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***Cradoscrupocellaria*, a new bryozoan genus for *Scrupocellaria bertholletii* (Audouin) and related species (Cheilostomata, Candidae): taxonomy, biodiversity and distribution**

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Abstract

A new genus, *Cradoscrupocellaria* n. gen., is erected for *Scrupocellaria bertholletii* (Audouin, 1826), reported as widespread in tropical and subtropical waters. Here we select a neotype of this species in order to establish its identity and distinguish it from morphologically similar species. We include redescriptions and figures of additional species now assigned to this new genus: *Cradoscrupocellaria curacaoensis* (Fransen, 1986) n. comb., *Cradoscrupocellaria hirsuta* (Jullien & Calvet, 1903) n. comb., and *Cradoscrupocellaria macrorhyncha* (Gautier, 1962) n. comb. Five additional species are assigned to the genus: *Cradoscrupocellaria ellisi* (Vieira & Spencer Jones, 2012) n. comb., *Cradoscrupocellaria nanshaensis* (Liu, 1991) n. comb., *Cradoscrupocellaria reptans* (Linnaeus, 1758) n. comb., *Cradoscrupocellaria serrata* (Waters, 1909) n. comb., and *Cradoscrupocellaria tenuirostris* (Osburn, 1950) n. comb. Eighteen new species are described: *Cradoscrupocellaria aegyptiana* n. sp., *Cradoscrupocellaria arisaigensis* n. sp., *Cradoscrupocellaria atlantica* n. sp., *Cradoscrupocellaria calypso* n. sp., *Cradoscrupocellaria floridana* n. sp., *Cradoscrupocellaria galapagensis* n. sp., *Cradoscrupocellaria gautieri* n. sp., *Cradoscrupocellaria gorgonensis* n. sp., *Cradoscrupocellaria hastingsae* n. sp., *Cradoscrupocellaria insularis* n. sp., *Cradoscrupocellaria jamaicensis* n. sp., *Cradoscrupocellaria lagaaiji* n. sp., *Cradoscrupocellaria macrorhynchoides* n. sp., *Cradoscrupocellaria makua* n. sp., *Cradoscrupocellaria marcusorum* n. sp., *Cradoscrupocellaria normani* n. sp., *Cradoscrupocellaria odonoghuei* n. sp., and *Cradoscrupocellaria osburni* n. sp.

Key words: Bryozoa, Buguloidea, new species, taxonomic review, taxonomic key

Introduction

Acamarchis bertholletii was introduced by Audouin (1826) in reference to the figured specimens from Egypt given by Savigny (1817: pl. 11, figs 3.1–3.5). Dumont (1981) noted that, whereas Audouin's species were based on specimens figured from the Red Sea and Mediterranean, no specific localities were given for 40 of them, including *Acamarchis bertholletii*. Thus, the type locality of *Scrupocellaria bertholletii* within that region remains uncertain. The species was indeed subsequently reported in the Mediterranean (Waters 1897; Barroso 1923; Gautier 1962; d'Hondt 1988), Suez Canal (Hastings 1927) and Red Sea (Waters 1909; Hastings 1927; Balavoine 1959). In the Red Sea, the species has been previously reported on the northern coast—despite the absence of that species in recent collections (see Ostrovsky *et al.* 2011)—whereas there is no record for the southern coast (e.g. Waters 1909; Powell 1969; Redier 1970; Dumont 1981; Amui & Kaselowsky 2006). Hincks (1886) was the first to use the combination *Scrupocellaria bertholletii*, based on material from the Adriatic. He characterized the specimens by presence of bifurcated to highly branched spines overarching the frontal membrane (scutum). As was noted by Hincks (1886), however, the highly branched scutum of Adriatic specimens is distinct from the single forked scutum illustrated by Savigny (1817), suggesting that more than one species is included under the name *S. bertholletii*.

Scrupocellaria bertholletii has been reported as widespread in tropical and subtropical waters worldwide (Waters 1897, 1909, 1918; Calvet 1906, 1927; Norman 1909; Kluge 1914; Barroso 1923; Hastings 1927, 1930; Marcus 1938; Osburn 1950; Balavoine 1959; Gautier 1962; Prenant & Bobin 1966; Winston 1986; d'Hondt 1988), but with a high degree of morphological plasticity shown in specimens from different localities (e.g. Kluge 1914; Hastings 1930; Osburn 1950; Prenant & Bobin 1966). Recently, re-examination of the type material of other supposedly widespread species of *Scrupocellaria* van Beneden, 1845 and related genera has revealed the presence of species complexes in some putative well-established taxa (Tilbrook & Vieira 2012; Vieira & Spencer Jones 2012; Vieira *et al.* in press). Vieira *et al.* (in press) also used morphological features to characterize the genus *Licornia* van Beneden, 1850, a senior synonym of *Retiscrupocellaria* d'Hondt, 1988, and to suggest that *Scrupocellaria sensu lato* includes several morphologically distinct genera and unexpectedly high diversity. In the present study we designate a neotype for Audouin's *Acamarchis bertholletii*, and erect a new genus, *Cradoscrupocellaria* n. gen. to accommodate it and morphologically similar species. We suggest that at least nine species previously assigned to *Scrupocellaria* belong in this genus, and we describe 18 new species of the genus

Material and methods

Type and non-type specimens included in this study are deposited in the following institutions: