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New records of Bodotriidae (Crustacea: Cumacea) from Puerto Rico with descriptions of three new species

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Abstract

In a continuing effort to describe the cumacean fauna of Puerto Rico we describe three new species of Bodotriidae, a family that has never been reported from Puerto Rico before. While finding and describing new microcrustacean species may not be an impossible task, if there is available taxonomic expertise, the currently described species were found in large numbers within a short distance from the Marine Laboratories of the University of Puerto Rico where the local reefs have been studied for over half a century, highlighting the large gaps that exist in our estimates of Caribbean marine diversity. The three new species, *Cyclaspis gurui* sp. nov., *Cyclaspis mariae* sp. nov. and *Vaunthompsonia budaii* sp. nov. are reported from a fringing reef off La Parguera, southwest coast of Puerto Rico and *Vaunthompsonia cristata* Bate, 1858 represents a new record for Puerto Rico from the mesophotic reefs.

Key words: Puerto Rico, Cumacea, new species, new records, *Cyclaspis*, *Vaunthompsonia*

Introduction

In the Caribbean, research emphasis has been placed on the ecology, systematics and disease biology of scleractinian corals since they provide the calcium carbonate framework for most Caribbean reefs and they have been steadily declining in the last decades (Gardner *et al.*, 2003). Another important component of the coral reefs is the biodiversity of their associated fauna, which has been heralded as one of the highest of our planet (Reaka-Kudla *et al.*, 1997, 2005). However, the limited studies on the biodiversity of small fauna associated with the coral reefs may never fully describe the existing biodiversity. Among the least studied metazoans of the Caribbean benthos are the microcrustaceans and especially the cumacean fauna, which is only known from haphazard samples of rare expeditions of the past. Jones (1969) described a new species *Ceratocuma amoena* Jones, 1969 from the Puerto Rico Trench, 2,840 m depth based on specimens collected during the second Galathea expedition on 05/30/1952. Subsequently, there were no other records of cumaceans from Puerto Rico although there were several contributions to the knowledge of cumacean fauna from the Caribbean islands of Cuba (Zimmer, 1944; Petrescu, 2004), Jamaica (Petrescu *et al.*, 1993, 1994), Martinique (Zimmer, 1944) and Bahamas (Petrescu & Iliffe, 1992; Petrescu, 1996, 2003). To fill this void, since 2012, the present authors have initiated a systematic study of cumacean fauna associated with Mesophotic Coral Ecosystems. Mesophotic (middle light) or "twilight" zones are defined as reefs between 50 and 100 m depth, which are visually dominated by macroalgae, sponges and light-dependent corals. So far 8 new species of the genera *Cumella* and *Nannastacus* and 1 new genus *Cumellana*, all belonging to the family Nannastacidae (Petrescu *et al.*, 2012, 2013, 2014a, b) have been described from Puerto Rico. One species, *Cumella solomoni* Petrescu, Chatterjee & Schizas, 2013, has been described from St. Croix, U.S. Virgin Islands (Petrescu *et al.*, 2013). Seventeen species of the genus *Cyclaspis* and 3 species of the genus *Vaunthompsonia* were previously mentioned from western tropical Atlantic. The mesophotic reefs will yield more

frontal apex blunt in *V. floridana* (See Fig. 8A Petrescu *et al.* 1993) while in *V. budaii* the anterior part of the carapace (in lateral view) is narrower than *V. floridana* and frontal apex pointed (Fig. 6A). The other differences between *V. budaii* **sp. nov.** and *V. floridana* are: 1) carapace longer (ratio length/height, 1.75 vs. 1.68), 2) pereopod 1, merus/ischium, 2.00 vs. 1.66, carpus/merus, 1.86 vs. 2.50, carpus/propodus, 1.17 vs. 1.2, propodus/dactylus, 0.75 vs. 0.65, 3) pereopod 2, basis with 7 vs. 6 setae on medial margin, carpus with 2 setae on outer margin vs. 1, dactylus with 3 setae on each margin vs. 2, 4) subterminal setae vs. 2, 4) pereopod 3 ischium without setae vs. 1, merus with 2 setae vs. none, propodus without setae vs. 1 seta, 5) pereopod 4 basis without setae vs. 2, ischium without setae vs. 2, merus with 1 seta vs. 2, carpus with 3 setae vs. 5, 6) pereopod 5 basis with 3 setae vs. 8, ischium with 1 seta vs. 2, merus with 1 seta vs. 3, carpus with 3 simple setae vs. 7, 7) uropodal peduncle with 8 vs. 12 setae, distal article of exopod with 5 setae vs. 7, distal article of endopod with 4 vs. 3 setae on medial margin.

Key to species of *Vaunthompsonia* genus from Western Atlantic (males)

1. Last pleonite with toothed apical margin 2
- Last pleonite with smooth apical margin 3
- Uropodal peduncle with 10 medial setae *cristata* Bate, 1858
3. Pigmented spots on body and pereopod 1, anterior part of carapace (in lateral view) relatively broader and frontal apex blunt .
..... *floridana* Băcescu, 1971
- Without pigmented spots on body and pereopod 1, anterior part of carapace (in lateral view) narrow and frontal apex pointed .
budaii **sp. nov.**

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