



The genus *Benthofascis* (Gastropoda: Conoidea): A revision with descriptions of new species

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Abstract

The conoidean gastropod genus *Benthofascis* Iredale, 1936 is examined. This genus of Conorbidae has extant species. Three previously described species from the Recent including the type species *B. biconica* (Hedley), *B. sarcinula* (Hedley), and *B. lozoueti* Sysoev & Bouchet are reviewed. Three new species from the Recent, *B. conorbioides* **sp. nov.**, *B. pseudobiconica* **sp. nov.**, and *B. angularis* **sp. nov.** are described from Australia. One of these (*B. angularis*) is the first *Benthofascis* species described from Western Australia. Two fossil species originally described as *Conorbis* from the Miocene and Oligocene of Australia (*C. attractoides* Tate and *C. otwayensis* Long, respectively) are for the first time assigned to *Benthofascis*, thus extending the geologic record of the genus to the Oligocene.

Key words: Conoidea, Conorbidae, *Benthofascis*, *Conorbis*, new species, new geologic records

Introduction

The conorbids (*sensu lato*) have had a complicated systematic history. Powell (1966) restricted Conorbinae (as a subfamily of Turridae) to four genera including *Conorbis* Swainson, 1840, *Cryptoconus* von Koenen, 1867, *Benthofascis* Iredale, 1936, and *Genota* H. & A. Adams, 1853. Tucker & Tenorio (2009) excluded *Cryptoconus* and *Genota* because they do not resorb their inner whorls and added *Artemidiconus* da Motta, 1991 to the family. Of the three genera included in Conorbidae by Tucker & Tenorio (2009) one is extinct (i.e., *Conorbis*), which we do not consider here. The other two genera are either represented primarily by Recent species (*Benthofascis*) or known only from the Recent (*Artemidiconus*). We review the species of *Benthofascis* here.

Genera of the family Conorbidae are united by two characteristics, namely the complete absence of nodules and remodelling of the shell interior (Tucker & Tenorio 2009). They possess several primitive radular character states that serve to put them between genera without remodelled interior shell walls and the remainder of the conoidean families. Genera with living representatives have radular teeth that are only slightly enrolled and that do not have the folds that are present in other families (Tucker & Tenorio 2009). One species, currently described in *Benthofascis*, *B. lozoueti* Sysoev & Bouchet, 2001 differs from all recent Conorbidae by not having resorbed inner whorls (Fig. 3H) and a nearly smooth protoconch (Figs. 3J & K) but does share the blunt protoconch and lack of nodules with other *Benthofascis* species. That lack of resorbed whorls does not automatically exclude *B. lozoueti* from *Benthofascis* or Conorbidae, because resorption of inner whorls is a derived state (Kohn 1990; Tucker & Tenorio 2009). However, the phylogenetic position of *B. lozoueti* is currently being clarified using molecular characters (Puillandre *et al.* pers. com.).

A number of other species have been placed as conorbids. Thiele (1929) placed *Conus coromandelicus* (E. A. Smith 1894) in *Conorbis* but Powell (1966) did not accept that assignment, suggesting that the radula illustrated by Thiele (1929, Fig. 460, see also Tucker & Tenorio 2009, Plate XV, Fig. 6) placed the species in Conidae (*sensu* Powell). Tucker & Tenorio (2009) erected the genus *Pseudoconorbis* for this species and placed it in their family