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

IORGU PETRESCU¹, TAPAS CHATTERJEE^{2,4} & NIKOLAOS V. SCHIZAS³

¹'Grigore Antipa' National Museum of Natural History, Kiseleff 1, Bucharest 011341, Romania. E-mail: iorgup@antipa.ro

²Department of Biology, Indian School of Learning, I.S.M. Annexe, P.O. – I.S.M., Dhanbad 826004, Jharkhand, India.

E-mail: drtchatterjee@yahoo.co.in

³Department of Marine Sciences, University of Puerto Rico at Mayagüez, Call Box 9000, Mayagüez, PR 00681, USA.

E-mail: nschizas@gmail.com

⁴Corresponding author

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

new species of cumaceans to science since they are logistically difficult to sample and thus largely unexplored. However, the cumacean fauna of shallower coastal reefs may also prove to be surprisingly diverse underscoring the amount of hidden marine biodiversity.

In the present study, we describe from shallow coastal reefs three new cumacean species of the Family Bodotriidae which has not been reported before from Puerto Rico. We also report for the first time from the US Caribbean, the species *Vaunthompsonia cristata* Bate, 1858, which was collected from mesophotic depths.

Material and methods

The three new species: *Cyclaspis gurui* sp. nov., *C. mariae* sp. nov. and *Vaunthompsonia budaii* sp. nov. were collected from a fringing reef, San Cristobal Cay, La Parguera, 17°56'32.95"N, 67°4'42.09"W, in the southwest coast of Puerto Rico. San Cristobal Cay is easily accessible and located just a few minutes away from the Marine Laboratories of the Department of Marine Sciences, University of Puerto Rico, Mayagüez. The three new cumacean species were collected zooplankton net (0.063 mm mesh) from the back reef of San Cristobal Cay during a night (~9:00 PM) tow. The zooplankton net was towed by swimmers at the surface for 10 meters. All *Vaunthompsonia cristata* specimens were collected during the 2010–2012 mesophotic cruises organized by the CCRI-DMS-UPRM team (Sherman *et al.* 2013). During the cruises, divers equipped with trimix-rebreathers collected loose substrata, corals, sponges and algae. These materials were sieved into a 0.125 mm sieve and all retained metazoans were collected. All collected specimens were preserved in 100% ethanol, examined and separated in broad taxonomic categories with an Olympus SZH10 dissecting stereo-microscope. For the morphological observations, the cumaceans were dissected in lactic acid. Drawings were prepared using a camera lucida on an Olympus CH-2 microscope. The terminology follows Băcescu & Petrescu (1999). All specimens are deposited in the Crustacean Collection of the “Grigore Antipa” National Museum of Natural History in Bucharest (Muzeul Național de Istorie Naturală “Grigore Antipa”- MGAB).

Systematics

Family Bodotriidae T. Scott, 1901

Subfamily Bodotriinae T. Scott, 1901

Genus *Cyclaspis* Sars, 1865

Cyclaspis gurui sp. nov.

(Figs. 1, 2)

Material examined. Holotype, ♂, MGAB CUM 1691. Type locality: San Cristobal Cay, Puerto Rico, 17°56'32.95"N, 67°4'42.09"W, 9.06.2012, night plankton net tow at surface, location of the sample at 4.5 m depth, collector Nikolaos V. Schizas.

Diagnosis. Carapace with dark spots on anterior half, uropodal peduncle 1.15 times pleonite 6 length, endopod with 11 setae.

Description. Adult male

Body (Fig. 1 A). Body size: 2.75 mm. Smooth tegument.

Carapace (Fig. 1 A, B). It is 0.27 times the entire body length, numerous dark spots on anterior half, 1.90 times longer than high, prominent anteroventral corner, frontal lobe 0.38 times as long as carapace, ocular lobe, half of frontal one, with six lenses.

Antenna 1 (Fig. 1 C). Basal article of peduncle as long as rest of articles together, median one the smallest, basal article of accessory flagellum much longer than the apical one.

Antenna 2, not figured, its filament reaches the end of pleon.

Maxilliped 3 (Fig. 1 D). Basis 0.57 times as long as rest of articles combined, one pappose seta on medial margin, long outer process with two apical plumose setae, four plumose setae on its medial margin; two pappose

setae on medial margin of ischium; merus with 2 short pappose setae on medial margin and a strong outer process exceeding distal extremity of carpus, 5 pappose setae on medial margin of carpus, 2 simple ones on outer margin; propodus 0.73 as long as carpus, 3 pappose setae on medial margin, short simple seta on outer margin; dactylus 0.54 times as long as propodus, robust terminal seta as long as dactylus.

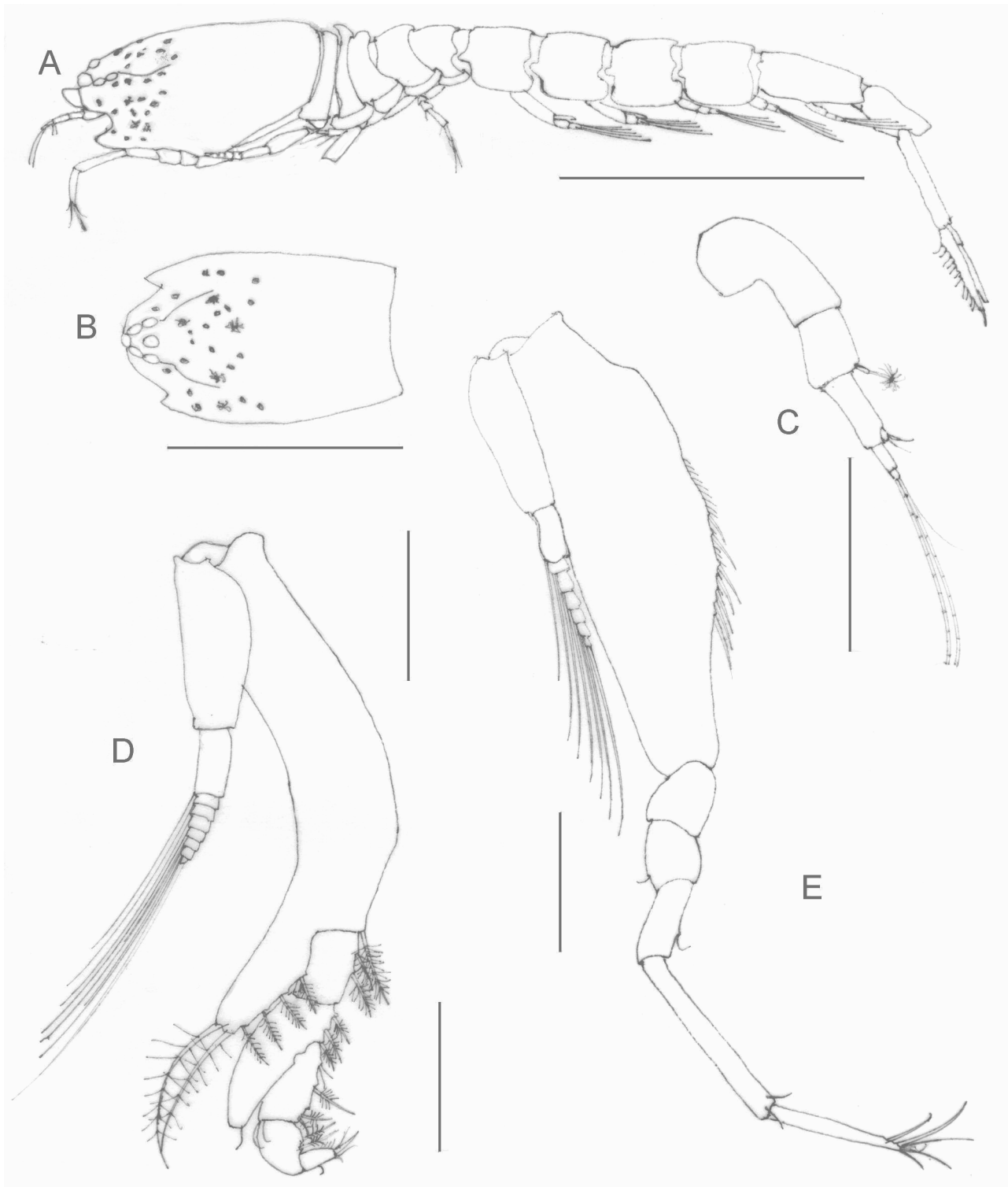


FIGURE 1. *Cyclaspis gurui* sp. nov. Holotype male A, body, lateral view; B, carapace, dorsal view; C, antenna 1; D, maxilliped 3; E, pereopod 1. Scales in mm: A, B, 1; C–E, 0.2.

Pereopod 1 (Fig. 1 E). Basis 0.46 times as long as entire pereopod, short setules and 7 much stronger on medial margin; merus as long as ischium, 1 setule on outer margin; carpus 1.45 times as long as merus, 1 setule on medial

margin; propodus 2.75 times as long as carpus, 1.43 times as long as dactylus, 2 apical setules; dactylus 0.7 times as long as propodus, 1 stout and 4 slender terminal setae, 1 simple seta on medial margin.

Exopods on maxilliped 3 and pereopod 1.

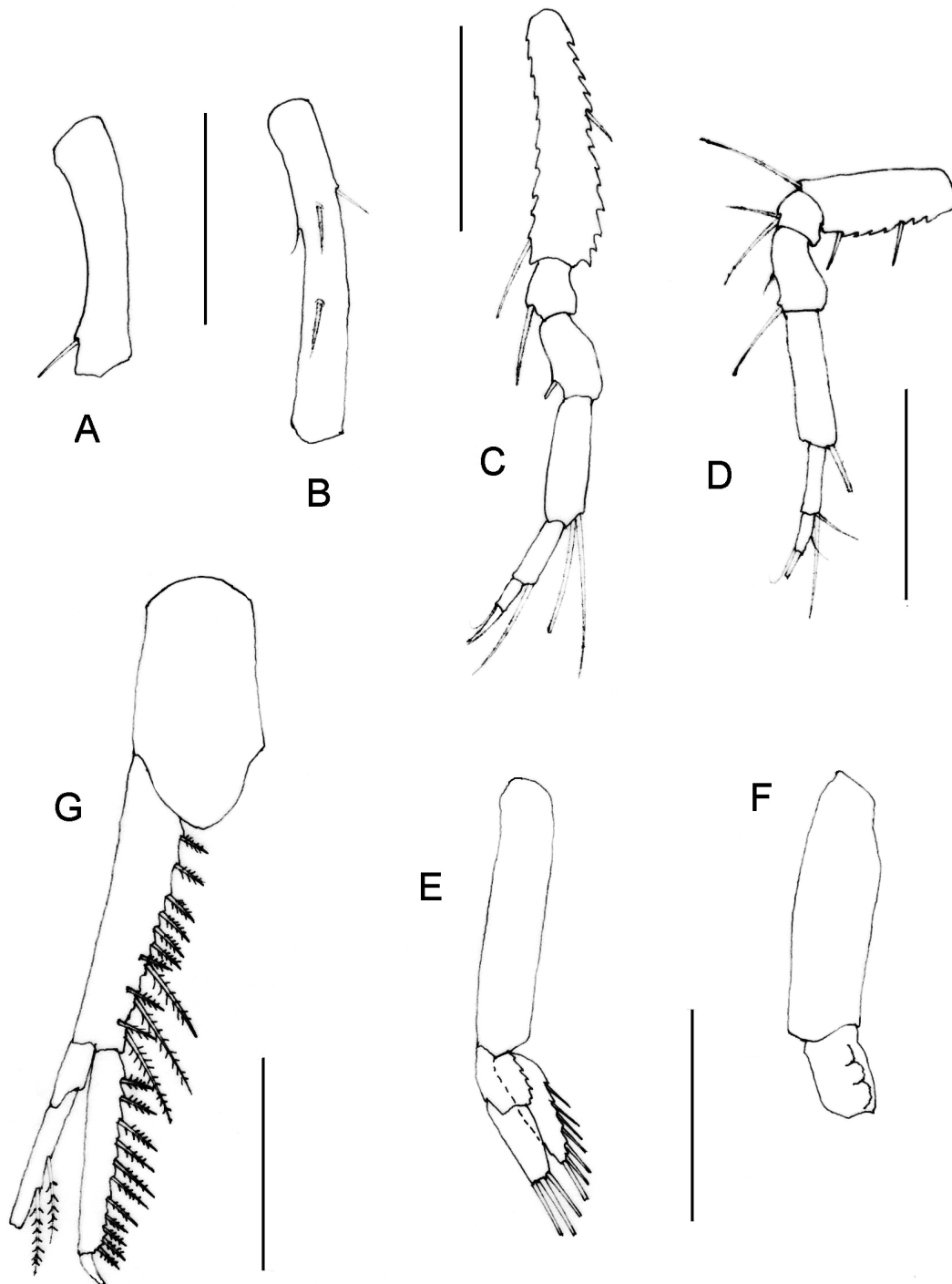


FIGURE 2. *Cyclopsis gurui* sp. nov. Holotype male A, pereopod 2, broken; B, pereopod 3, broken; C, pereopod 4; D, pereopod 5; E, pleopod 1, broken; F, pleopod 2; G, uropod. Scales in mm: A–G, 0.2.

Pereopod 2 (Fig. 2 A). Broken, only basis present, 1 simple seta on outer margin.

Pereopod 3 (Fig. 2 B). Broken, only basis present, 1 simple seta on each margin, 2 simple ones on lateral side.

Pereopod 4 (Fig. 2 C). Basis 0.40 times as long as entire pereopod, scaled tegument, 1 simple seta on each margin; merus 1.60 times as long as ischium, 1 seta on medial margin of ischium and merus; carpus 1.38 times as long as merus, 2 long annulate setae on outer margin; dactylus 0.61 times as long as carpus, 1 annulate seta on outer margin; dactylus half of propodus, stout terminal seta longer than dactylus, scaled tegument.

Pereopod 5 (Fig. 2 D). Basis 0.34 of entire pereopod length, 2 short setae on medial margin, one longer one on distal outer margin; 2 setae on outer margin of ischium; merus 2.60 times as long as ischium, 1 long seta on outer margin; carpus 1.54 times as long as merus, 1 broken annulate seta on medial distal margin; propodus, half of carpus, 1 annulate seta on medial distal margin; dactylus, half of propodus, with broken terminal seta.

Pleopod 1 (Fig. 2 E), with elongated rami.

Pleopod 2 (Fig. 2 F). Only basal article of exopod is present.

Uropod (Fig. 2 G). Peduncle 1.15 times pleonite 6 length, 7 short pappose setae and 3 longer ones on medial margin, 1.43 times as long as endopod, 7 setae longer than other 3 distal ones on medial, short stout terminal seta; broken exopod with 2 plumose long setae on medial margin, endopod with 11 pappose setae on medial margin, strong curved terminal short seta.

Etymology. The species is dedicated in honor of Prof. B. C. Guru, Utkal University, Bhubaneswar, Orissa, India, thesis advisor (in D. Sc.) of second author (TC).

Remarks. *Cyclaspis gurui* sp. nov. is closely related to *C. jonesi* Roccatagliata (1985). It differs in the following characters: ocular lobe with 6 marginal lenses instead of 8; pereopod 1 with shorter basis, with more setae on medial margin of basis, shorter carpus, longer propodus and dactylus; uropodal peduncle with 3 vs. 5 longer setae on medial margin, endopod with 11 vs. 8 setae on medial margin, terminal strong short seta vs. thin and long one in *C. jonesi*.

***Cyclaspis mariae* sp. nov.**

(Fig. 3)

Material examined. Holotype, male, 2.92 mm, MGAB CUM 1692. Type locality: San Cristobal Cay, Puerto Rico, 17°56'32.95"N, 67°4'42.09"W, 9.06.2012, night plankton net tow at surface, location of the sampling at 4.5 m depth, collector Nikolaos V. Schizas.

Diagnosis. Antennule with aesthetascs with last but one article dilated, uropodal peduncle 1.48 times pleopod 6 length, endopod with 7 pectinate medial setae.

Description. Adult male

Body (Fig. 3 A), size, 2.92 mm, smooth tegument.

Carapace (Fig. 3 A, B). It is 0.30 times of entire body length, twice longer than high; smooth tegument, not beset with pits, without dorsal carina; ocular lobe with 8 lateral smaller lenses and 1 central, bigger.

Antenna 1 (Fig. 3 C, D). First article of peduncle as long as rest of articles combined, main flagellum with thin articles, aesthetascs with last but one article dilated, minute accessory flagellum.

Antenna 2, not figured, its filament reaches the end of pleon.

Maxilliped 3 (Fig. 3 E). Basis 1.67 times as long as rest of articles combined length, 3 plumose setae on medial margin of process, 2 long ones on distal end, 1 plumose seta on medial margin; merus with a large outer process reaching distal extremity of carpus, one short simple seta on top of process, carpus 1.23 times as long as propodus, 3 short simple setae on medial margin, 1 simple short seta on outer distal margin; enlarged propodus, 2.60 times as long as dactylus, three pappose setae on medial margin; dactylus with a terminal seta 1.40 times dactylus length.

Pereopod 1 (Fig. 3 F). Basis 1.16 times as long as rest of articles combined length, with 6 stout, spinelike setae on medial margin, serrate outer margin; merus 1.71 times ischium length; carpus slender, twice longer than merus; ischium to carpus with smooth medial margin; propodus as long as carpus, 2.75 times as long as dactylus, 1 setule on medial margin, 2 on outer one; dactylus with a terminal stout curved seta.

Exopods on maxilliped 3 and pereopod 1.

Pereopod 2 (Fig. 3 G). Basis with serrate medial margin, 1 simple seta on outer margin; merus with smooth medial margin, 3.03 times ischium length, 1 simple seta on medial margin; carpus, half of merus length, 2 sensory unequal setae on distal medial corner; dactylus 2.75 times propodus length, 1 simple seta on medial margin, 4 terminal setae, longer one, 1.18 dactylus length.

Pereopod 3 (Fig. 3 H). Basis 0.92 times rest of articles combined length, serrate margins; ischium half of merus length, 1 simple seta on outer margin, merus with 1 outer seta; carpus 1.3 times merus length, 1 setule and 1 annulate seta on outer medial margin, dactylus half of propodus length, with terminal stout seta.

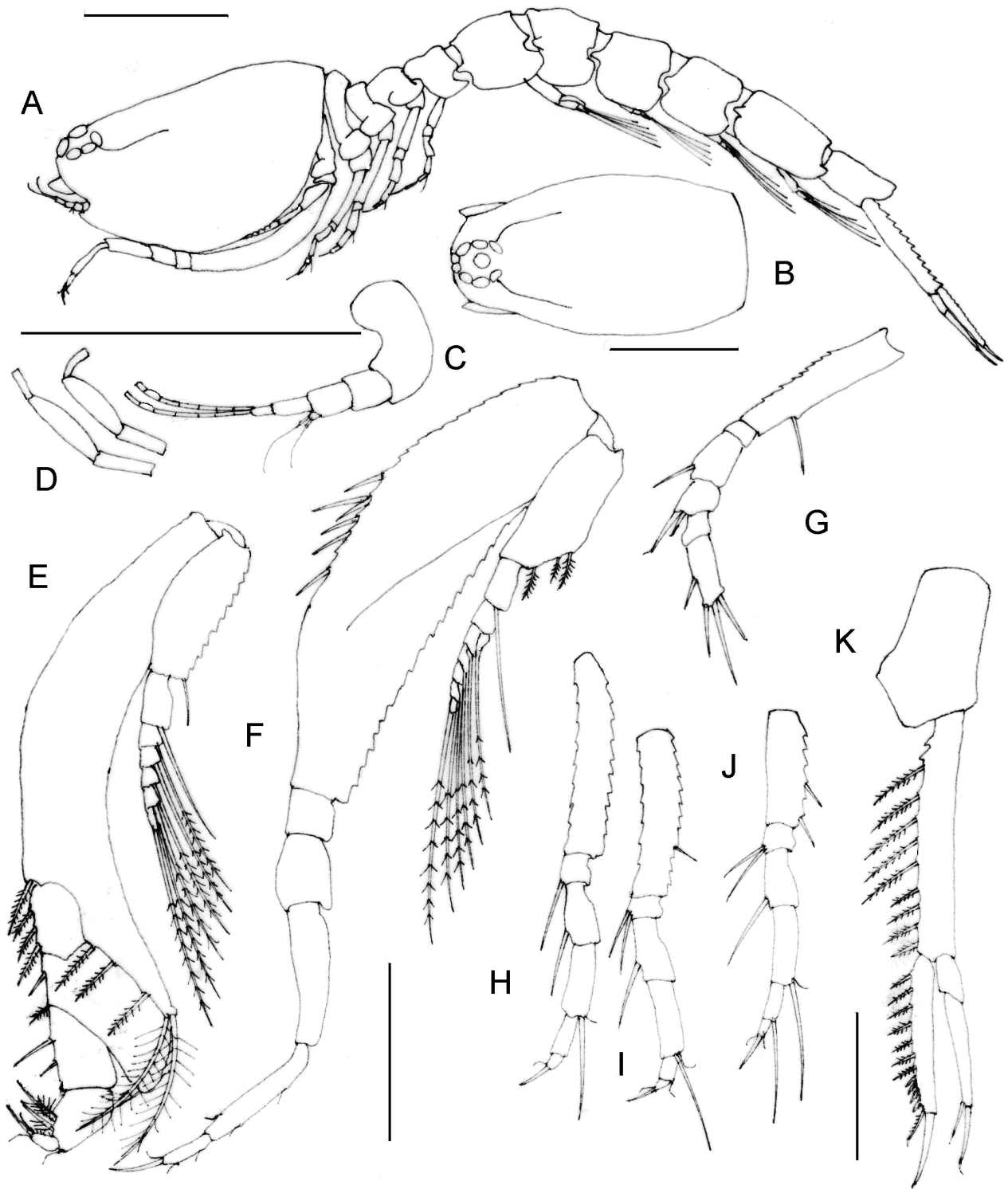


FIGURE 3. *Cyclaspis mariae* sp. nov. Holotype male A, body, lateral view; B, carapace, dorsal view; C, antenna 1; D, tip of main flagellum, enlarged; E, maxilliped 3; F, pereopod 1; G, pereopod 2; H, pereopod 3; I, pereopod 4; J, pereopod 5; K, uropod. Scales in mm: A, B, 0.5; C, 0.25; D–K, 0.2.

Pereopod 4 (Fig. 3 I). Basis 0.82 times rest of articles combined length, ischium with 2 simple setae, carpus 1.18 times merus length, with 1 annulate medial seta, 1 setule on propodus, dactylus half of propodus length, with terminal stout seta.

Pereopod 5 (Fig. 3 J). Basis 0.55 times as long as rest of articles combined length, carpus 1.44 times merus length.

Uropod (Fig. 3 K). Peduncle 1.48 times pleonite 6 length, 0.67 times endopod length, 5 long plumose setae and 4 shorter ones on medial margin, 1.57 times rami length; exopod with smooth margins, 1 subterminal setule and a terminal short stout seta, endopod with 7 pectinate setae and short serration on medial margin, 1 subterminal and 1 terminal stout short pectinate sensory setae.

Etymology. The species is dedicated in honor of Maria Bliderișanu, specialist in Public Relations in the Museum “Grigore Antipa”, as a sign of distinction.

Remarks. *Cyclaspis mariae* n. sp. resembles *C. micans* Roccatagliata (1985), *C. kensleyi* Petrescu (2002) and *C. platymerus* Zimmer (1944) especially regarding the carapace elongated form and general aspect of uropods. It differs with: 1) carapace without dorsal ridge, 2) carapace without lateral elevations beside frontal lobe like in *C. platymerus*, 3) maxilliped 3 without setae on outer margin of basis process like in *C. micans* and *C. kensleyi*, 4) pereopod 1 with shorter merus than in *C. platymerus*, 5) pereopod 2 dactylus with 1 lateral seta vs. 3 in *C. kensleyi*, 6) uropodal peduncle without median carina like in *C. kensleyi*, more like in *C. platymerus*, but with 7 setae vs. 8 setae.

Key for species of *Cyclaspis* genus from the Caribbean Sea (females)

1. Carapace with lateral ridges 2
- Carapace without lateral ridges 7
2. Uropod with equal rami 3
- Uropod without equal rami 5
3. Pereon and pleon with lateral ridges *jamaicensis* Petrescu, Iliffe & Sarbu, 1993
- Pereon and pleon without lateral ridges 4
4. Basis of pereopod 2 with numerous setae *bacescui* Omholt & Heard, 1982
- Basis of pereopod 2 glabrous *iorgui* Ortiz & Lalana, 2002
5. Uropodal peduncle 1.4 times rami length *pustulata* Zimmer, 1943
- Uropodal peduncle less than 1.4 times rami length 6
6. Uropodal peduncle more than 1.3 times rami length *simonae* Petrescu, Iliffe & Sarbu, 1993
- Uropodal peduncle less than 1.2 times rami length *sterreri* Petrescu, 2002
7. Carapace with a dorsal horn 8
- Carapace without dorsal horn 10
8. Uropodal exopod longer than endopod *goesi* (Sars, 1871)
- Uropodal exopod as long as endopod 9
9. Uropodal endopod with four setae on medial margin *unicornis* Calman, 1911
- Uropodal endopod with three setae on medial margin *mihaibacescui* Petrescu, 2008
10. Uropodal peduncle 1.35 times rami length *granulata* (Radha Devi & Kurian, 1981)
- Uropodal peduncle more than 1.35 times rami length 11
11. Uropodal exopod longer than endopod *longipes* Calman, 1907
- Uropodal exopod as long as endopod 12
12. Uropodal endopod with four medial setae *varians* Calman, 1912
- Uropodal endopod with less than four medial setae *reticulata* Roccatagliata, 1985

Key for species of *Cyclaspis* genus from the Caribbean Sea (males)

1. Carapace with reticulated tegument *reticulata* Roccatagliata, 1985
- Carapace with smooth tegument 2
2. Uropodal exopod longer than endopod *kensleyi* Petrescu, 2002
- Uropodal exopod as long as endopod 3
3. Uropodal endopod with four medial setae *mexicansis* (Radha Devi & Kurian, 1981)
- Uropodal endopod with more than four medial setae 4
4. Uropodal endopod with same sized medial setae 5
- Uropodal endopod with two groups sized medial setae 6
5. Uropodal exopod as long as endopod *varians* Calman, 1912
- Uropodal exopod longer than endopod *dolera* Zimmer, 1944
6. Uropodal peduncle more than 1.7 times rami length *platymerus* Zimmer, 1944
- Uropodal peduncle less than 1.7 times rami length 7
7. Pereopod 1 with setae on medial margin of basis 8
- Pereopod without setae on medial margin of basis *granulata* (Radha Devi & Kurian, 1981)

8. Carapace with pigmented spots *gurui* sp. nov.
 - Carapace without pigmented spots 9
 9. Uropodal exopod with medial seta *angelae* Petrescu & Iliffe, 2009
 - Uropodal exopod without medial seta *mariae* sp. nov.

Subfamily Vaunthompsoniinae G. O. Sars, 1878

Genus *Vaunthompsonia* Bate, 1858

Vaunthompsonia cristata Bate, 1858

(Figs. 4, 5)

Material examined. 1 immature ♀, Tourmaline North Buoy, Puerto Rico, 18°10' 31"N, 67°19' 38"W, 29. 04. 2012, 52 m, MGAB CUM 1703; 1 immature ♀, east St. John, 18°13'18"N, 64°40'33"W, 8.05.2012, 24–30 m, MGAB CUM 1704; 1 immature ♀, St. Croix, 17°50' 03"N, 64° 28'33"W, 4. 05. 2012, 68 m, MGAB CUM 1705; 2 immature ♀♀, Lang Bank, St. Croix, 17°50' 03"N, 64° 28'33"W 55 m, 6. 05. 2012, MGAB CUM 1706; 5 manca, east St. John, 8. 05. 2012, 53 m, MGAB CUM 1707; 1 manca, Cane Bay, St. Croix, 17°6'26" N, 64°48'50" W, 60 m, 30. 04. 2011, MGAB CUM 1698. GPS coordinates for these locations are provided in Sherman *et al.* (2013).

Diagnosis. Elongated body, female with double spiny keel. Pereopod 1 basis with 2 stout long setae on medial margin. Uropodal peduncle as long as exopod, endopod with 2 articles, proximal longer.

Immature female

Description. A detailed description can be found in Sars (1879) and Petrescu (2002).

Body (Fig. 4 A) size: 2.75 mm.

Carapace (Fig. 4 A, B). Antenna 1 (Fig. 4 C) and labium (Fig. 4 D) as drawn in respective figures.

Mandible (Fig. 4 E). *Pars incisiva* with four teeth and robust *pars molaris*.

Maxilla 1 (Fig. 4 F). Outer endite with five simple setae and three serrate ones, inner endite with five setae, palpus with two unequal filaments.

Maxilla 2 (Fig. 4 G). Apical ending articles with simple and pectinated curved setae, simple, pappose and pectinated ones on top of protopod, numerous simple stout setae on medial margin.

Maxilliped 1 (Fig. 4 H). Several hand-like setae on medial margin of carpus.

Maxilliped 2 (Fig. 5 A). In present collections, the immature female specimens with short merus, with 1 plumose seta on medial margin, carpus with 2 pappose setae on outer margin, propodus with 3 pappose setae on medial margin, dactylus with a strong terminal seta.

Maxilliped 3 (Fig. 5 B). Basis with setules on proximal half and plumose setae on distal serrate one.

Pereopod 1 (Fig. 5 C). Basis 0.45 times rest of articles combined length, 10 simple short setae and 2 stout longer ones on medial margin, merus 2.18 times ischium length, 1 simple seta on medial margin of ischium, 1 seta on each margin of merus, serrate medial margin, carpus 1.70 times merus length, serrate medial margin, 2 medial setae and 1 outer seta, propodus 1.18 times carpus length, 4 simple setae on medial margin, 3 on outer one, dactylus 0.66 times propodus length, 2 simple setae on both margins, 5 subterminal setae and 1 stout terminal seta; small exopod.

Pereopod 2 (Fig. 5 D). Basis 0.63 times rest of articles of articles combined length, 4 simple setae and 1 stout one on medial margin, 1 simple seta on outer margin, merus 2.50 times ischium length, 1 simple and 1 stout seta on medial margin of ischium, 2 simple setae on medial margin and 1 on outer one, carpus as long as merus, 3 simple setae on medial margin, 1 on outer one, dactylus 3 times as long as propodus, 1 seta on medial margin of propodus, 4 on medial margin of dactylus, 2 on outer one, 4 subterminal setae and 1 terminal 0.73 times dactylus length; small exopod.

Pereopod 3 (Fig. 5 E). Basis 1.13 times as long as rest of articles combined length, 2 simple setae on medial margin, merus as long as ischium, 2 simple setae on merus, carpus 1.33 times merus length, 3 simple setae and 2 annulate ones, propodus 0.62 times carpus length, 1 annulate seta on medial margin, dactylus 0.8 times propodus length; slender exopod.

Pereopods 4 and 5 (Fig. 5 F, G). Very similar to those in Sars (1879) and Petrescu (2002).

Uropod (Fig. 5 H). Uropodal peduncle 0.91 times pleonite 6 length, 0.84 times endopod length, 6 setae on medial margin, exopod 0.86 times endopod length, distal article 2 times as long as proximal one, 2 simple setae on

outer margin, 3 on medial one, terminal stout seta 0.9 times distal article of exopod, distal article of endopod 0.66 times proximal article length, 6 setae on medial margin of proximal article, 2 setae on distal one, terminal stout seta 1.1 times distal article length.

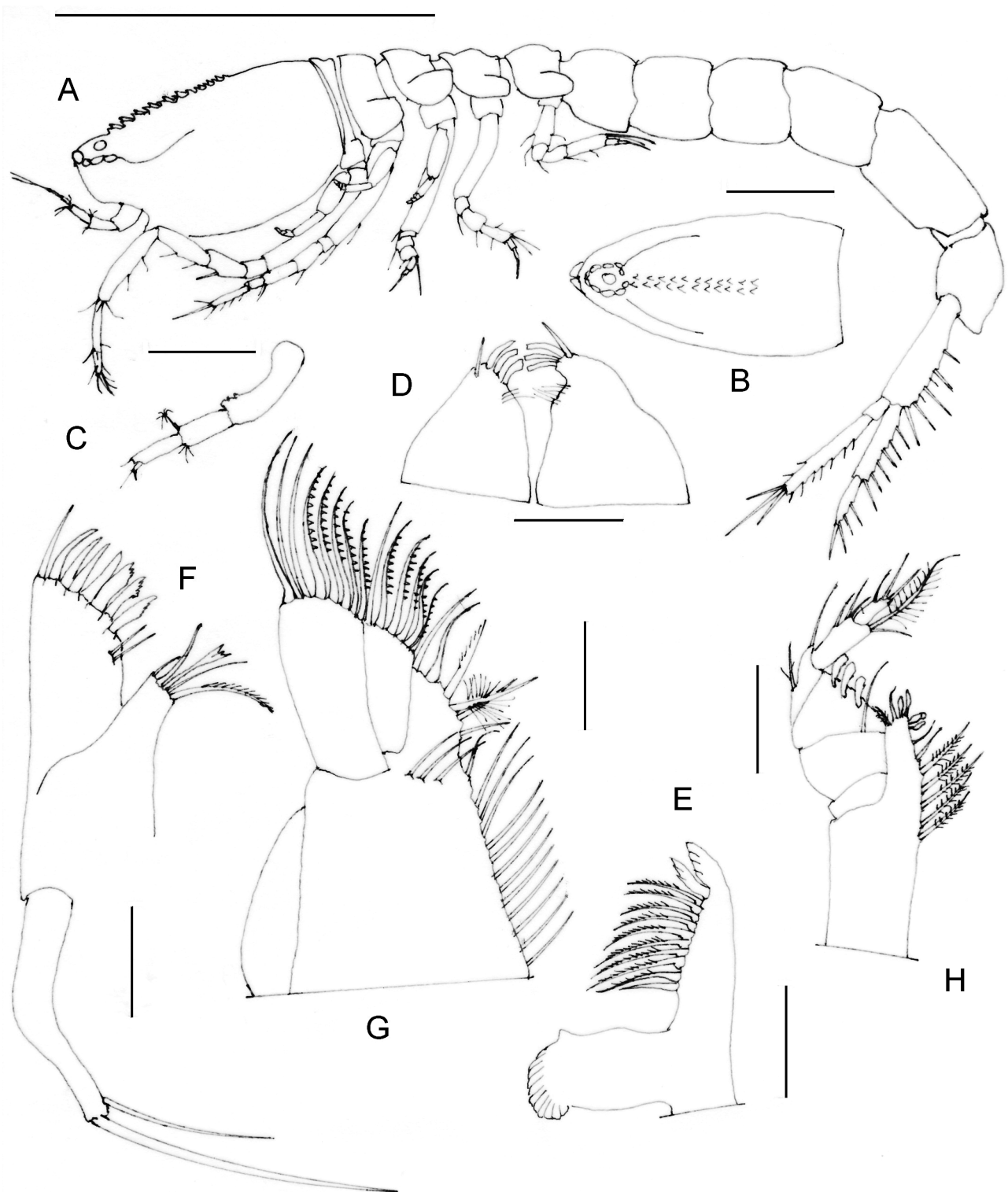


FIGURE 4. *Vaunthompsonia cristata* Bate, 1858 female A, body, lateral view; B, carapace, dorsal view; C, antenna 1; D, labium; E, mandible; F, maxilla 1; G, maxilla 2; H, maxilliped 1. Scales in mm: A, 1; B, 0.5; C, 0.2; D, E, H, 0.1; F, G, 0.05.

Remarks. Maxilliped 3 basis with setules on proximal half, not plumose setae like in Sars, 1879 and Petrescu, 2002 and plumose setae on whole margin similar to Gamô, 1962 and Kang & Lee, 1995, propodus with characteristic two setae backwardly projected (absent in Kang & Lee, 1995 and Petrescu, 2002). Pereopod 1 with

longer dactylus than in Petrescu (2002). Pereopod 2 with fewer setae on dactylus than in Sars' specimens, but with more setae than in Belizean specimens. Pereopod 3 with fewer setae than in Sars' (1879) description. Pereopods 4 and 5 without the plumose setae of the Atlantic specimens. Specimens from Puerto Rico with segment 6 of pleon longer than in European specimens, uropodal peduncle also longer than females from Atlantic and Belize and longer exopod than in Sars and Petrescu (op. cit.); peduncle and rami with fewer setae than in females from Atlantic and Belize.

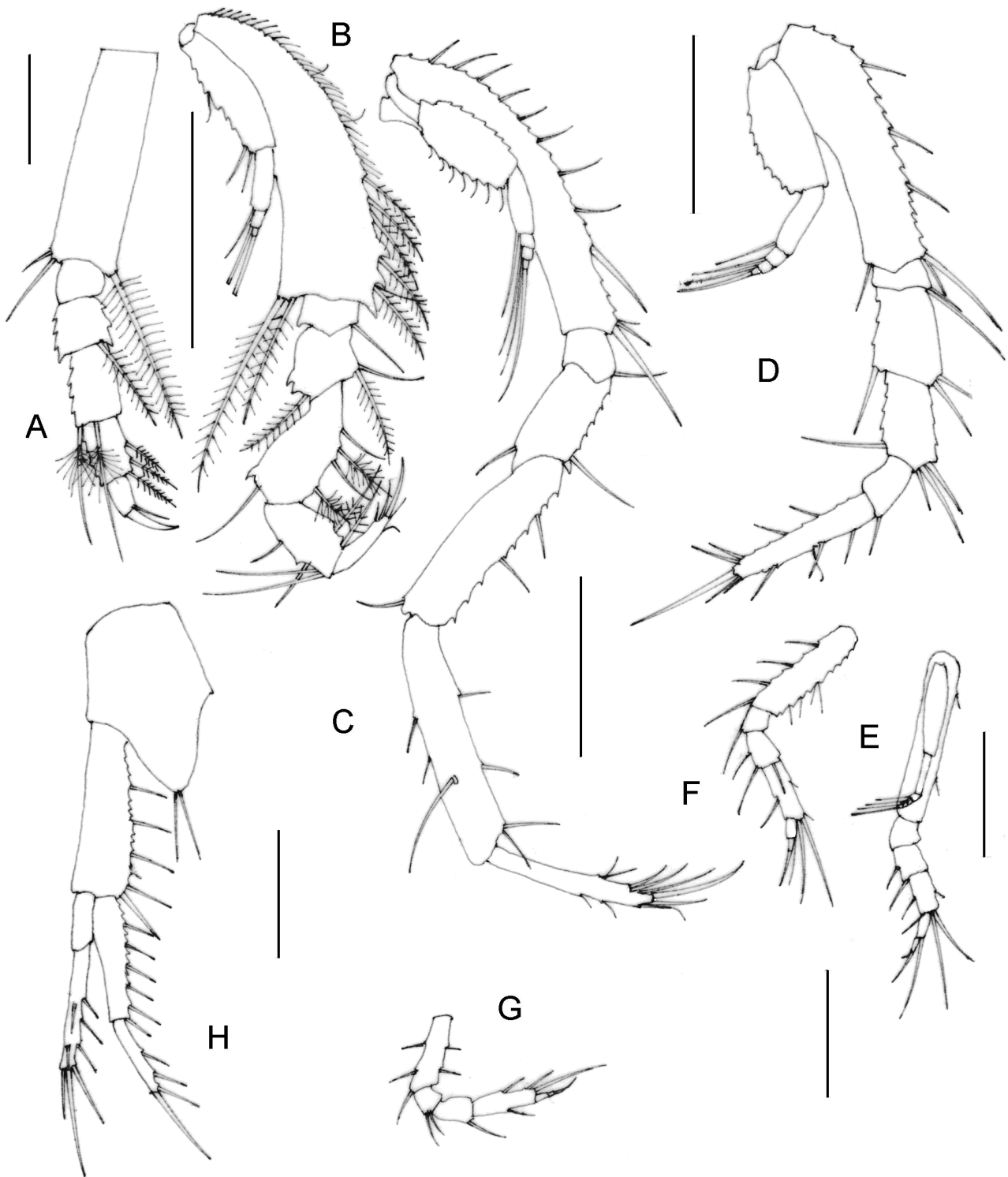


FIGURE 5. *Vaunthompsonia cristata* Bate, 1858 female A, maxilliped 2; B, maxilliped 3; C, pereopod 1; D, pereopod 2; E, pereopod 3; F, pereopod 4; G, pereopod 5; H, uropod. Scales in mm: A, 0.1; B–H, 0.2.

Distribution. Initially described from the Atlantic waters of Europe (Bate, 1858, Jones, 1976), but also from the Mediterranean Sea (Sars, 1879), South Africa (Day, 1975), SE Asia, Annam, Fage, 1951), Japan (Gamô. 1962, 1967), Korea (Kang & Lee, 1995), Indonesia (Petrescu, 1997). The species was first mentioned from the western Atlantic by Calman (1907) from Cruz Bay, St. Jan (Danish West Indies), 6/1/96, about 20 specimens, all males. Other reports from the western Atlantic are from Belize (Petrescu, 2002, females) and Exuma Islands (Bahamas) (Petrescu, 2003, males and females).

***Vaunthompsonia budaii* sp. nov.**

(Figs. 6, 7)

Material Examined. Holotype male, MGAB CUM 1709; paratypes: 28 ♂♂, MGAB CUM 1700. Type locality: San Cristobal Cay, Puerto Rico, 17°56'32.95"N, 67°4'42.09"W, 9.06.2012, night plankton net tow at surface, location of the sampling at 4.5 m depth, collector Nikolaos V. Schizas.

Diagnosis. Absence of pigmented spots on dorsal side of carapace, pereon, pleon and from the propodus of pereopod 1. Anterior part of carapace narrow and frontal apex pointed (in lateral view), carapace 1.61 times longer than high, ocular lobe ornamented with 8 lateral lenses, 1 central bigger and 2 posterior ones. Pereopod 1 basis with 3 stout long setae on medial margin. Uropodal peduncle 0.90 times exopod length.

Description. Male. Body (Fig. 6 A) size: 2.67 mm.

Carapace (Fig. 6 A, B). Anterior part of carapace narrow and frontal apex pointed (in lateral view, fig 6A). Carapace 1.61 times longer than high, without pigmented dorsal spots; ocular lobe ornamented with 8 lateral lenses, 1 central bigger and 2 posterior ones.

Antenna 1 (Fig. 6 C). Basal article of peduncle as long as rest of articles combined length, 4 simple setae on medial margin, 1 on outer margin; 3 simple setae on medial margin, 2 on outer margin; 3 setae on outer margin of apical article, accessory flagellum, short.

Antenna 2. Drawn in Fig. 6 D.

Labium, with 3 teeth on each lobe, like in Fig. 6 E.

Mandible (Fig. 6 F). *Pars incisiva* with 4 teeth, *lacinia mobilis* with 3 teeth, 7 setae between *lacinia* and robust *pars molaris*.

Maxilla 1 (Fig. 6 G). With 7 stout pectinate setae on top of outer endite, 5 setae on inner endite, palpus with 2 filaments.

Maxilla 2 (Fig. 6 H). With 3 pectinate setae on top of endite article, protopodus with simple and pectinate setae, 10 simple ones on medial margin.

Maxilliped 1 (Fig. 6 I). Basis with 4 pectinate setae, 2 retinacula and 3 stout setae on top of medial process, carpus with 6 hand-like setae on medial margin, dactylus with a long terminal seta.

Maxilliped 2 (Fig. 7 A). Basis with a long plumose seta, other plumose seta on medial margin of merus, carpus with 2 medial and 1 pappose ones on medial margin, 4 pappose setae on medial margin of propodus, 0.95 times as long as carpus, dactylus 0.58 times as long as propodus, 1 seta on medial margin, robust terminal seta.

Maxilliped 3 (Fig. 7 B). Basis 1.43 times rest of articles combined, 8 plumose setae on medial margin, 2 plumose setae on outer margin, merus 2.50 times ischium length, carpus 1.40 times merus length, 3 plumose setae on medial margin, 1 on outer margin, propodus 0.71 times carpus length, 2 pappose setae on medial margin of propodus, 4 simple setae on outer margin, upper 2 of them backwardly directed, dactylus 0.75 times propodus length, terminal robust seta 1.66 times dactylus length. Exopod with inflated basis.

Pereopod 1 (Fig. 7 C). Basis 0.65 times rest of articles combined length, merus twice times ischium length, carpus 1.86 times merus length, 3 setae on medial margin, 1 on outer margin, propodus 1.17 times carpus length, 3 simple setae on both margins, dactylus 0.75 times propodus length, short terminal seta. Exopod with inflated basis.

Pereopod 2 (Fig. 7 D). Basis 1.30 times rest of articles combined length, 4 plumose and 4 simple setae on medial margin; carpus 1.15 times merus length, with 3 simple stout setae on medial margin, other 2 on outer margin, dactylus 3 times propodus length, 3 vs. 2 setae on medial margin, 2 simple setae on outer margin, 4 shorter and one longer terminal setae. Exopod with inflated basis.

Pereopod 3 (Fig. 7 E). Basis 1.76 times rest of articles combined length, carpus with 2 annulate setae, dactylus with a short terminal seta. Exopod with inflated basis.

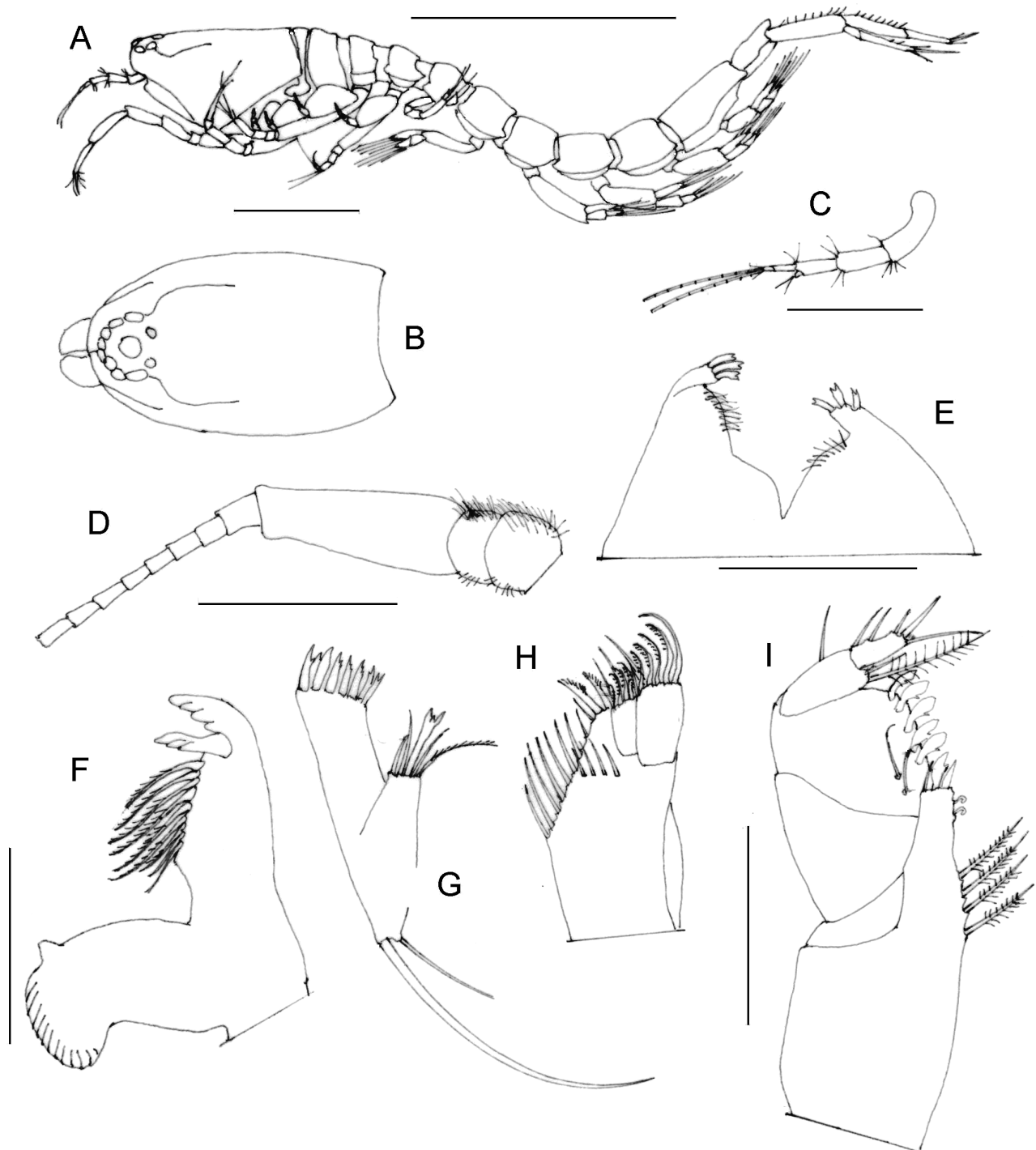


FIGURE 6. *Vaunthompsonia budaii* sp. nov. Holotype male A, body, lateral view; B, carapace, dorsal view; C, antenna 1; D, antenna 2; E, labium; F, mandible; G, maxilla 1; H, maxilla 2. Scales in mm: A, 1; B, 0.3; C, 0.2; D–H, 0.1.

Pereopods 4 (Fig. 7 F). Basis 1.09 times rest of articles length, carpus as long as ischium and merus combined length. Exopod with inflated basis.

Pereopod 5 (Fig. 7 G). Basis 0.48 times rest of articles combined length.

Uropod (Fig. 7 H). Peduncle 1.10 times last pleonite length, 0.90 times exopod length, 0.76 times endopod length, 9 simple setae on medial margin, exopod 0.86 times endopod length, 4 simple short setae on both margins, 3 subterminal setae and 1 terminal stout seta, half of exopod length, endopod, 2-segmented, proximal article 1.86 times distal one length, 11 short stout setae on medial margin of proximal article, 1 seta on outer margin, 3 simple

stout short setae on medial margin of distal article, 1 subterminal and 1 terminal seta, 0.86 times distal article length. Without pigmented spots.

Etymology. The new species is dedicated in honor of Pârvu Budăi, colleague of first author (IP) from the National Museum of Natural History “Grigore Antipa”.

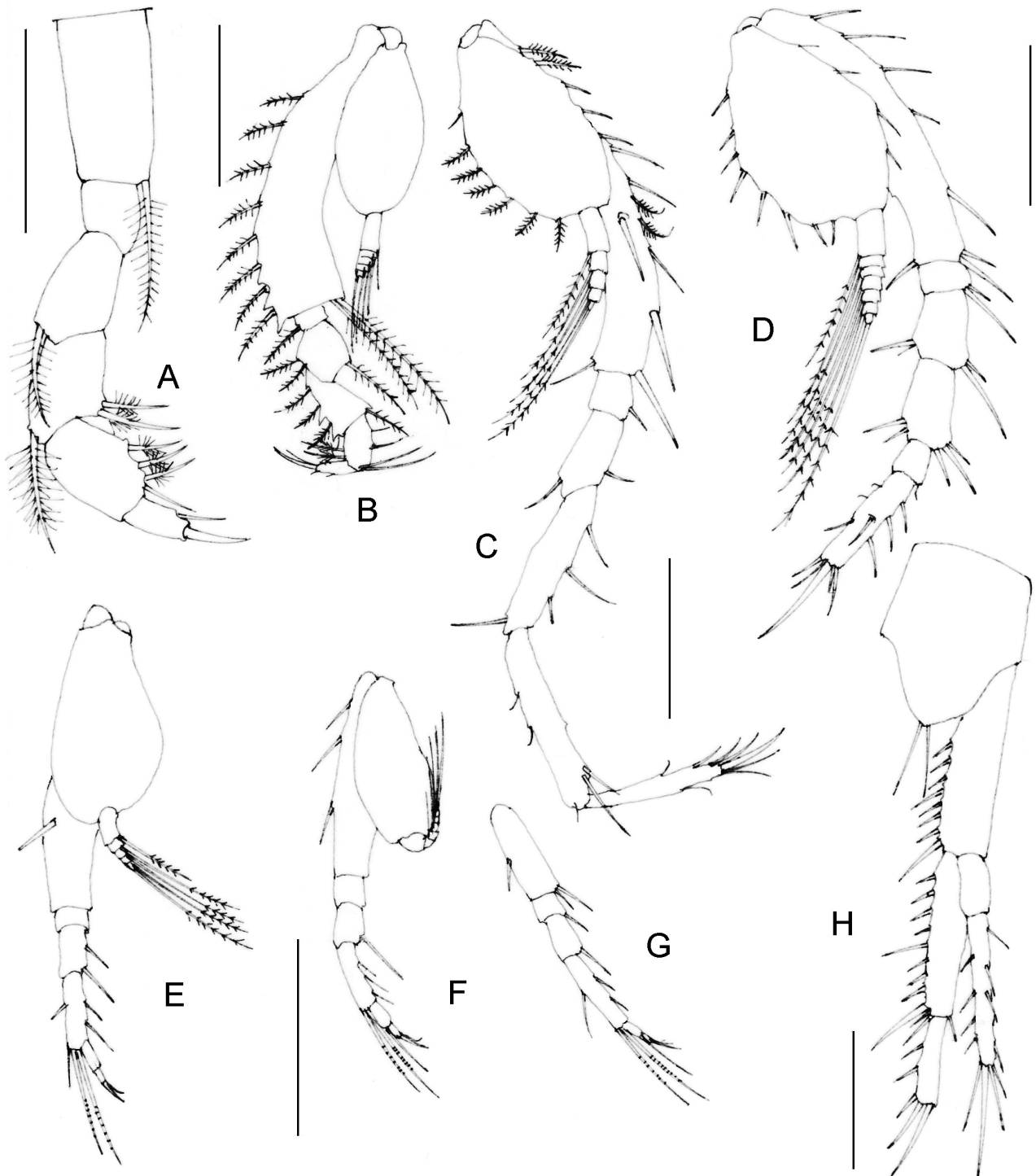


FIGURE 7. *Vaunthompsonia budaii* sp. nov. Holotype male A, maxilliped 2; B, maxilliped 3; C, pereopod 1; D, pereopod 2; E, pereopod 3; F, pereopod 4; G, pereopod 5; H, uropod. Scales in mm: A, 0.1; B–H, 0.2.

Remarks. *Vaunthompsonia budaii* sp. nov. is closely related to *V. floridana* Băcescu (1971) from Florida and Jamaica (Petrescu, Iliffe & Sarbu, 1993) with pleonite 6 without denticulate apical margin. The *V. budaii* sp. nov. differs in the absence of characteristic pigmented spots on dorsal side of carapace, pereon and pleon and from the propodus of pereopod 1, all present in *V. floridana*. The anterior part of carapace (in lateral view) is broader and

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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