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NEW SPECIES OF CUMACEA (CRUSTACEA: PERACARIDA: CUMACEA) FROM BAHAMAS

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Abstract. Two new species of Cumacea are described from Long Island, Bahamas: *Cyclaspis angelae* n. sp. and *Cumella botosaneanui* n. sp. which are added to the 22 species previously known from this area.

Résumé. Deux nouvelles espèces de Cumacea, décrites de Long Island, Bahamas: *Cyclaspis angelae* n. sp. et *Cumella botosaneanui* n. sp. sont ajoutées aux 22 espèces déjà connues de cette aire.

Key words: Cumacea, Bahamas, new species.

INTRODUCTION

A total of 22 species of Cumacea were previously reported from Bahamas, eight of them being described from here by Petrescu & Iliffe (1992) and by Petrescu (1996, 2003) from several islands of the Bahamas (Andros, Exumas and Abaco). Three species are from Bodotriidae: *Cyclaspis goesi* (Sars, 1871), *C. jonesi* Roccatagliata, 1985 and *Vaunthompsonia* cf. *cristata* Bate, 1858; and 19 from Nannastacidae: *Campylaspis heardi* Muradian-Ciamician, 1980, *C. paucispina* Jones, 1974, *Cubanocuma gutzui* Băcescu & Muradian, 1977, *Cumella abacoensis* Petrescu, 1996, *C. anae* Petrescu & Iliffe, 1992, *C. andri* Petrescu & Iliffe, 1992, *C. angelae* Petrescu & Iliffe, 1992, *C. bacescui* Petrescu & Iliffe, 1992, *C. bahamensis* Petrescu & Iliffe, 1992, *C. caribbeana* Băcescu, 1971, *C. clavicauda* Calman, 1911, *C. garrityi* Băcescu & Muradian, 1977, *C. gomoiui* Băcescu & Muradian, 1977, *C. longicaudata* Petrescu, Iliffe & Sarbu, 1994, *C. cf. ocellata* Băcescu, 1982, *C. radui* Petrescu & Iliffe, 1992, *C. thomasiliffei* Petrescu, 2003, *C. vicina* Zimmer, 1944 and *C. zimmeri* Petrescu, Iliffe & Sarbu, 1994.

MATERIAL AND METHODS

Material was collected by junior author of the paper, Dr. Thomas M. Iliffe from ocean blue holes (submarine caves) on Abaco, Eleuthera and Long Island (Bahamas) between 2005 and 2007. These are the first records from Eleuthera and Long Island.

Material was preserved in 70% ethanol, studied with a compound microscope Olympus CH-2, and the drawings were made using a camera lucida.

Type material is preserved in the collection of „Grigore Antipa” National Museum of Natural History of București (Bucharest) (MGAB).

RESULTS

Four species were identified in the material, including two species, one new to science, from family Bodotriidae and other two, one new to science, from family Nannastacidae.

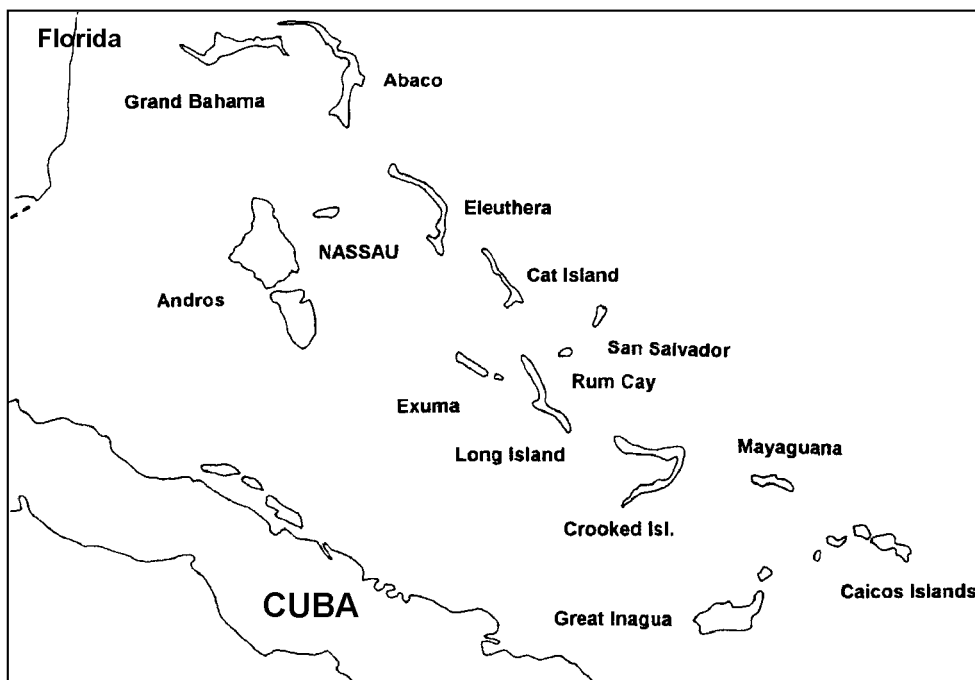


Fig. 1 – Collecting locations from Bahamas.

Family Bodotriidae

Cyclaspis angelae n. sp.

(Figs 2, 3)

Cyclaspis alba Roccatagliata, 1986: 375, figs 2, 3, nec Roccatagliata, sensu Petrescu, Iliffe & Sarbu, 1993.

Material: holotype adult male, MGAB CUM 1638. *Type locality*: Western Atlantic Ocean, Bahamas, Long Island, Dean's Blue Hole, sta. 05-006, 9.01.2005.

Etymology: the species is dedicated to my dearest wife, Angela Petrescu, with eternal thanks for all she offered me in our life.

Description of adult male (holotype)

Body (Fig. 2 A), covered with smooth integument. Length: 3.12 mm.

Carapace (Fig. 2 A), 1/3 of entire body length, 1.9 times as long as high, short pseudorostrum, 0.28 of eyelobe (ocular lobe), 0.37 of carapace length, eyelobe with six lenses, two lateral pairs, one frontal and one central; antero-ventral corner, marked; ventral margin, smooth.

Pleon, 1.15 times as long as rest of body.

Antenna 1 (Fig. 2 B), basal article of peduncle 1.3 times as long as rest of peduncle, main flagellum with two articles and terminal aesthetascs, accessory one, with one article, minute.

Maxilliped 3 (Fig. 2 C), basis 1.7 times longer than rest of articles combined, with an outer process reaching distal extremity of merus, with two apical plumose

setae; ischium as long as carpus, merus with a big outer process, reaching distal extremity of carpus; large carpus with three setae on inner margin; propodus 0.8 of carpus; dactylus 0.3 of propodus, with a short robust terminal seta. Exopod 0.6 of endopodal basis length.

Pereopod 1 (Fig. 2 D), basis 1.08 of rest of articles, with six short stout setae on inner margin, merus 1.7 times as long as ischium, carpus 1.6 times as long as merus, as long as propodus, propodus 2.5 times as long as dactylus, dactylus with a pectinate terminal seta. Exopod 0.7 of endopodal basis length.

Pereopod 2 (Fig. 3 A), basis 0.4 of total length, with a seta on outer margin, merus 3 times as long as ischium, with an inner seta, carpus 0.8 of merus, with two pectinate setae, one twice as long as propodus, dactylus 2 times as long as propodus, with a terminal pectinate seta.

Pereopod 3 (Fig. 3 B), basis about half of total length, ischium with two simple setae, merus 3 times as long as ischium, carpus little longer than merus, twice as long as propodus, propodus twice as long as dactylus, dactylus with a short terminal seta.

Pereopod 4 (Fig. 3 C), basis 0.4 of total length, carpus 1.3 times as long as merus.

Pereopod 5 (Fig. 3 D) with shorter basis than in previous pairs, 0.3 of total length.

Uropod (Fig. 3 E), peduncle 1.45 of last pleonite, 1.5 times longer as rami, serrated longitudinal crest, seven plumose long setae on proximal part and two rows of shorter ones on distal third inner margin, exopod 0.9 of endopod, with two articles, terminal sensory seta 0.4 as long as exopod, a subterminal one, twice shorter, a plumose seta on inner margin, endopod with one article, five microserrate setae followed by four shorter simple ones on inner margin, a subterminal and a terminal pectinate seta.

Remarks

This is the third species of genus *Cyclaspis* recorded from the Bahamas, after *Cyclaspis jonesi* Roccatagliata, 1985 (Petrescu, 1996) and *C. goesi* (Sars, 1871) (Petrescu, 2003). It was mistakenly identified as *C. alba* Roccatagliata, 1986 by Petrescu, Iliffe & Sarbu (1993) from Jamaica.

Cyclaspis angelae n. sp. resembles several species from the Caribbean Sea and from the Western Atlantic Ocean (North and South American coasts), with smooth integument of carapace and uropods with long peduncle, equal rami and almost similar setae, *C. alba* Roccatagliata (1986), *C. granulata* Radha Devi & Kurian, 1981 (material from Belize, Petrescu, 2002), *C. jonesi* Roccatagliata (1985) from SW Atlantic, *C. platymerus* Zimmer (1944) from Gulf of Mexico, *C. varians* Calman (1912) from NW Atlantic and *C. variabilis* Roccatagliata (1986) from South American coast. It mainly differs from *C. granulata* and *C. variabilis* having no lateral carina on carapace. Uropods of the new species have a shorter peduncle as in *C. varians* (twice longer than last pleonite in Calman's species). The new species differs from *C. alba* by: outer process of maxilliped 3 without acuminate apex, pereopod 1 with short setae on basis, longer peduncle of uropods, with more setae, exopod with one seta on inner margin versus four. *C. angelae* n. sp. has similar setae on basis of first pereopod like in *C. jonesi* and *C. platymerus*, but a less higher carapace than in *C. jonesi*, maxilliped 3 with a non-acuminate process, no teeth on inner margin of rami and longer peduncle of uropod and uropodal rami without teeth like in *C. platymerus*.

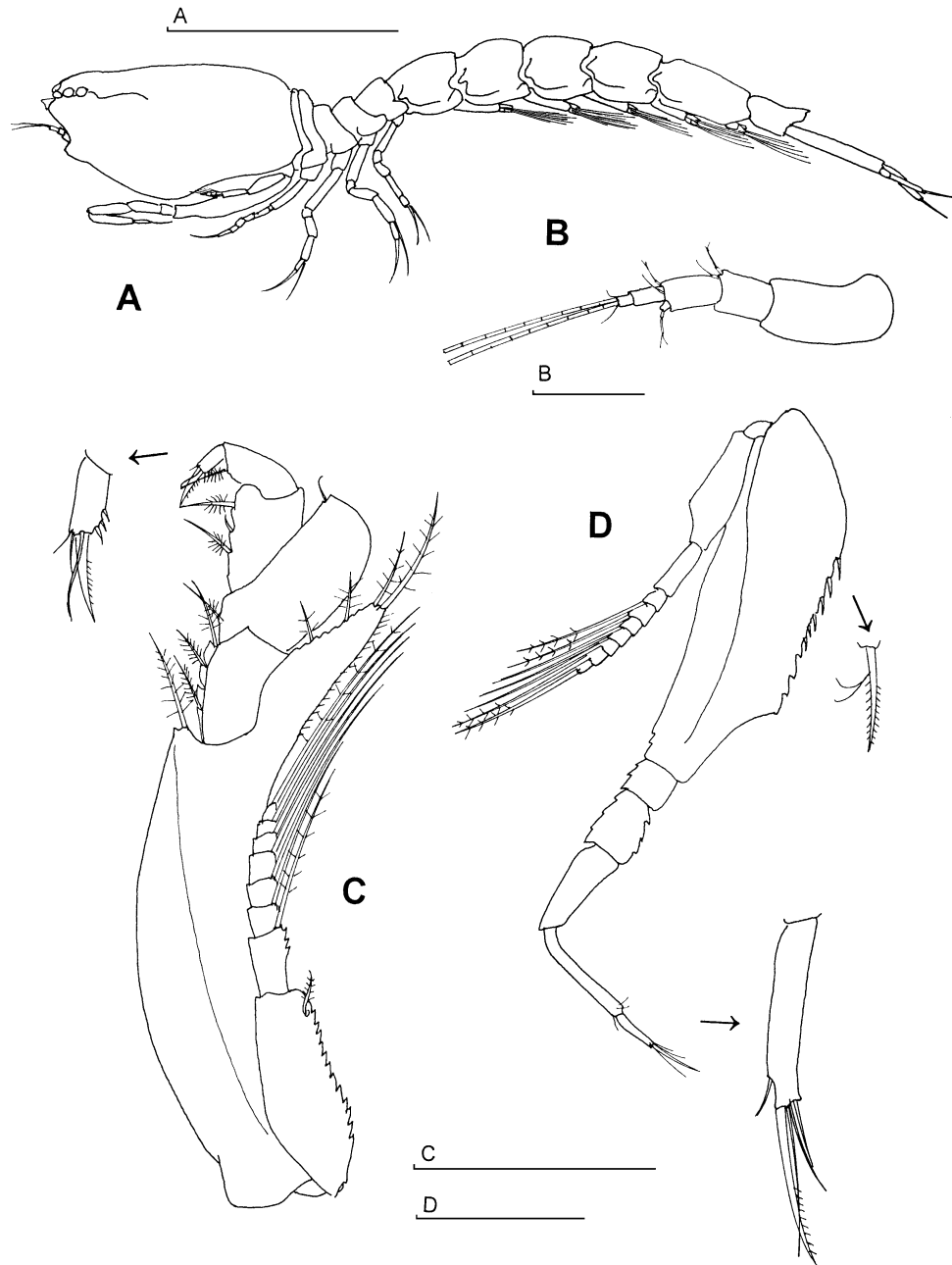


Fig. 2 – *Cyclopsis angelae* n. sp. Holotype female: A, body, lateral view; B, antenna 1; C, maxilliped 3; D, pereopod 1. Scales (in mm): A, 1; B, 0.1; C, 0.2; D, 0.3.

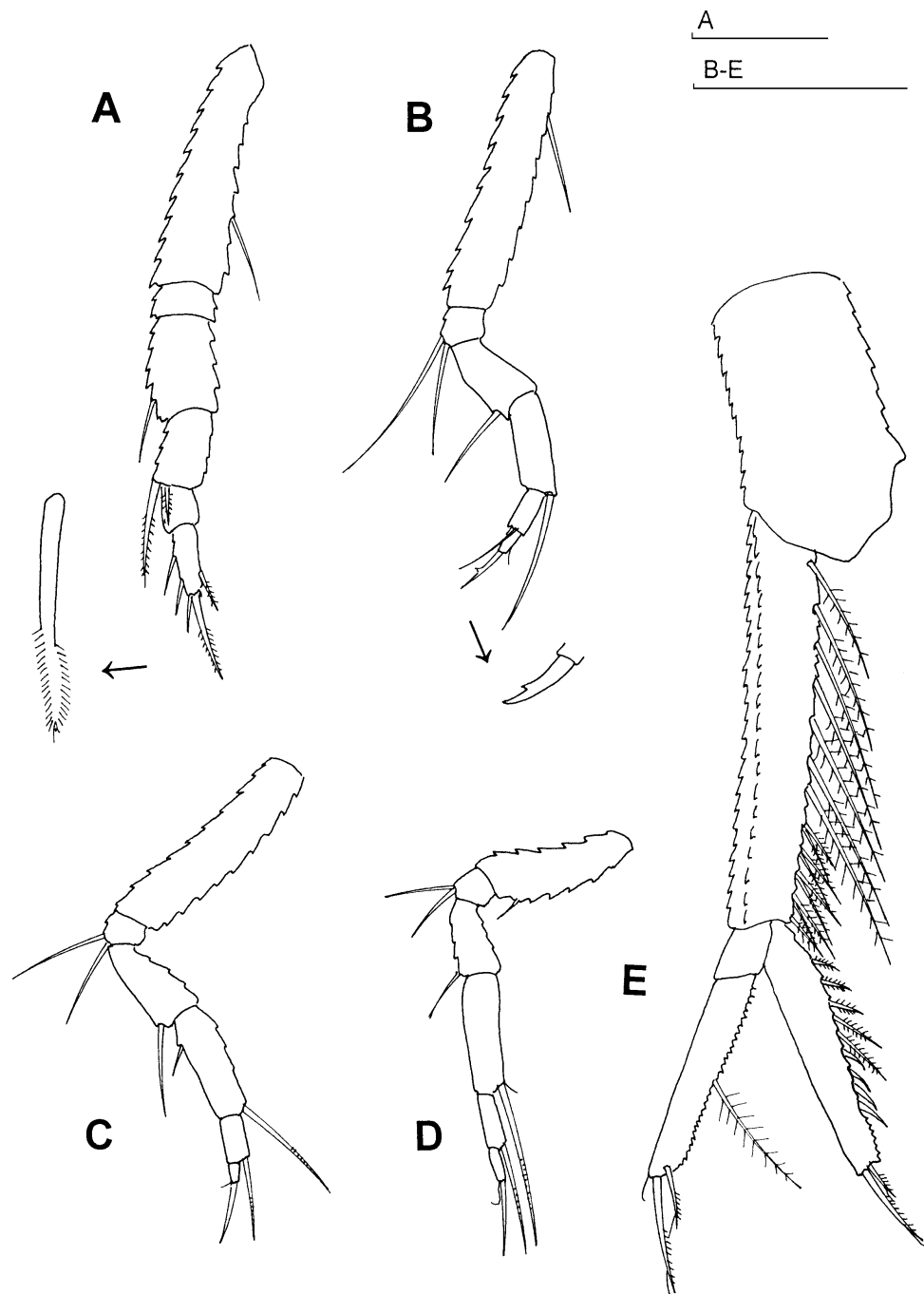


Fig. 3 – *Cyclopsis angelae* n. sp. Holotype female: A, pereopod 2; B, pereopod 3; C, pereopod 4; D, pereopod 5; E, uropod. Scales (in mm): A, 0.1; B-E, 0.2.

Key to species of genus *Cyclaspis* from Bahamas

1. – Carapace with a sharp dorsal tooth *C. goesi* (Sars, 1871)
- Carapace without dorsal tooth 2
2. – Toothed margins of uropods *C. jonesi* Roccatagliata, 1985
- Smooth margins of uropods *C. angelae* n. sp.

Vaunthompsonia cf. *crinata* Bate, 1858

Material: 2 ♀♀, South Rock Sound Blue Hole, sta. 07-030, Eleuthera, 12.08.2007, MGAB CUM 1639.

Remarks

Previously recorded from Exuma Islands, Bahamas (Petrescu, 2003) and from Florida, U. S. Virgin Islands (Zimmer, 1944), Belize (Petrescu, 2002) and Costa Rica (Petrescu, Heard, Vargas & Breedy, 2009).

Family Nannastacidae

Cumella abacoensis Petrescu, 1996

Material: 4 ♂♂, 2 ♀♀, Reel Breaker Blue Hole, sta. 06-016, Abaco (Bahamas), 14.08.2006, MGAB CUM 1640; 11 ♂♂, 28 ♀♀, 5 manca, South Rock Sound Blue Hole, sta. 07-030, Eleuthera, 12.08.2007, MGAB CUM 1641.

Remarks

Previously known from Abaco Island, Bahamas, type locality (Petrescu, 1995), also from Andros, Exuma (Bahamas) and Grand Cayman (Petrescu, 2003).

Cumella botosaneanui n. sp.

(Figs 4-7)

Material: holotype female, MGAB CUM 1642; allotype male, dissected, MGAB CUM 1643; paratypes: 1 ♀, 1 ♂, Dean's Blue Hole, sta. 05-005, MGAB CUM 1644; 1 ♂, 1 ♀, Dean's Blue Hole, sta. 05-006, MGAB CUM 1645; 1 ♀, dissected, sta. 05-006, MGAB CUM 1646. *Type locality*: Western Atlantic Ocean, Bahamas, Long Island, Dean's Blue Hole, sta. 05-006, 9.01.2005.

Etymology: the species is dedicated in honor of Dr. Lazare Botosaneanu, world specialist in Trychoptera, Isopoda and stygobiont fauna.

Description of female (Figs 4, 5)

Body (Fig. 4 A), covered with granulous integument. Length: 2.08 mm.

Carapace (Fig. 4 A, B), 0.3 of total body length, 1.46 times as long as high, short pseudorostrum, antennal notch present, frontal lobe 0.45 of total carapace length, eye lobe with five lenses, two lateral pairs and a frontal one, median dorsal carina, more than half of anteroventral margin, serrated, anteroventral corner, pointed.

Pereon and *pleon* with median dorsal carina, lateral carina on pereonite 5 to 5th pleonite.

Antenna 1 (Fig. 4 C), basal article of peduncle shorter than rest of articles combined, main flagellum with three articles and terminal aesthetascs, accessory one, minute.

Maxilliped 1 (Fig. 4 D), basis with four plumose inner setae and endite, carpus with six flattened hand-like inner setae interspersed with simple ones, propodus 1.6 times as long as dactylus, with apical plumose long seta, dactylus with a terminal seta.

Maxilliped 2 (Fig. 4 E), basis with an inner pappose seta, merus, second longest article, with an inner pappose seta, carpus longer than propodus, with five inner setae, propodus, longer than dactylus, with two outer setae and five inner ones, dactylus with a long, robust terminal simple seta.

Maxilliped 3 (Fig. 4 F), basis little shorter than rest of articles combined, distal inner tooth, two plumose inner setae, two outer ones much longer, merus 0.8 times as long as carpus, with a distal outer tooth and a plumose seta, two plumose setae on inner margin, carpus 0.7 of propodus length, with distal teeth, two plumose setae on inner margin, the longer one plumose on outer margin, propodus, 3.5 times as long as dactylus, with three inner setae, dactylus with a long terminal seta.

Pereopod 1 (Fig. 5 A), basis 0.35 of total length, row of five distal spines, two distal plumose setae, merus twice longer than ischium, long carpus, 2.3 times as long as merus, four simple short setae on outer margin, propodus, 0.7 times as long as carpus, dactylus 0.6 times as long as propodus, with two long terminal setae.

Pereopod 2 (Fig. 5 B), basis 0.56 of total length, serrated outer margin, with an inner distal seta, ischium also with an inner distal seta, merus 2.2 times as long as ischium, carpus as long as merus, with three distal inner setae, propodus 1.1 times as long as carpus, dactylus 2.2 times as long as propodus, with four inner setae, an outer one, terminal seta as long as dactylus.

Maxilliped 3 and pereopods 1, 2 with exopods.

Pereopod 3 (Fig. 5 C), basis 0.8 times as long as total length, carpus 2.75 times as long as merus, 1.8 times as long as propodus, dactylus with a long terminal seta.

Pereopod 4 (Fig. 5 D), basis 0.33 as long as total length, carpus twice longer than merus and propodus, with a long distal outer seta.

Pereopod 5 (Fig. 5 E), basis 0.57 times as long as total length, carpus 2 times as long as merus, 1.8 times as long as propodus.

Uropod (Fig. 5 F), peduncle 1.45 as long as last pleonite, 1.28 times as long as exopod, with serrated margins, exopod little longer than endopod, with a terminal robust seta 0.55 times as long as last article, endopod with serrated margins, five stout setae on inner margin, one subterminal and a terminal one, more robust, 0.59 times as long as single article of endopod.

Description of male (Figs 6, 7)

Body (Fig. 6 A), covered with granulous integument. Length: 1.35 mm. Without median dorsal carina.

Carapace (Fig. 6 A, B), represents approx. 0.3 of total length, pseudorostral lobes little exceeds frontal lobe, eye lobe with six lenses, two lateral pairs, one frontal and one central, antennal notch present, anteroventral margin not serrated.

Antenna 1 (Fig. 6 C), basal article of peduncle as long as rest of peduncle, main flagellum with two articles and two aesthetascs, accessory flagellum, with one article, minute.

Maxilliped 3 (Fig. 6 D), basis half of total length, strong serration on inner distal corner, two plumose setae on outer distal corner, merus twice as long as ischium, a tooth and a plumose seta on outer margin, carpus with two inner distal teeth and a plumose outer seta, propodus twice as long as carpus, with three pappose

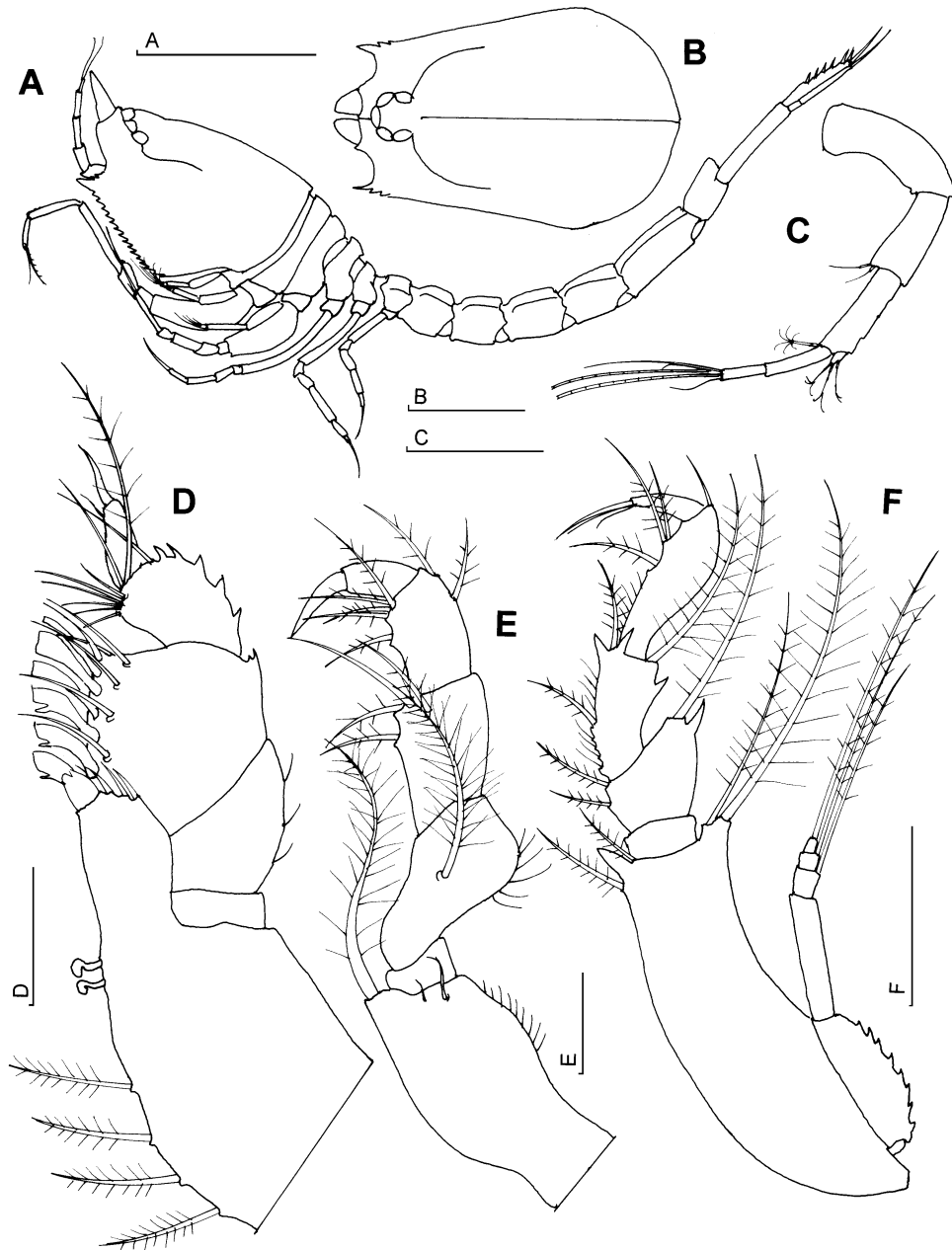


Fig. 4 – *Cumella botosaneanui* n. sp. Holotype female: A-C; paratype female D-F: A, body, lateral view; B, carapace, dorsal view; C, antenna 1; D, maxilliped 1; E, maxilliped 2; F, maxilliped 3. Scales (in mm): A, 0.5; B, 0.2; C, 1; D, 0.1; E, 0.1; F, 0.1.

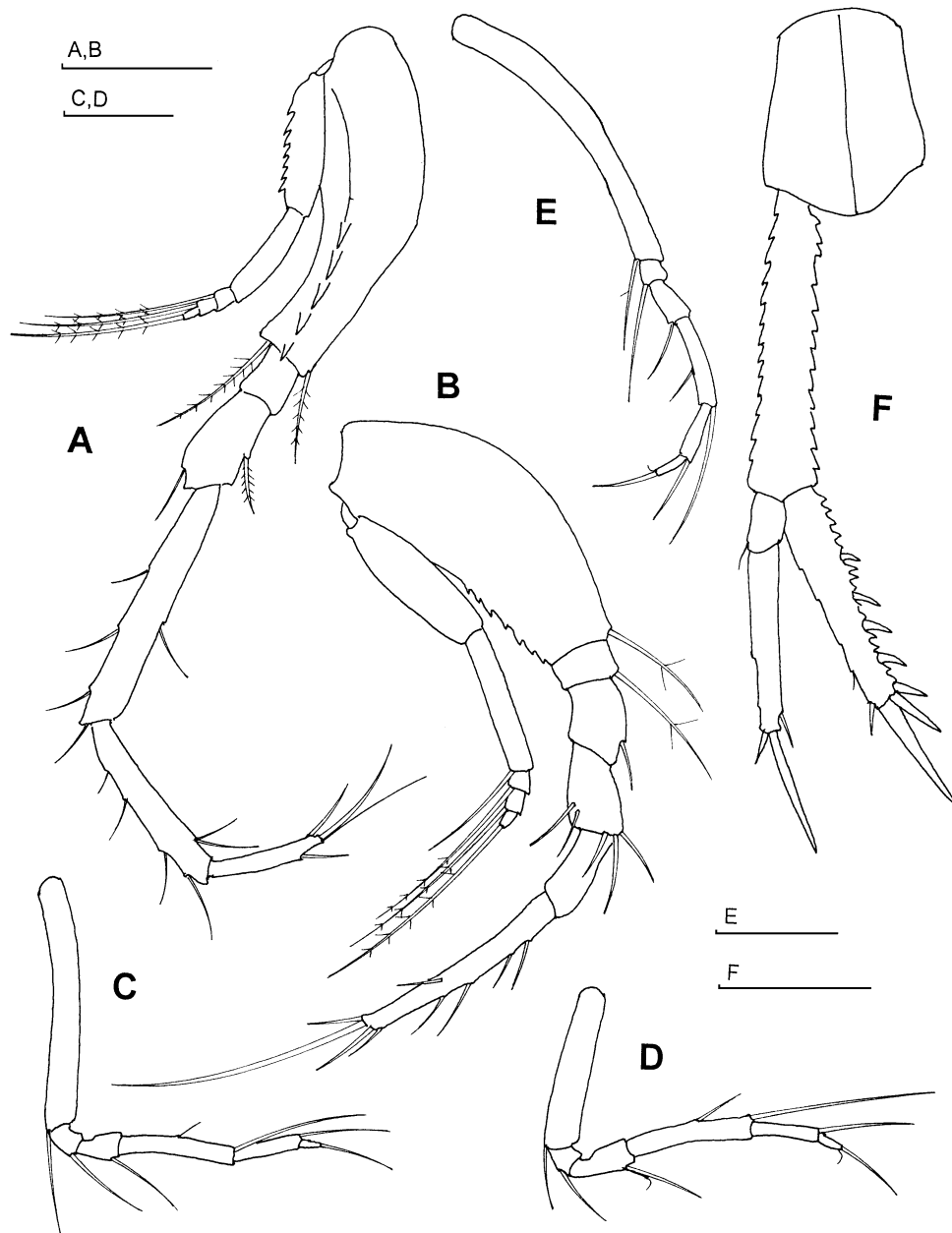


Fig. 5 – *Cumella botosaneanui* n. sp. Paratype female: A, pereopod 1; B, pereopod 2; C, pereopod 3; D, pereopod 4; E, pereopod 5; F, uropod. Scales (in mm): A, B, 0.1; C, D, 0.1; E, 0.1; F, 0.1.

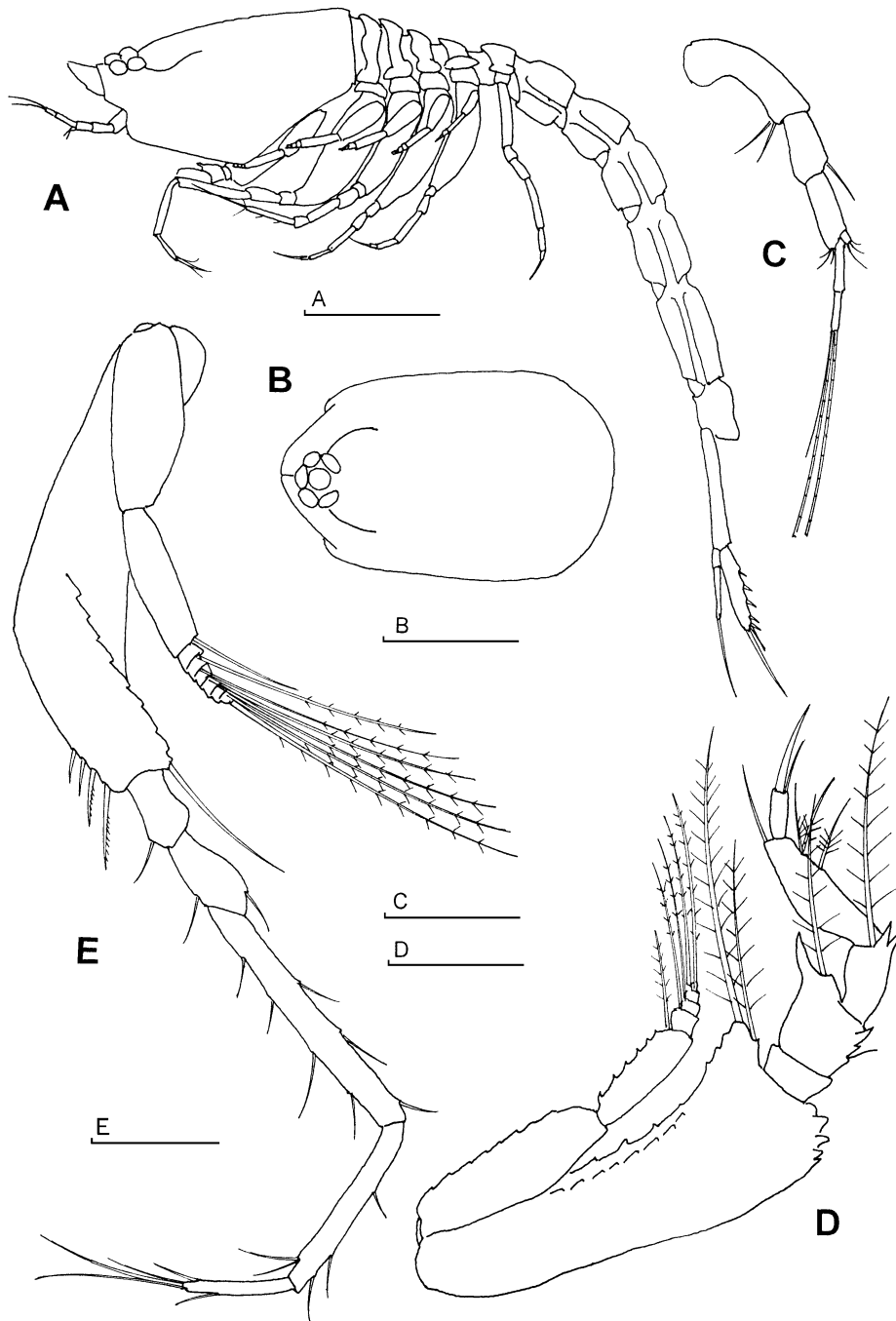


Fig. 6 – *Cumella botosaneanui* n. sp. Allotype male: A, body, lateral view; B, carapace, dorsal view; C, antenna 1; D, maxilliped 3; E, pereopod 1. Scales (in mm): A, 0.3; B, 0.3; C, 0.1; D, 0.1; E, 0.1.

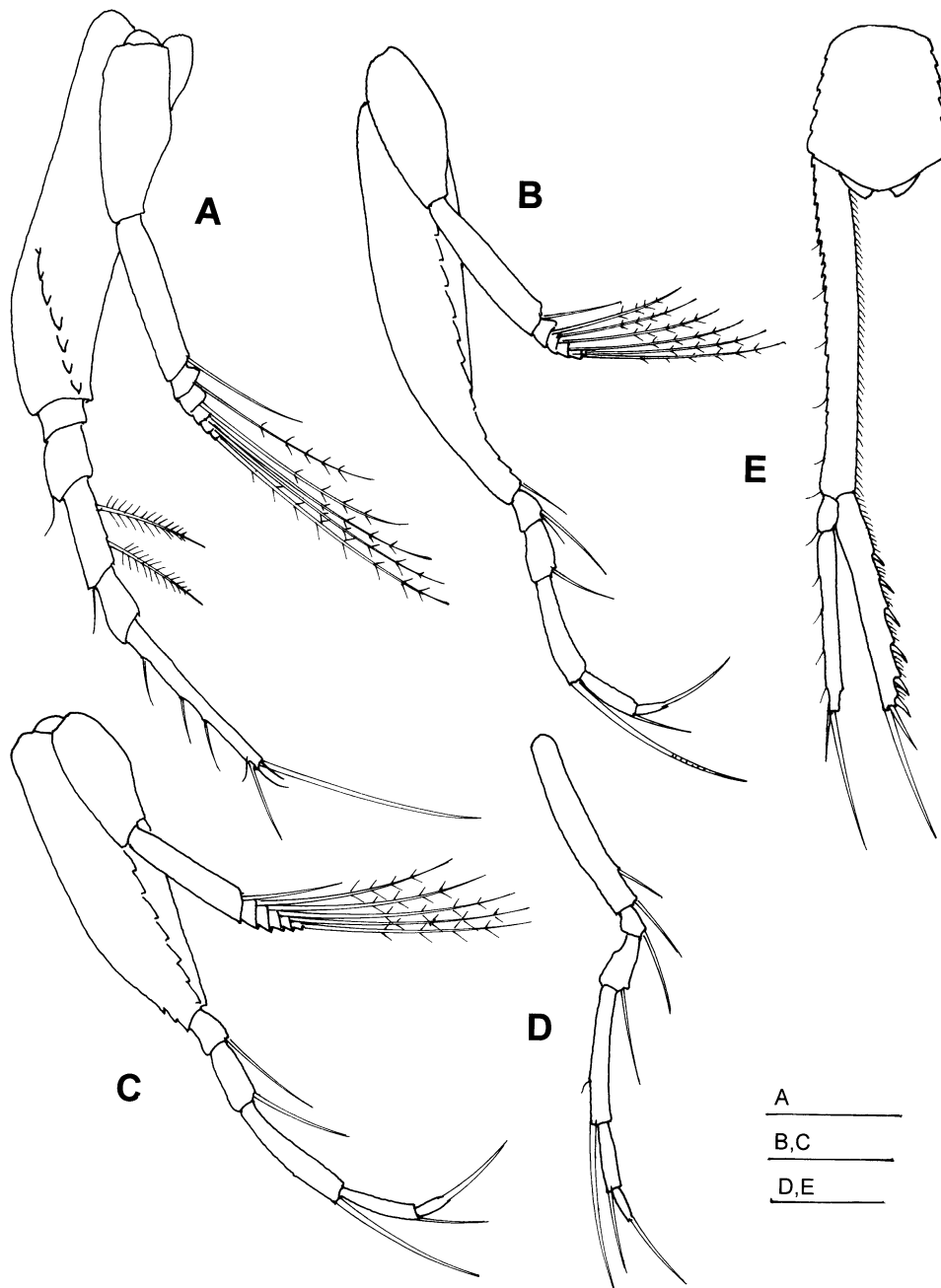


Fig. 7 – *Cumella botosaneanui* n. sp. Allotype male: A, pereopod 2; B, pereopod 3; C, pereopod 4; D, pereopod 5; E, uropod. Scales (in mm): A, 0.1; B, C, 0.1; D, E, 0.1.

setae on inner margin, outer distal short plumose seta, dactylus 0.28 of propodus length, with a long robust terminal seta.

Pereopod 1 (Fig. 6 E), basis 0.40 of total length, serrated outer margin in distal half, four microserrate setae on inner distal margin, one simple, longer one on outer distal margin, merus 1.3 times as long as ischium, carpus 2.25 times as long as merus, with simple setae on both margins, propodus 0.7 times as long as carpus, three short simple setae on outer margin, two simple ones on distal inner corner, dactylus 0.55 times as long as propodus, with two long terminal setae.

Pereopod 2 (Fig. 7 A), basis 0.47 of total length, oblique serrated crest on distal margin, merus twice as long as ischium, with a simple outer seta, carpus 1.6 times as long as merus, with two plumose outer setae, dactylus 2.5 times as long as propodus, with three simple setae on inner margin, and with a long terminal simple seta.

Pereopod 3 (Fig. 7 B), basis 0.52 of total length, ischium with two simple setae on outer margin, merus 1.8 times as long as ischium, with a simple seta on outer margin, carpus 1.8 times as long as merus, with a simple long seta on outer margin, propodus 0.57 times as long as carpus, with a simple seta on outer distal corner, dactylus fused with terminal simple long seta.

Pereopod 4 (Fig. 7 C), basis 0.5 of total length, ischium with a long simple seta on outer margin, merus twice as long as ischium, with a long simple seta on outer margin, carpus twice as long as merus, with a long simple inner distal seta, propodus 0.6 times as long as carpus, dactylus fused with terminal seta.

Maxilliped 3 and pereopods 1-4 with exopods.

Pereopod 5 (Fig. 7 D), basis 0.4 of total length, with two inner setae, merus twice as long as ischium, with a simple seta, carpus 2.5 times as long as merus, with a long simple distal seta, propodus 0.5 times as long as carpus, dactylus fused with terminal simple seta.

Uropod (Fig. 7 E), peduncle 2.1 times as long as last pleonite, 1.5 times as long as endopod, with serrated margins, exopod as long as endopod, with two articles, terminal seta 0.67 times as long as exopod, endopod with one article, its inner margin microserrate, with six short stout setae, one subterminal and a terminal seta 0.75 of endopod length.

Remarks

The new species, *Cumella botosaneanui* n. sp., belongs to the subgenus *Cumella* Sars, 1865 (Watling, 1991). Also in this subgenus there are several species from shallow waters of tropical Western Atlantic: *C. abacoensis* Petrescu (1996) from Abaco Isl., Bahamas, *C. bahamensis* Petrescu & Iliffe (1992) from Andros, Bahamas, *C. longicaudata* Petrescu, Iliffe & Sarbu (1994) from Jamaica, and others with long uropods from the deep cold waters of SW Atlantic: *C. argentinae* Jones (1984), *C. compacta* Jones (1984) from Brazil, *C. decipiens* Jones (1984) from Suriname to Argentina, *C. jonesi* Petrescu (1995) from Argentina, *C. meridionalis* Jones (1984) from Suriname and Argentina, *C. polita* Jones (1984) from Bermuda and even from Antarctica, *C. australis* Calman (1907). *C. botosaneanui* n. sp. differs from them by having integument of carapace without dorsal spines or denticles and body of female with a dorsal median carina. It is most closely related to *C. abacoensis* from Abaco Island (Bahamas) with such a combination of

characters, but with serrated ventral margin of carapace, body without dorsal median carina in male, pereopod 2 with longer dactylus and uropods with shorter peduncle (uropodal peduncle/last pleonite: 1.45-1.50 versus 1.8-2) and with more inner setae on endopods of female (six versus five).

Key to species of genus *Cumella* from Bahamas

1. – Pseudorostrum with a pair of excedentary lenses subgenus *Cumewingia* Băcescu, 1971 2
- Pseudorostrum without excedentary lenses subgenus *Cumella* Sars, 1865 11
2. – Carapace with dorsal tubercles on female *C. vicina* Zimmer, 1944
- Carapace without tubercles 3
3. – Long uropods 4
- Short uropods 7
4. – Carpus of pereopod 1 1.6 x as long as propodus *C. bacescui* Petrescu & Iliffe, 1992
- Carpus of pereopod 1 shorter than 1.6 x as long as propodus 5
5. – Pereopod 2 with a long terminal seta ... *C. garrityi* Băcescu & Muradian, 1977
- Pereopod 2 with short terminal seta 6
6. – Uropodal peduncle 1.5 x as long as last pleonite *C. cf. ocellata* Băcescu, 1982
- Uropodal peduncle 1.3 x as long as last pleonite *C. caribbeana* Băcescu, 1971
7. – Long pleonite 6 8
- Short pleonite 6 9
8. – Uropodal peduncle with a median longitudinal keel *C. anae* Petrescu & Iliffe, 1992
- Uropodal peduncle without longitudinal keel ... *C. clavicauda* Calman, 1911
9. – Body with dorsal median carina ... *C. gomoii* Băcescu & Muradian, 1977
- Body without dorsal median carina ... *C. angelae* Petrescu & Iliffe, 1992
10. – Carapace with dorsal spines 11
- Carapace without dorsal spines 12
11. – Long pseudorostrum, short uropods *C. zimmeri* Petrescu, Iliffe & Sarbu, 1994
- Short pseudorostrum, long uropods *C. longicaudata* Petrescu, Iliffe & Sarbu, 1994
12. – Long uropods 13
- Short uropods *C. radui* Petrescu, Iliffe & Sarbu, 1994
13. – Carapace with ventral serrated margin *C. botosaneanui* n. sp.
- Carapace without ventral serrated margin 14
14. – Endopod of uropod with five inner setae ... *C. abacoensis* Petrescu, 1996
- Endopod with two inner setae 15
15. – Uropodal peduncle 1.5 x as long as last pleonite *C. bahamensis* Petrescu & Iliffe, 1992
- Uropodal peduncle 1.1 x as long as last pleonite *C. andri* Petrescu & Iliffe, 1992

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NOI SPECII DE CUMACEE
(CRUSTACEA: PERACARIDA: CUMACEA) DIN BAHAMAS

REZUMAT

Două specii noi de cumacee din familia Bodotriidae și din familia Nannastacidae sunt descrise dintr-un material colectat din arhipelagul Bahamas (insulele Andros, Eleuthera și Long Island) alături de *Vaunthompsonia* cf. *cristata* Bate, 1858 și *Cumella abacoensis* Petrescu, 1996.

Cyclaspis angelae n. sp., inițial determinată greșit din Jamaica de Petrescu, Iliffe și Sarbu, 1994 ca fiind *C. alba* Roccatagliata, 1986, prezintă asemănări cu *C. alba*, *C. jonesi* Roccatagliata, 1985 și *C. platymerus* Zimmer, 1944 și se deosebește, în principal, prin carapacea mai joasă, maxilipedul 3 și prin uropode.

Cumella botosaneanui n. sp. se aseamănă cel mai mult cu *C. abacoensis* Petrescu, 1996, de care se deosebește prin marginea ventrală a carapacei serată, absența carenei median dorsale de pe întreg corpul masculului, prin pereopodul 2 cu dactilul mai lung și prin uropodele cu pedunculul mai scurt și endopod cu mai multe sete.

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