

Robertichthys riograndensis from the Lower Turonian (Upper Cretaceous) Vallecillo Lagerstätte, NE-Mexico: Description and relationships

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Abstract

A complete description, as the preservation permits, as well as a discussion of the relationships of *Robertichthys riograndensis* BLANCO-PIÑÓN & ALVARADO-ORTEGA, 2005 from the Vallecillo Member (Agua Nueva Formation: Lower Turonian), at Vallecillo, Mexico are provided. The diagnostic character present in *R. riograndensis*, as the anteroposterior increasing of the crown height of the teeth on lower jaw, allows us to emend the diagnosis of the family Dercetidae. The cladistic analysis revealed that *Robertichthys* is an unquestionable member of the family, and it is located after *Pelargorhynchus* and *Cyranichthys* at the base of the phylogeny. Additionally, the occurrence of this dercetid fish expands the distribution and increases the diversity of the family in southern North America within the domain of the North Proto-Atlantic during the Turonian.

Introduction

The dercetids were Late Cretaceous long-snouted teleostean fishes that inhabited the Tethys Sea, the Western Interior Seaway, and the Southern Proto-Atlantic Ocean (e.g., ARAMBOURG 1954, GOODY 1969, TAVERNE 1987, BLANCO-PIÑÓN et al. 2002). According to CHALIFA (1989), this family comprises the genera *Rhynchodercetis*, *Dercetis*, *Pelargorhynchus*, and *Dercetoides*. Later, TAVERNE (1987, 1991, 2005a,b) included *Cyranichthys* from Democratic Republic of the Congo, *Hastichthys* from Ein-Yabrud, Middle East, and *Ophidercetis* and *Nardodercetis* from Nardo, Italy, as new genera within the Dercetidae. Additionally, TAVERNE (2005a) validated the genus *Benthesikyme*, providing an emended generic diagnosis. Recently, FIGUEIREDO & GALLO (2006) erected *Brazilodercetis longirostris* from the Early Turonian of the Pelotas Basin, Southern Brazil, and BLANCO-PIÑÓN & ALVARADO-ORTEGA (2005) described *Robertichthys riograndensis* from the Early Turonian of Vallecillo, northeastern Mexico as new dercetid forms. Other genera, such as *Kwangodercetis*, *Stratodus*, and *Leptecodon*, have been considered to be dercetids (e.g., CASIER 1965, APPLGATE 1970, TAVERNE 1976, 1987, CHALIFA & LEWI 1991), but their phylogenetic relationships still remain unclear. Representatives of the family Dercetidae have been reported from marine sediments of North and South America, Europe, Africa, and the Middle East (ARAMBOURG 1943, WILSON & CHALIFA 1989, CAVIN & MARTIN 1995, CAVIN 1997, CAVIN & DUTHEIL 1999, FIGUEIREDO & GALLO 2006).

Fossil fishes, including dercetids, are very common in the Vallecillo Member of the Agua Nueva Formation, which is located at the village of Vallecillo, Nuevo León State, northeastern Mexico (Fig. 1). They are mainly represented by teleosts, such as *Tselfatia formosa*, *Goulimimichthys roberti*, *Araripichthys* sp., and *Vallecillichthys multivertebratum*, although non-teleostean bony fishes, such as *Nursallia* cf. *N. gutturosum* and undescribed pachycormids, as well as teeth of the shark *Ptychodus mortoni*, are also present (BLANCO et al. 2001, BLANCO-PIÑÓN et al. 2002, BLANCO 2003, BLANCO & CAVIN 2003).

At this locality, the dercetids consist of some specimens of *Rhynchodercetis regio* (BLANCO-PIÑÓN & ALVARADO-ORTEGA 2006), as well as *Robertichthys riograndensis* (BLANCO-PIÑÓN & ALVARADO-ORTEGA 2005). In this paper we provide a complete description of the only known specimen of *Robertichthys*, as well as an analysis of its relationships within the Dercetidae.

The whole contribution can be purchased as PDF file.

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