

An overview of Brazilian semionotids

Valéria GALLO & Paulo M. BRITO

Abstract

The family Semionotidae is a diverse group of Mesozoic neopterygians, very common also in Western Gondwanian strata, ranging from Late Jurassic to Late Cretaceous. In Brazil, it is represented by forms like the large, higher ossified, and with crushing dentition *Lepidotes* spp. from the Recôncavo Basin; and the small filter feeders such as *Araripelepidotes* from the Araripe Basin. This family exhibits an enormous diversity of forms and habits and is, for the most part, inadequately known.

The present contribution is an attempt to review the Brazilian semionotid taxa (*Lepidotes piauihyensis*, *Lepidotes* sp. 1 from the Iguatu Basin, *L. roxoi*, *L. souzai*, *L. alagoensis*, *L. wenzae*, and *Araripelepidotes temnurus*) with a critical discussion of the specific status of some taxa named using fragmentary material (*Lepidotes mawsoni*, *L. llewellyni*, *L. oliveirai*, and *L. dixseptiensis*).

Introduction

Semionotid fishes are widespread paleogeographically, occurring in marine and continental strata worldwide (cf., Europe, Asia, Africa, North America, Cuba, and South America). They are considered to be confined stratigraphically to the Mesozoic (Middle Triassic through Late Cretaceous). The occurrence of *Lepidotes* in the Oligocene-Miocene of Argentina pointed out by AMEGHINO (1898) is an equivocal report (CIONE 1987, GAYET & MEUNIER 1993).

The first reference to Brazilian Semionotidae was that of AGASSIZ (1841), who described *Lepidotes temnurus* (now type species of *Araripelepidotes*) based on an incomplete specimen, represented by the posterior portion of the body, from the Lower Cretaceous Santana Formation of the Araripe Basin, northeastern Brazil.

The family Semionotidae (sensu WENZ 1999) includes the genera *Lepidotes*, *Semionotus*, *Paralepidotus*, *Araripelepidotes*, and *Pliodetes*. Of these, only *Lepidotes* and *Araripelepidotes* have been formally described from Brazil.

Lepidotes is one of the most characteristic genera among Brazilian Mesozoic fish fauna; its known age-range is ?Late Jurassic through Late Cretaceous. Among the 10 species cited above, some are known only from scales (e.g., *L. oliveirai* and *L. dixseptiensis*), or from associations of scales, teeth, and bony fragments (e.g., *L. mawsoni*). Other species, such as *L. souzai*, *L. llewellyni*, *Lepidotes* sp.1 (from the Iguatu Basin), and *L. alagoensis*, are based upon scales, teeth, and incomplete cranial remains. Near complete and articulated skeletons have so far been collected only of *L. piauihyensis*, *L. roxoi*, and *L. wenzae*.

The designation of species on the basis of isolated scales, as in *L. oliveirai* and *L. dixseptiensis*, was only a pragmatic attempt to identify the diversity of ganoid scales found in different Brazilian formations, and to apply them for dating and stratigraphic-correlative purposes. Furthermore, describing species from isolated scales is a hazardous practice, as there may be considerable diversity in scale morphology (including ornamentation) even in a single specimen. On the other hand, scales from different species of *Lepidotes* can be very similar morphologically (e.g., *L. piauihyensis* and *L. oliveirai*). Past practice has tended to identify virtually any kind of ganoid scale as *Lepidotes* sp. This has resulted in some taxonomic confusion, mainly the identification of some taxa such as *Lepisosteiformes*. For instance, there is a wrong record (PACHECO 1913) of Semionotidae in the Upper Cretaceous Bauru Basin, southern Brazil. According to SANTOS (1984), the material (isolated scales) is probably referable to *Lepisosteidae*.

Except for the ?Late Jurassic forms, *L. piauihyensis* (from the Parnaíba Basin), *L. cf. oliveirai* (from the

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