Semionotus* and *Paralepidotus*), two to ten (*Araripelepidotes*, some species of *Lepidotes*), many to form a mosaic (*Pliodetes*, other species of *Lepidotes*). We think that subdividing the family in two groups (single/more than one suborbital, following MCCUNE 1986) should be preferred, at least until a revision of the genus *Lepidotes* is provided.

The aims of this work are to describe a new Triassic semionotiform and contribute to the knowledge of this group and its complexity, even if we are aware that a complete systematic revision, especially of *Lepidotes*, is necessary to proceed in for deeper investigations (i.e. phylogenetic relationships).

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