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SEVEN NEW AMPHIPODS (CRUSTACEA: PERACARIDA: GAMMARIDEA) FROM THE CARIBBEAN COAST OF SOUTH AMERICA

Manuel Ortiz and Rafael Lemaitre

ABSTRACT

A study of gammaridean amphipod samples obtained from coral reefs and estuarine environments south of Cartagena, Colombia, revealed the existence of seven undescribed species. These are described and illustrated in detail under the names: *Ampithoe hirsutimanus*, *Batea schotti*, *Caribboecetes justi*, *Cerapus thomasi*, *Lembos scolosternum*, *Nasageneia comisariensis*, and *Seba robusta*.

RESUMEN

Siete especies nuevas de anfípodos (Crustacea: Peracarida: Gammarides) de la costa Caribe de Sudamérica. Un estudio de muestras de anfípodos gamarídeos obtenidas en zonas coralinas y estuarinas al sur de Cartagena, Colombia, reveló la existencia de siete especies desconocidas para la ciencia. Estas se describen en detalle bajo los siguientes nombres: *Ampithoe hirsutimanus*, *Batea schotti*, *Caribboecetes justi*, *Cerapus thomasi*, *Lembos scolosternum*, *Nasageneia comisariensis*, y *Seba robusta*.

INTRODUCTION

The peracarid crustacean fauna from the Caribbean coast of northern South America is still very incompletely documented. Recent studies indicate the existence of a rich fauna along this region. Along the Colombian coast, for example, a considerable number of interesting or previously undescribed isopod species have been found (Müller, 1988a, b; 1989; 1990a, b, c, d; 1991; 1992; 1993a, b, c; Kensley and Schotte, 1994). In contrast, reports on amphipods from this coast are sparse, and only a few species have been recorded by Barnard (1954), Calero (1982), and Ortiz (1983).

In an effort to increase a collection base for systematic studies of the crustacean fauna from this coast, one of the authors (R.L.) conducted qualitative sampling in various shore habitats south of the city of Cartagena, Colombia, during the months of March and July of 1991. As result, numerous

specimens of amphipods were obtained. A preliminary checklist of the species found was reported by Ortiz and Lemaitre (1994), including a characterization of the collecting sites. Subsequent, comparative studies of this amphipod material revealed that seven of the taxa identified by Ortiz and Lemaitre only to genus level, actually represent new species. These are described and illustrated in detail herein.

MATERIALS AND METHODS

The specimens were obtained using a benthic dredge with a 50 X 25 cm metal frame, equipped with a net of 1 mm mesh size. The dredge was pulled over seagrass beds (*Thalassia testudinum*) often covered with clumps of macro-algae, or soft bottoms (mud, sand, rubble), using a boat. Samples were preserved in the field in a 5% formalin solution using seawater, and subsequently transferred to 70% ethanol before sorting in the laboratory. Habitats and sites where samples were obtained included coral-reef associated seagrass beds and bottoms, at Islas del Rosario (ca. 10°70'N, 75°40'W), and Barú (ca. 10°10'N, 75°40'W); and estuarine seagrass beds heavily influenced by river effluents, such as south of Punta Comisario (ca. 9°33'N, 75°36'W), and Bahía de Cispatá, Gulf of Morrosquillo (ca. 9°20'N, 75°50'W). The localities and station codes used in the "Material" sections are the same as those described by Ortiz and Lemaitre (1994). The material has been deposited in the National Museum of Natural History, Smithsonian Institution, Washington, D.C., USA (USNM), with duplicates, when possible, in the Instituto de Investigaciones Marinas y Costeras "José Benito Vives De Andreis", Santa Marta, Colombia (INVEMAR). Morphological terminology follows Barnard and Karaman (1991).

RESULTS

Family Ampithoidae Stebbing, 1899

***Ampithoe hirsutimanus* n.sp.**
Figs. 1 - 5

Ampithoe sp.- Ortiz and Lemaitre, 1994: 123.

Material. Holotype: male (3.5 mm), North entrance to Ciénaga de Cholón, Barú, sta. B3, 1-2 m, 18 Jul. 1991, USNM 266447. Paratypes: 5 ovigerous females, 2 males, same sta. as holotype, USNM 266448,

INVEMAR-CRU 1319.

Diagnosis. Coxae 1-4 high and wide; coxa 1 rounded in male. Gnathopod 1 (Fig. 3A) with article 5 slightly shorter than article 6; article 6 with spine on palmar corner. Gnathopod 2 (Fig. 3B) of male with articles 5-7 covered with tufts of long setae. Pereopod 3 (Fig. 1A) with article 2 stouter than in pereopod 4. Sternal keel on pereon segment 7 rounded. Epimera 1-3 (Fig. 1B) lacking setae or spines; epimera 1 and 2 rounded; epimeron 3 with lower border concave.

Additional description. Eye subcircular (Fig. 1A). Article 1 (Fig. 1A) of antenna 1 as long as head, with 2 tufts of setae and 2 small spines on ventral margin distally; other articles of antenna 1 missing in material examined. Article 1 (Fig. 1A) of antenna 2 short, slightly less than half length of article 2, article 2 with long setae; other articles of antenna 2 missing in material examined.

Pereon, pleon, and urosome smooth dorsally. Coxa 5 excavate on posterior margin. Coxa 6 with lower margin rounded. Coxa 7 weakly bilobed.

Lower lip (Fig. 2G) with inner and outer lobes rounded; outer lobes notched, apical lobules slender, slightly pointed. Upper lip (Fig. 2F) rounded, with setae on margin medially. Maxilliped (Fig. 2A) with inner lobe bearing 4 median spines, 1 hooked spine, and tuft of setae distally; outer lobe with 12 odontoid spines on inner margin (spines gradually increasing in length distally); palp with article 2 extending past outer lobe, articles 2 and 3 densely setose. Mandible (Fig. 2B) with strongly toothed incisor; with 5 (left) or 3 (right) raker spines; lacinia mobilis (Fig. 2C) with 6 teeth; molar large, triturative; article 3 of palp with terminal row of 10 long, simple setae. Maxilla 1 (Fig. 2D) with inner lobe small, with few short setae; outer lobe with 6 stout spines; palp 2-segmented, terminal segment with 5-7 spines distally, and oblique row of setae. Maxilla 2 (Fig. 2E) with lobes subequal in size and setose distally.

Gnathopod 1 (Fig. 3A) with article 2 lacking setae; article 5 slightly shorter than article 6, both articles setose on ventral margins; palm of article 6 short, armed with palmar spine. Gnathopod 2 (Fig. 3B) with article 5 as long as article 6, both articles with very long setae on upper and lower margins; dactyl slightly exceeding concave palm.

Pereopods 3 and 4 (Fig. 3C, D) similar; article 2 with convex margin. Remaining pereopods missing in material examined.

Uropod 1 (Fig. 4A) with rami shorter than peduncle; peduncular process absent. Uropod 2 (Fig. 4B) with rami spinose. Uropod 3 (Fig. 4D) peduncle moderately elongate.

Telson (Fig. 4C) subtriangular, with rounded apex and low cusps.

Female. Differs from male in having coxa 1 (Fig. 5A) acute anteriorly; coxa 2 subquadrate; gnathopod 2 (Fig. 5B) with article 6 longer than article 5, and article 5 covered with short setae.

Etymology. The species name is derived from the Latin *hirsutus*, hairy, and *manus*, hand, and refers to the long and dense tufts of hairs on articles 5 and 6 of gnathopod 2.

Relationships. Only three species of ampithoids, *Ampithoe longimana* Smith, 1853, *A. marcuzzi* Ruffo, 1954, and *A. ramondi* Audouin, 1826, share with *A. hirsutimanus* n.sp., the long and dense setation present in gnathopod 2 of adult males. The new species is most similar to *A. longimana*. The two can be separated by the presence in the new species of a rounded coxa 1 in adult males; a shorter article 6 on male gnathopod 1, with a spine near the palmar corner; a longer article 5 on male gnathopod 2; and a more rounded third epimeron. In females of the new species, article 5 of gnathopod 2 is longer than in females of *A. longimana*.

Ampithoe hirsutimanus n.sp. differs from *A. marcuzzi* in the morphology of the palm of gnathopod 1. The palm is short in the new species, whereas it is long and sinuous in *A. marcuzzi*. In addition, article 6 of male gnathopod 2 is covered with tufts of very long setae in the new species, whereas the setae are shorter and not as dense in *A. marcuzzi*.

Ampithoe hirsutimanus n.sp. differs from *A. ramondi* by the setation of gnathopod 2. The new species has tufts of long setae on articles 5 and 6 of gnathopod 2, whereas in *A. ramondi* the setae are present only on the strongly produced anterior end of article 6.

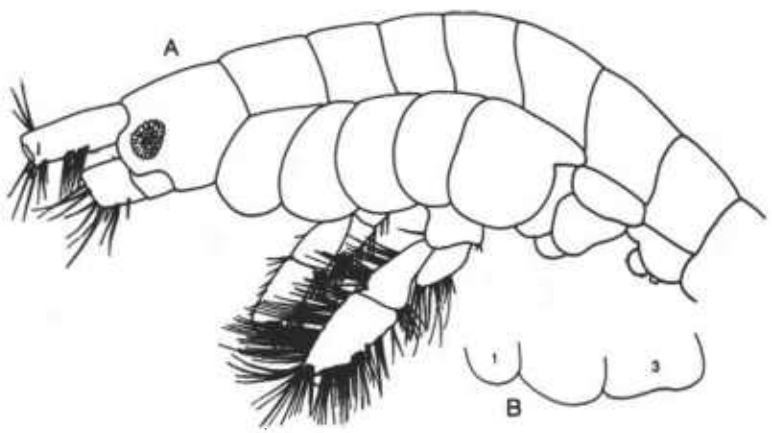

Fig. 1. *Ampithoe hirsutimanus* n.sp., male holotype, lateral view, USNM 266447: A, whole animal; B, epimera 1-3.

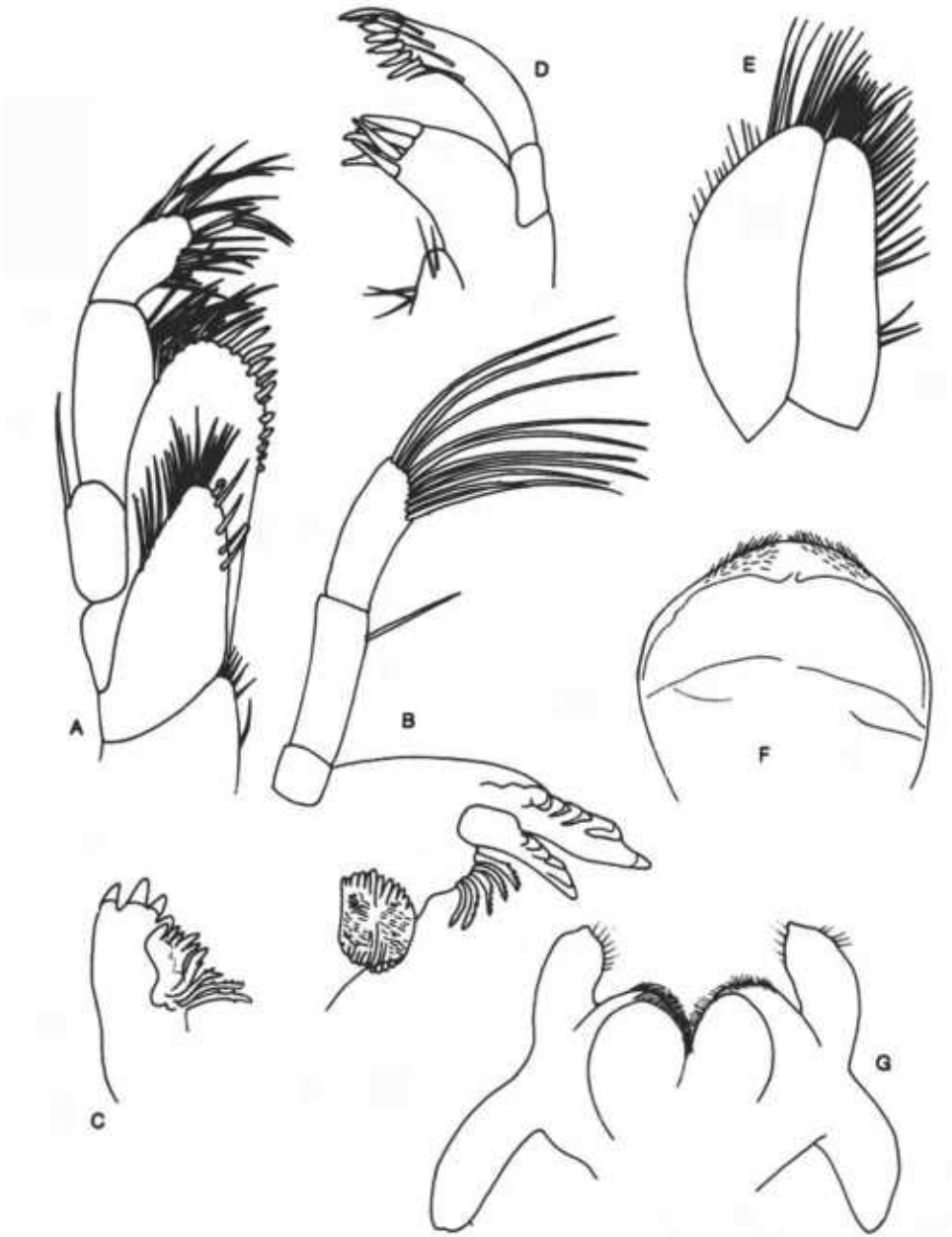

Fig. 2. *Ampithoe hirsutimanus* n.sp., male holotype, USNM 266447: A, maxilliped; B, left mandible; C, part of right mandible; D, maxilla 1; E, maxilla 2; F, upper lip; G, lower lip.

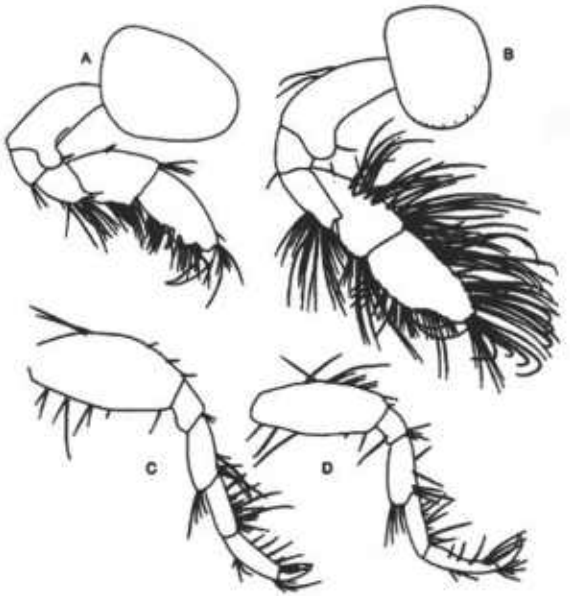

Fig. 3. Ampithoe hirsutimanus n.sp., male holotype, USNM 266447: A, gnathopod 1; B, gnathopod 2; C, pereopod 3; D, pereopod 4.

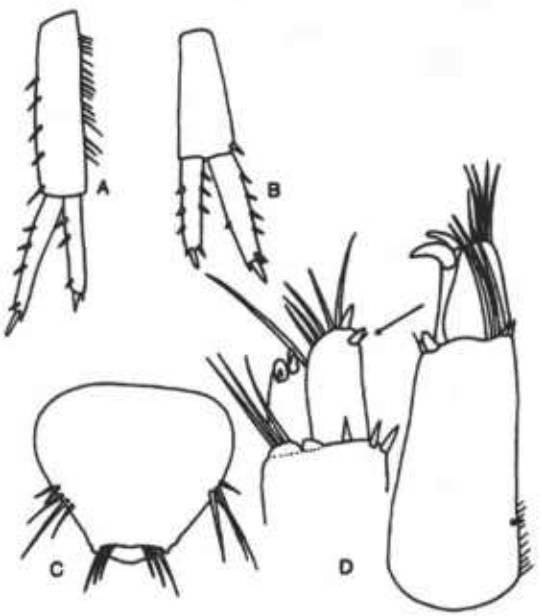

Fig. 4. Ampithoe hirsutimanus n.sp., male holotype, USNM 266447: A, uropod 1; B, uropod 2; C, telson; D, uropod 3.

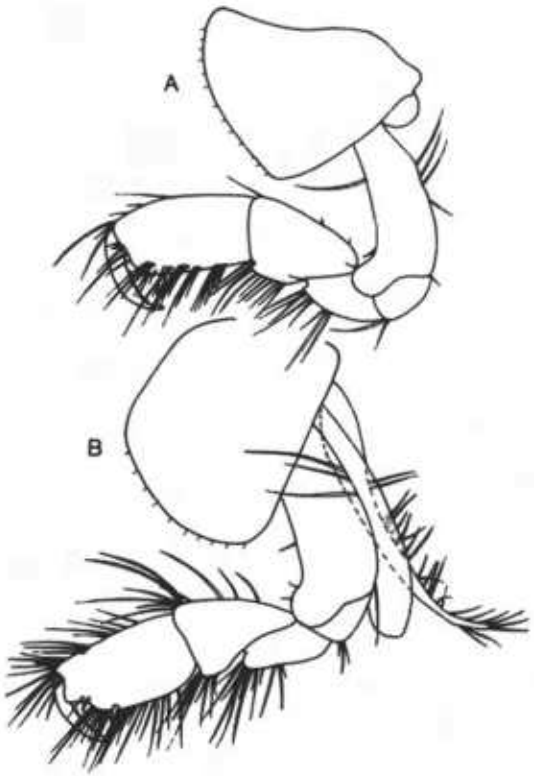

Fig. 5. *Ampithoe hirsutimanus* n.sp., female paratype, sta. B3, USNM 266448: A, gnathopod 1; B, gnathopod 2.

Family Bateidae Stebbing, 1906

Batea schotti n.sp.

Figs. 6 - 9

Batea sp.- Ortiz and Lemaitre, 1994: 124.

Material. Holotype: male (2.8 mm), South of Punta Comisario, sta. LAB1, 2-3 m, dredge, 4 Jul. 1991, USNM 266440. Paratypes: 2 males, 1 female, same sta. as holotype, USNM 266441, 266442; 8 males, 4 ovigerous females, South of Punta Comisario, sta. LAB2, 2-3 m, INVEMAR-CR 1320; 7 specimens (sex not det.), Bahía de Cispatá, Gulf of Morrosquillo, sta. A2, 2-3 m, 6 Jul. 1991, USNM 266439.

Diagnosis. Rostrum (Fig. 6, 9I) slightly curved downward, reaching to approximately 2/3 length of article 1 of antenna 1, bluntly sickle-shaped. Head (Figs. 6, 9I) with anteroventral angle slightly less than 90°. Eyes (Figs. 6, 9I)

reniform, with numerous ommatidea. Antenna 1 (Fig. 6) less than half length of antenna 2. Pereon, pleon, and urosome lacking spines or teeth on posterodorsal angle. Coxa 2 rounded. Gnathopod 2 (Fig. 8C) with oblique palm on article 6. Pereopods 3 and 4 (Fig. 8D,E) without long setae on articles 5 and 6. Epimera 1-3 (Fig. 6) with 1, 2, and 3 spines respectively on ventral margin; posterior margin of epimeron 3 with about 7 unequal serrations. Lower lip with inner lobes.

Additional description. Antenna 1 (Fig. 6) with article 3 slightly narrower and shorter than article 2; ventral margin of article 2 with short setae; flagellum with short setae ventrally, setae directed anteroventrally. Antenna 2 (Fig. 6) with peduncle lacking fascicles or setae on upper margin; flagellum multiarticulate, each article often with 1 dorsal and 1 ventral setae.

Upper lip rounded, with fringe of fine setules on rounded apex. Lower lip (Fig. 7E) with outer lobe large and densely setose; inner lobe small, rounded. Mandible (Fig. 7C) with incisor and lacinia mobilis toothed throughout; right and left mandibles each with 3 serrated, raker spines; molar strong, without plumose setule; palp with article 2 longer and stouter than article 3, articles 2 and 3 with long setae distally. Maxilla 1 (Fig. 7D) with outer plate having at most 5 or 6 toothed spines alternating with simple ones; inner plate with 5 plumose setae; article 2 of palp 1.5 as long as article 1, with 7 or 8 simple spines distally. Maxilla 2 (Fig. 7F) with outer plate having 13 long setae distally, inner plate with 8 apical and 2 plumose setae on inner margin. Maxilliped (Fig 7A) inner plate with 11 plumose setae; outer plate with 7 teeth, 3 setae; palp with article 2 setose medially and article 3 setose distally.

Gnathopod 1 (Fig. 8A, 9J) slender; article 2 lacking setae on anterior margin, at most with 3 setae on posterior margin, and tuft of setae terminally. Gnathopod 2 (Fig. 8C) with coxa about as long as combined length of articles 5 and 6. Coxa 2 (Fig. 8C) high, rounded. Coxa 3 (Fig. 8D) triangular. Coxa 4 (Fig. 8E) large, excavate posteriorly; with rounded posterior lobe. Coxa 5 (Fig. 8F) bilobed, lobes rounded.

Pereopod 5 (Fig. 8F) article 2 with small posterodistal lobe. Pereopod 6 (Fig. G) with article 2 wide, rounded, setose on front margin distally, and rounded lobe posteriorly. Coxa 6 (Fig. 8G) forming high lobe posteriorly. Pereopod 7 (Fig. 8H) with article 2 considerably expanded posteriorly. Coxa 7 smallest.

Uropod 1 (Fig. 9A) exceeding tip of uropod 2, not reaching tip of uropod 3; rami subequal in length, shorter than peduncle; peduncle with 3 marginal and 1 terminal spines. Uropod 2 (Fig. 9B) with rami shorter than peduncle; outer ramus 5/6 length of inner ramus. Uropod 3 (Fig. 9C) with short peduncle,

and subequal rami; inner ramus with spines and few setae on margin; outer ramus with spines on inner margin.

Telson (Fig. 9D) subdivided into 2 bluntly subtriangular lobes by deep median cleft extending nearly half length of telson.

Female. Larger than male, otherwise similar except as follows. Head with smaller, darker eyes. Antennae shorter. Right mandible with plumose seta on side of molar. Palp of mandible (Fig. 9G) with article 2 short and swollen. Inner lobe of maxilla 2 with 3 long plumose setae on inner margin. Gnathopod 2 (Fig. 9H) slightly shorter than other gnathopods. Coxa 3 higher than coxa 2. Coxa 5 with nearly straight posterior margin. Pereopod 6 with article 2 wider, more setose. Pereopod 7 with article 2 more ovoid. Uropod 3 with more plumose setae.

Etymology. The specific name is in honor of John Schott de la Espriella, esteemed friend and seaman who for many years has enthusiastically helped R.L. during numerous collecting trips in the vicinity of Cartagena, Colombia.

Relationships. There are ten species and one subspecies of bateid amphipods (Ortiz, 1991). Recently, Barnard and Karaman (1991) included all these bateid taxa in *Batea* Müller, 1865. In addition to *B. schotti* n.sp., five other species in the genus also lack dorsal teeth on the posterodorsal margins of pereon, pleon, and urosome; these are, *B. rectangulata* Shoemaker, 1925, *B. transversa* Shoemaker, 1926, *B. lobata* Shoemaker, 1926, *B. susurrator* Barnard, 1969, and *B. catharinensis* Müller, 1865. The new species, *B. schotti*, differs from *B. rectangulata* in having coxa 2 rounded, the posterior border of epimeron 3 (Fig. 9E) with unequal serrations, and a lower lip with inner lobes. From *B. transversa* in the shape of the palmar corner of gnathopod 2, and the lower lip with inner lobes. From *B. lobata* in the presence of two or three spines on each of the outer margins of the lobes of the telson, and the presence of inner lobes on the lower lip. From *B. susurrator* in the less acute rostrum, and the presence of inner lobes on the lower lip, ventral border of epimeron 3 with at most 3 spines, and uropod 3 less setose. From *B. catharinensis* in the absence of posteriorly directed setae on the ventral margin of the flagellar articles of antenna 1, the posterior border of epimeron 3 with unequal teeth, and the less setose mandibular palp and articles 5 and 6 of pereopods 3 and 4.

Batea schotti n.sp. can also be distinguished from all dorsally unarmed species in the genus by the relatively smaller body length of adults in both sexes. Males and females of this new species were found to be mature at sizes as small as 2.4 mm body length, whereas other species are known to reach maturity only after reaching a size of 4-5 mm (Shoemaker, 1926; Barnard, 1969). The size at which specimens of *B. schotti* n.sp. reach maturity is the smallest recorded so far in species of *Batea*.

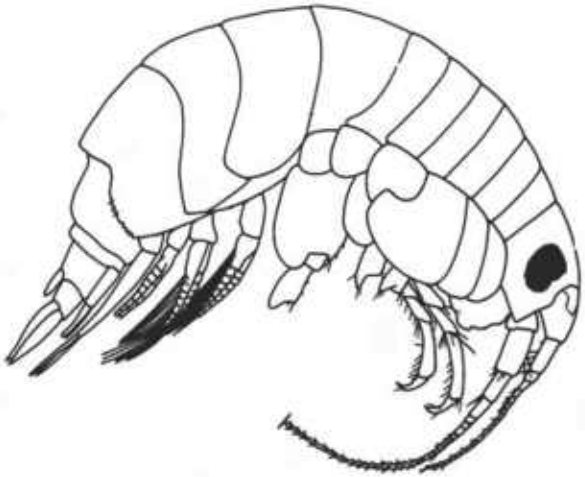

Fig. 6. *Batea schotti* n.sp., male holotype, lateral view, USNM 266440.

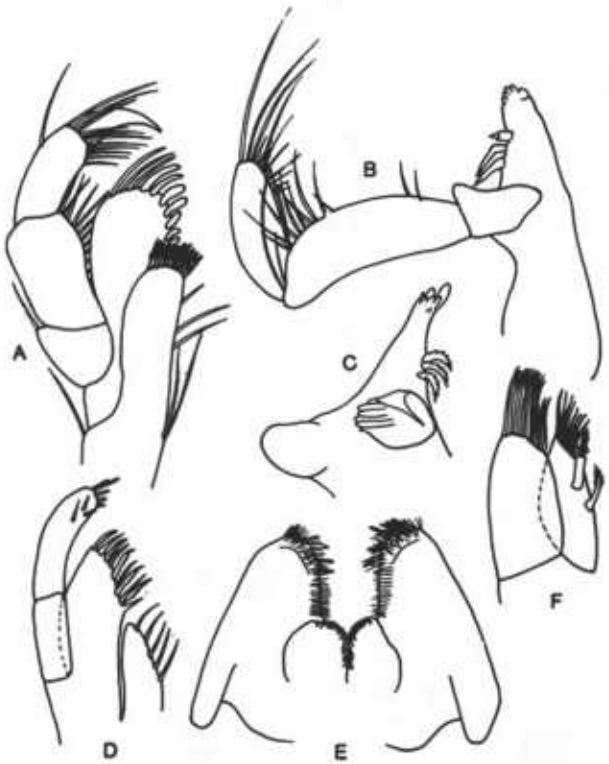

Fig. 7. *Batea schotti* n.sp., male holotype, USNM 266440: A, maxilliped; B, right mandible; C, left mandible; D, maxilla 1; E, lower lip; F, maxilla 2.

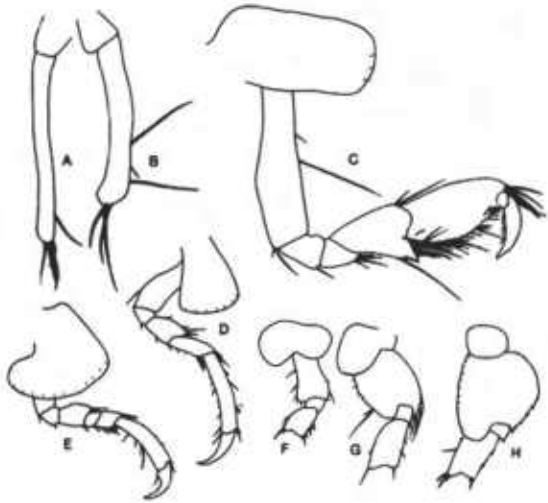

Fig. 8. *Batea schotti* n.sp., A,C-H, male holotype, USNM 266440; B, male paratype, sta. LAB1, USNM 266441: A, gnathopod 1; B, gnathopod 1; C, gnathopod 2; D, pereopod 3; E, pereopod 4; F, pereopod 5; G, pereopod 6; H, pereopod 7.

Fig. 9. *Batea schotti* n.sp., A-E, male holotype, USNM 266440; F-J, female paratype, sta. LAB1, USNM 266441: A, uropod 1; B, uropod 2; C, uropod 3; D, telson; E, epimerum 3; F, left mandible; G, palp of same; H, gnathopod 2; I, head; J, gnathopod 1.

Family Corophiidae Dana, 1849

Caribboecetes justi n.sp.
Figs. 10 - 14

Caribboecetes sp.- Ortiz and Lemaitre, 1994: 124.

Material. Holotype: female with oostegites (1.9 mm), Southwest end of Ciénaga de Cholón, Barú, sta. B2, 2-3 m, 18 Jul. 1991, USNM 266443. Paratypes: 3 females, sta. B3, North entrance to Ciénaga de Cholón, Barú, 1-2 m, dredge, 18 Jul. 1991, USNM 266445; 4 females, Southwest side of Isla Grande, Islas del Rosario, sta. IR4, 17 Jul. 1991, INVEMAR-CR 1321; Bahía de Cispatá, Gulf of Morrosquillo, dredge, 2-3 m, 6 Jul. 1991: 1 female, sta. A1, INVEMAR-CR 1322; 2 females, sta. A2, USNM 266444.

Diagnosis. Rostrum (Fig. 11I) acute, triangular, reaching beyond eye lobes. Antenna 1 (Fig. 10) with article 1 unarmed. Antenna 2 (Fig. 10) as long as combined length of cephalon and pereon; articles 4 and 5 moderately setose; spatulate process of article 2 with 3 long setae. Coxae 1-7 (Fig. 10) with long marginal, simple setae; coxa 2 with plumose setae. Coxae 3 and 4 with blunt apex. Gnathopod 2 (Fig. 12B) with article 6 simple, armed with large sabre-shaped spine on ventral margin. Pereopod 7 (Fig. 13E) with article 2 having long plumose setae on anterior and posterior margins.

Additional description. Cephalon and pereon (Fig. 10) almost naked, with scattered simple setules. Antenna 1 (Fig. 10) slightly shorter than antenna 2, with sensory organs (aesthetascs) on last 4 articles. Antenna 2 (Fig. 10) with 3 spines and setae on terminal article.

Lower lip (Fig. 11H) with outer and inner lobes rounded. Upper lip (Fig. 11F) weakly bilobed. Maxilliped (Fig. 11C) inner lobe with simple spines and setae; outer lobe with 5 odontoid spines distally. Maxilla 1 (Fig. 11E) with inner lobe vestigial; outer lobe with 6 spines (3 subapical); palp with 2 articles, 5 apical spines and 3 setae. Mandible (Fig. 11A,B) with large molar, well developed incisor, and 4-toothed lacinia mobilis; left (Fig. 11A) and right (Fig. 11B) mandibles with 3 and 2 raker spines respectively; palp formed of 1 article, with minute serrated margins, and 4 or more setae.

Gnathopod 1 (Fig. 12A) slender; article 5 nearly as long as article 6; palm poorly developed, inconspicuous. Gnathopod 2 (Fig. 12B) robust; article 2 distinctly inflated; article 5 with ventral angle acute and with spine; article 6 longer than article 5, ventral margin armed with 3 spines (2 small proximally, and 1 large saber-shaped distally with irregularly crenulate margins).

Pereopod 3 (Fig. 13A) with article 2 very wide; article 4 bilobed; article 5 with 4 spines on posterior margin; article 6 naked; dactyl almost as long as

combined length of articles 5 and 6. Pereopod 4 (Fig. 13B) with article 2 widest; article 4 with bluntly triangular lobe anteriorly; article 5 with 5 spines on posterior margin; dactylus straight, slender, as long as combined length of articles 5 and 6. Pereopod 5 (Fig. 13C) with articles 2-4 narrow, short; dactylus slightly curved. Pereopod 6 (Fig. 13D) similar to pereopod 5 except for more rounded article 5. Pereopod 7 (Fig. 13E) longest; article 2 widest; articles 3 and 4 short; article 5 and 6 nearly equal in length; dactylus slightly curved, naked.

Pleopods with 2 coupling serrated spines (Fig. 14A).

Uropod 1 with outer ramus nearly as long as peduncle; uropod 2 (Fig. 14C) armed with 8 spines increasing in length distally, inner ramus short, armed with 3 spines. Uropod 3 (Fig. 14D) with rounded apex, and 7 setae of which 3 subapical are longest.

Telson with small oval field of spines covering 1/4 of lateral margins.

Male. Unknown.

Etymology. The specific name honors Jean Just, in recognition of his many significant contributions to the knowledge of amphipods of the family Siphonoecetinae.

Relationships. *Caribboecetes justi* n.sp. is similar to *C. intermedius* Just, 1984, *C. peterycornis* Just, 1984, and *C. crassicornis* Just, 1984. The new species differs from *C. intermedius* by the lack of spines on article 1 of antenna 1; the slender articles 5 and 6 of gnathopod 1; gnathopod 2 with very broad articles 2, 5 and 6, a poorly developed palm, and a large saber-shaped spine on the ventral margin of article 6; and pereopod 3 with article 5 armed with 4 spines on the ventral margin. From *C. peterycornis* by the triangular rostrum; straight article 1 of antenna 1 (in lateral view); the poorly developed palm of article 6 of gnathopod 2; and the saber-shaped spine on the ventral margin of article 6 of gnathopod 2. From *C. crassicornis* by the triangular, smooth rostrum; long antennae, and straight article 1 of antenna 2; poorly developed palm on article 6 of gnathopod 2; and the saber-shaped spine on the ventral margin of article 6 of gnathopod 2.

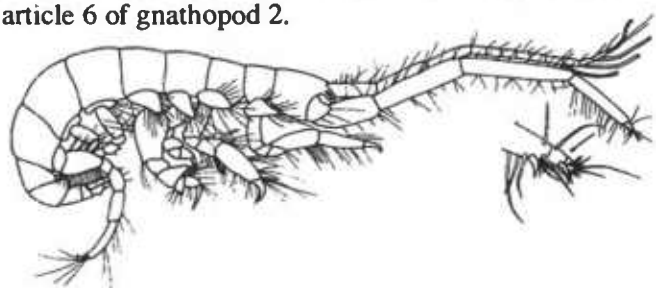

Fig. 10. *Caribboecetes justi* n.sp., female holotype with detail of lip of antenna 2, lateral view, USNM 266443.

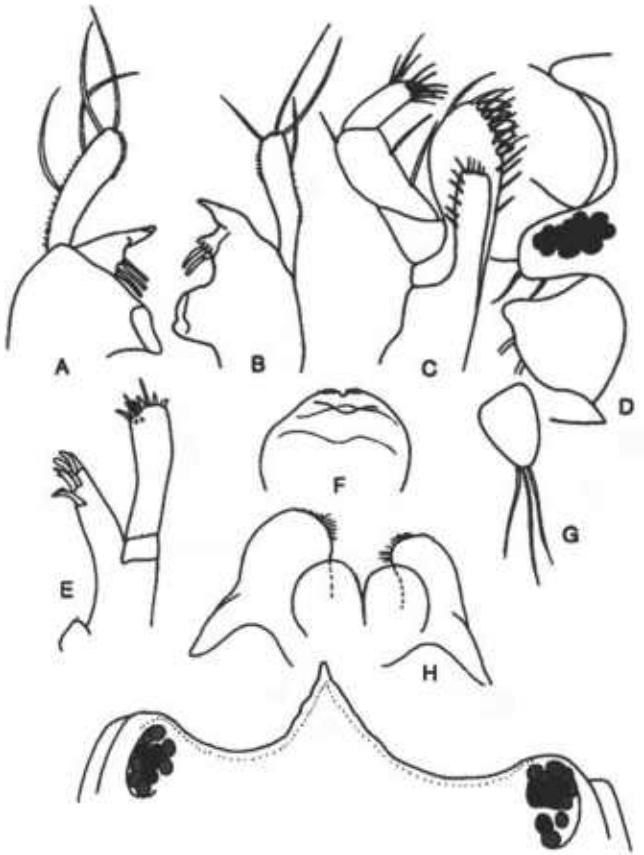

Fig. 11. *Caribboecetes justi* n.sp., female holotype, USNM 266443: A, left mandible; B, right mandible; C, maxilliped; D, lateral view of head showing the eye; E, maxilla 1; F, upper lip; G, ventral process of article 2 of antenna 2; H, lower lip; I, dorsal view of head showing the rostrum.

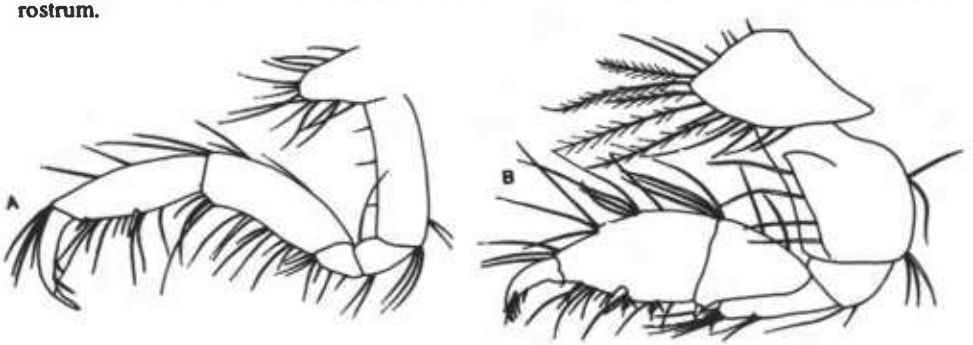

Fig. 12. *Caribboecetes justi* n.sp., female holotype, USNM 266443: A, gnathopod 1; B, gnathopod 2.

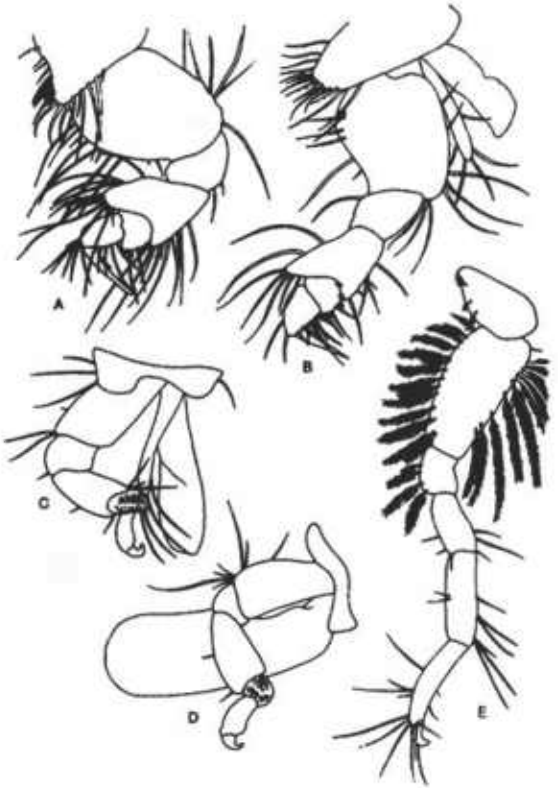

Fig. 13. *Caribboecetes justi* n.sp., female holotype, USNM 266443: A, pereopod 3; B, pereopod 4; C, pereopod 5; D, pereopod 6; E, pereopod 7.

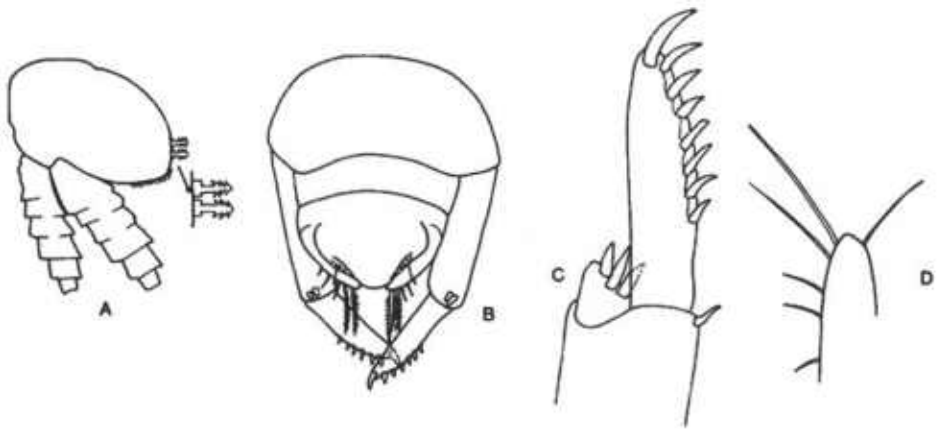

Fig. 14. *Caribboecetes justi* n.sp., female holotype, USNM 266443: A, pleopod 1; B, urosome, dorsal view; C, uropod 2; D, uropod 3.

Cerapus thomasi n.sp.
Figs. 15 - 20

Cerapus sp.- Ortiz and Lemaitre, 1994: 124.

Material. Holotype: male (2.2 mm), Bahía de Cispatá, Gulf of Morrosquillo, sta. A3, 2-3 m, 6 Jul. 1991, dredge, USNM 266455. Paratypes: 1 male, 1 female, South of Punta Comisario, sta. LAB1, 2-3 m, 4 Jul. 1991, INVEMAR-CR 1323, 1324; female, South of Punta Comisario, sta. LAB2, 2-3 m, 4 Jul. 1991, USNM 266457; 5 males, 16 females, (4 in tubes), same sta. as holotype, USNM 266458; 5 males, 6 females, Bahía de Cispatá, Gulf of Morrosquillo, sta. A4, 2-3 m, dredge, USNM 266456.

Diagnosis. Male antenna 1 (Fig. 15) with peduncle approximately 2/3 length of flagellum; flagellum with 4 articles. Male antenna 2 (Fig. 15) with peduncle nearly 2 times length of flagellum; flagellum with 4 articles. Pereon not constricted between segments 1 and 2; segment 1 lacking lateral keel; male with short sternal keel between segments 1 and 2. Male gnathopod 2 (Fig. 17B) strong; article 5 distinctly bifid at anteroventral angle; article 6 twice as long as wide; dactylus long, curving evenly posteriorly. Pleopod 2 (Fig. 18B) with inner ramus about half as long as outer ramus. Uropod 1 (Fig. 18E) with large peduncular hook. Female antennae 1 and 2 with darkly colored distal band (preserved specimens, Fig. 19A) on articles 3 and 5.

Additional description. Rostrum (Fig. 15B) short. Lateral cephalic lobe with anteroventral angle nearly 90°. Pereon (Fig. 15) with short sternal keel between segments 1 and 2. Antenna 1 more than half body length. Antenna 2 (Fig. 19A) with article 5 having dark band distally. Epistome slightly convex.

Upper lip (Fig. 16B) bilobed. Lower lip (Fig. 16F) with rounded lobes. Maxilliped (Fig. 16C) with inner plate with 3 odontoid spines and 5 simple setae; outer plate large, with 2 thick apical setae and 5 broad blunt spines on inner margin; palp with article 2 setose along distal half of inner margin, article 3 setose distally, and article 4 with strong terminal spine. Right mandible with 5 teeth on incisor; lacinia mobilis with 1 large tooth; with 3 raker spines; molar triturative, without plumose setae; palp with article 2 longest, and article 3 with 4 setae distally. Left mandible with 6 teeth on incisor; lacinia mobilis 3 to 5-cuspidate; with 4 raker spines. Maxilla 1 (Fig. 16D) with inner plate small, naked; outer plate with 6 simple setae and bifid spine; palp with article 2 having 8 simple setae (1 subterminal). Maxilla 2 with inner plate narrower than outer plate, both plates with only apical setae.

Coxa 1 (Fig. 15A) small, subrectangular. Gnathopod 1 (Fig. 17A) with article 5 slightly shorter than article 6; article 5 ventral margin with tuft of

setae, and large spine anteriorly; article 6 ventral margin with few plumose and simple setae; dactyl shorter than length of lower margin of article 6. Coxa 2 (Figs. 15A) subrectangular. Coxa 3 (Figs. 15A) half as wide as article 2 of pereopod 3. Pereopod 3 (Fig. 17C) with article 2 strong, as long as combined length of all other articles. Coxa 4 wide. Pereopod 4 (Fig. 17D) with article 2 longer than article 5; dactylus short. Coxa 5 (Figs. 15A) expanded anteriorly; posterior margin rounded. Pereopod 5 (Fig. 17E) with article 2 nearly as wide as long; article 3 short, narrow; article 4 with strong posterior lobe having long setae; article 5 curved posteriorly; posterior region with striae and seta; dactylus small, with 2 hook-like spines distally. Coxa 6 (Figs. 15A) about as long and wide as article 2 of pereopod 6. Pereopod 6 (Fig. 17F) with article 4 longer than article 5; article 5 shortest; dactylus short, with 2 hook-like spines subdistally. Coxa 7 (Fig. 15A) smaller than article 2 of pereopod 7. Pereopod 7 (Fig. 17G) longer than 5 and 6; article 2 slightly bilobed posteriorly; distal portion of articles 4 and 5 with tufts of long setae.

Uropod 2 (Fig. 18F) with short ramus. Uropod 3 (Fig. 18G) with 1 short curved spine apically.

Telson (Fig. 18H) with 2 groups of low rounded spines arranged in parallel rows.

Female. Similar to male except as follows. Antennae 1 and 2 (Fig. 19A) with less articles on flagella. Pereopod 3 (Fig. 20A) with article 2 having right-angled protuberance directed anteriorly. Peduncle of uropod 1 (Fig. 19B) lacking hooked spine.

Etymology. This species is named for our colleague James D. Thomas, in recognition of his work on marine amphipods, as well as for help in the determination of this new peracarid.

Relationships. *Cerapus thomasi* n.sp. is the second species of *Cerapus* in which males have a very large lateral peduncular hook on the ventrodistal margin of uropod 1. The other is *C. cudjoe* Lowry and Thomas, 1991, described from Florida. The new species differs from *C. cudjoe* in having no constriction between pereon segments 1 and 2; gnathopod 2 has article 5 with a bifid ventrolateral angle, and article 6 is twice as long as wide; article 2 of pereopod 5 is large (in both sexes) when compared with coxa 5; a rounded hooked spine on the tip of uropod 3; wide and prominent dark bands on the antennae; and rows of blunt spines on the telson.

Other western Atlantic congeners of *C. thomasi* with unarmed uropod 1 are *C. benthophilus* Thomas and Heard, 1979, from Florida, and *C. tubularis* Say, 1817, reported from the Caribbean by Lowry & Berents (1989).

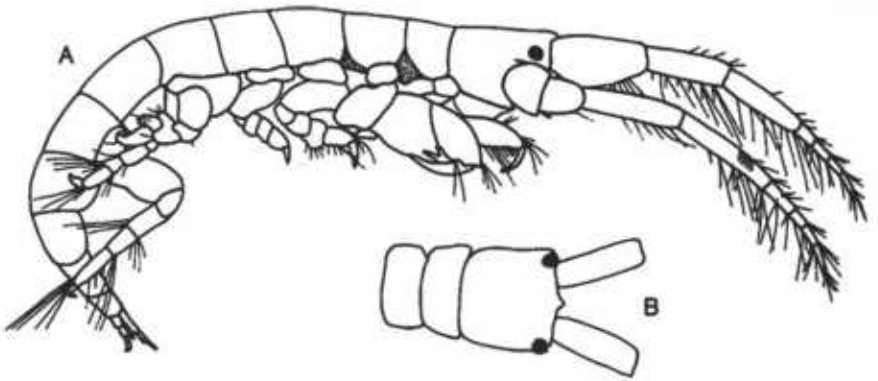

Fig. 15. *Cerapus thomasi* n.sp., male holotype, USNM 266455: A, whole animal, lateral view; B, head and first two segments of pereon, dorsal view.

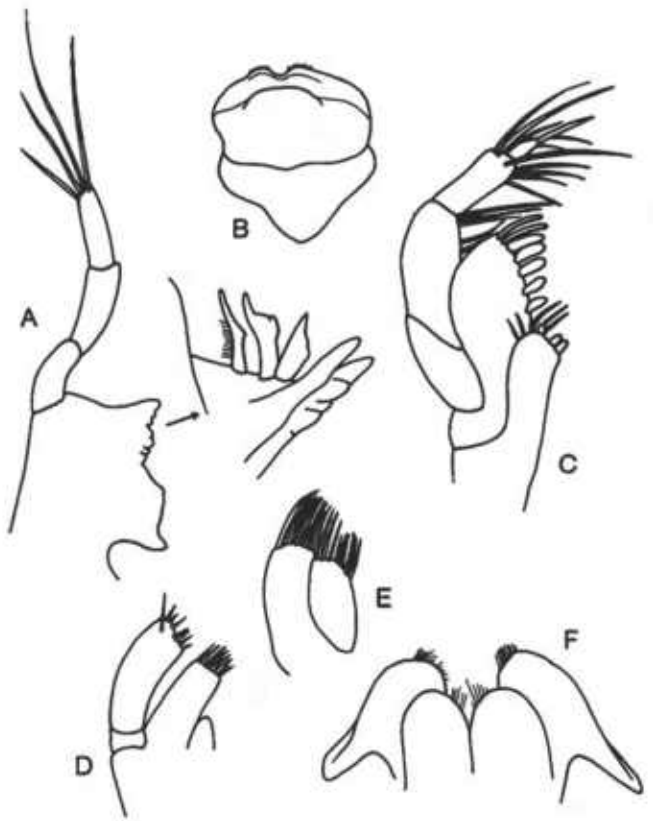

Fig. 16. *Cerapus thomasi* n.sp., male holotype, USNM 266455: A, right mandible; B, upper lip; C, maxilliped; D, maxilla 1; E, maxilla 2; F, lower lip.

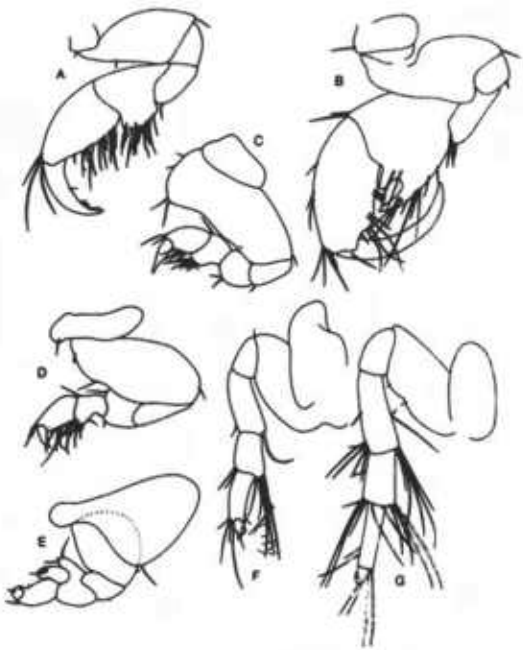

Fig. 17. *Cerapus thomasi* n.sp., male holotype, USNM 266455: A, gnathopod 1; B, gnathopod 2; C, pereopod 3; D, pereopod 4; E, pereopod 5; F, pereopod 6; G, pereopod 7.

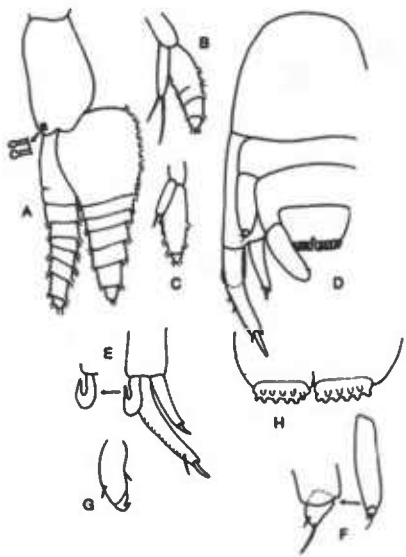

Fig. 18. *Cerapus thomasi* n.sp., male holotype, USNM 266455: A, pleopod 1; B, pleopod 2; C, pleopod 3; D, urosome, dorsal view; E, uropod 1; F, uropod 2; G, uropod 3; H, telson. (Setae partially illustrated in A,B,C)

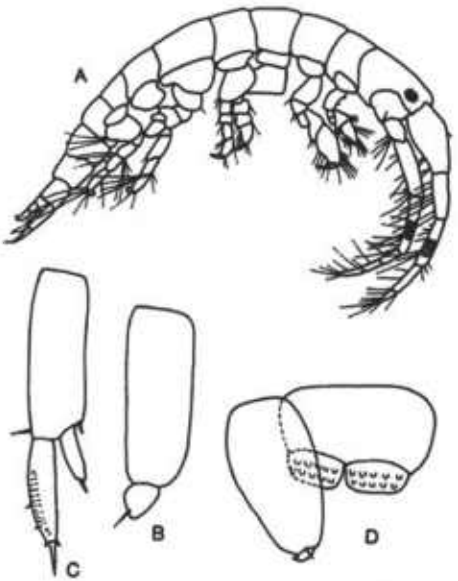

Fig. 19. *Cerapus thomasi* n.sp., female paratype, sta. LAB2, USNM 266457: A, whole animal, lateral view; B, uropod 1; C, uropod 2; D, left uropod 3 and telson. (Stippled area on antennae 1, 2 indicate color pattern in preserved specimen).

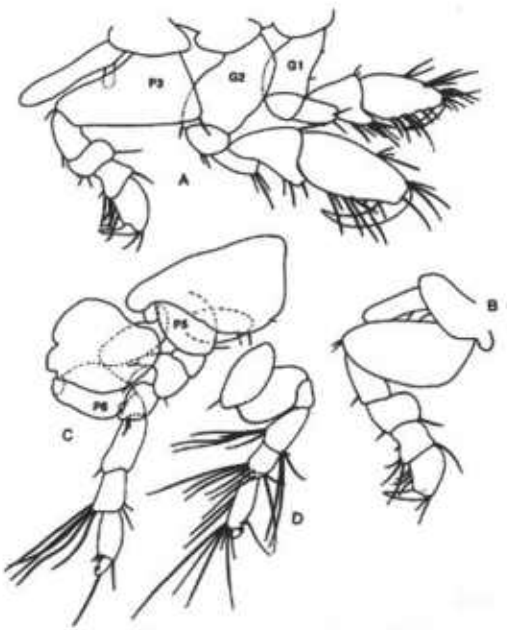

Fig. 20. *Cerapus thomasi* n.sp., female paratype, sta. LAB2, USNM 266457: A, gnathopods 1,2 (G1,2) and pereopod 3 (P3); B, pereopod 4; C, pereopods 5,6 (P5,6); D, pereopod 7.

Lembos scolosternum n.sp.
Figs. 21 - 23

Lembos sp.- Ortiz and Lemaitre, 1994: 124.

Material. Holotype: male (4.2 mm), South of Punta Comisario, sta. LAB 2, 4 Jul. 1991, 2-3 m, USNM 266452. Paratypes: 4 males, 1 ovigerous female, same sta. as holotype, USNM 266453, 266454.

Diagnosis. Head with cephalic lobe rounded. Eye subcircular (Fig. 21A). Interantennular process absent below rostrum. Pereon weakly pigmented. Pereonal segments 1-5 each with small blunt or sharp spine on sternum. Sternal spine 1 and 5 obsolete. Sternal spines on segments 2-4 short, well defined, directed posteroventrally. Epimera 1-3 (Fig. 21A) with rounded ventral margin. Anterior margin of inner plate, outer plate, and palp article 1 of maxilliped (Fig. 22A) without "wing-like" process. Gnathopods sparsely setigerous. Gnathopod 1 (Fig. 23A) with inflated article 2; article 6 with well developed spine behind palmar corner; article 6 more than 4 times length of article 5. Gnathopod 2 (Fig. 23B) article 5 with anterodistal margin weakly convex. Peduncle of uropod 1 (Fig. 21B) with ventrodistal interramal process.

Additional description. Antenna 1 (Fig. 21A) article 1 with terminal spine on ventral margin (rest of antenna missing in material examined). Antenna 2 (Fig. 21A) article 1 naked dorsally.

Upper lip (Fig. 22F) slightly bilobate. Left mandible (Fig. 22B) with 4 teeth on incisor process, 5 teeth on lacinia mobilis, 4 raker spines, and 4 simple setae; molar triturative, well developed; article 3 of mandibular palp almost twice as long as article 2, covered with setae on 3/4 length of inner margin. Right mandible (Fig. 22C) with 5 teeth on incisor, 3 teeth on lacinia mobilis, 2 raker setae, and 4 simple and 1 minute plumose setae. Maxilla 1 (Fig. 22D) with inner lobe very small; with 1 long plumose setae; outer lobe with 9 toothed spines. Maxilla 2 (Fig. 22E) with outer lobe longer than inner lobe, covered with long setae only on tip; inner lobe with oblique row of long setae. Maxilliped (Fig. 22A) inner lobe with 4 odontoid spines (1 subapical); outer lobe with 8 odontoid spines; palp with setae on inner margin of articles 2,3, and on apical part of 3 near dactylus. Lower lip (Fig. 22G) outer plate with numerous fine setae on distal margin; inner plate subquadrate.

Gnathopod 1 (Fig. 23A) with coxa shallow, rounded anteriorly; article 5 not reduced, forming short setigerous lobe; palm border with upper margin near insertion of dactylus weakly convex; dactylus considerably overlapping palm. Gnathopod 2 (Fig. 23B) with coxa wider than high; article 2 with quadrate anterodistal angle; article 3 lacking tooth; article 5 longer than 6, both moderately setigerous ventrally; article 6 with spine defining palm; dactylus

overreaching palm, with 10 small setae near inner margin. Gnathopod 3 (Fig. 23C) with coxa subquadrate; article 2 almost as long as 4 and 5 combined; anteroventral corner not produced; article 6 longer and narrower than 5, all with few setae; dactylus slender.

Uropod 2 (Fig. 21D) with peduncle slightly longer than rami; interramal process 1/3 length of outer ramus. Uropod 3 (Fig. 21D) with inner ramus slightly longer than outer ramus; both rami longer than peduncle, and with tufts of setae apically.

Telson (Fig. 21D) bearing 1 long and 1 short setae near distolateral corner.

Female. Similar to male, but lacking sternal spines, and with gnathopod 1 (Fig. 23D) as large as 2 (Fig. 23E). An oblique palm defined by the palmar spine is present in both gnathopods. Other differences are as follows. Coxa 1 quadrate. Gnathopod 1 with article 2 nearly devoid of setae or spines; article 6 longer than 5, both with densely setigerous margins. Coxa 2 rounded. Gnathopod 2 (Fig. 23E) with article 5 half length of 6, both with tufts of setae ventrally; dactylus overlapping palm.

Etymology. The specific name is a compound derived from the Greek words *skolos*, anything pointed, and *sternon*, chest, and refers to the armed condition of the pereonal sternites in males.

Relationships. The genus *Lembos* s.l. is represented by 21 species in the Gulf of Mexico and Caribbean Sea (Ortiz 1979, Ortiz and Lalana, 1993). Recently, however, Myers (1988) separated *Lembos* s.l. into several new genera, and restricted *Lembos* Bate, 1857, to include only two species from the Caribbean, *L. unifasciatus* Myers, 1977, and *L. websteri* Sars, 1894. Myers (1977, 1988) also proposed two subspecies for *L. unifasciatus*, one of which was reported from the Caribbean coast of Colombia (Ortiz, 1983).

Lembos scolosternum n.sp. differs from *L. websteri* primarily by the absence of wing-like processes on the outer plate and palp of article 1 of the maxilliped; the sternal spines on the pereonal segments, which are small on segments 1-5; and the occasional short setation of articles 5 and 6 of gnathopod 1. The new species can be separated from *L. unifasciatus unifasciatus* Myers, 1977, and *L. u. reductus* Myers, 1979, by the different armature of the sternites of the pereonal segments, which are small on segments 1-5; in males, the broad article 2 of gnathopod 1, and the large spine behind the tooth of the palmar corner of gnathopod 1; the quadrate lower lip; the greater number of spines on the peduncle and uropodal rami; and the longer interramal spine of uropods 1 and 2.

Lembos scolosternum n.sp. differs from other superficially similar species that occur in the area of the genera *Bemlos* Shoemaker, and *Plesiolembos* Myers, in the armature of the pereonal sternites, the spine

behind the tooth of the palmar angle of male gnathopod 1, and the greater number of spines on the uropods.

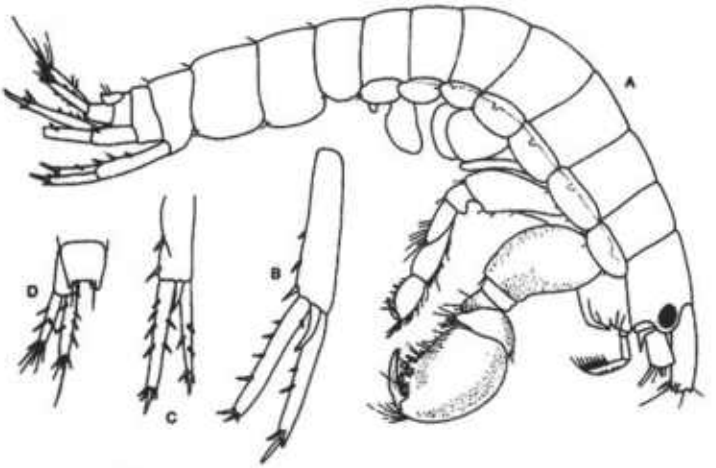

Fig. 21. *Lembos scolosternum* n.sp., male holotype, USNM 266452: A, whole animal, lateral view; B, uropod 1; C, uropod 2; D, uropod 3 and telson.

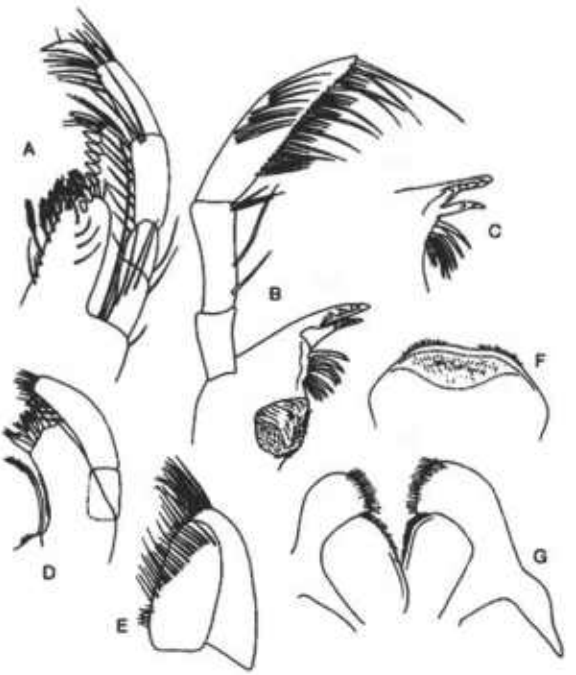

Fig. 22. *Lembos scolosternum* n.sp., male holotype, USNM 266452: A, maxilliped; B, left mandible; C, right mandible; D, maxilla 1; E, maxilla 2; F, upper lip; G, lower lip.

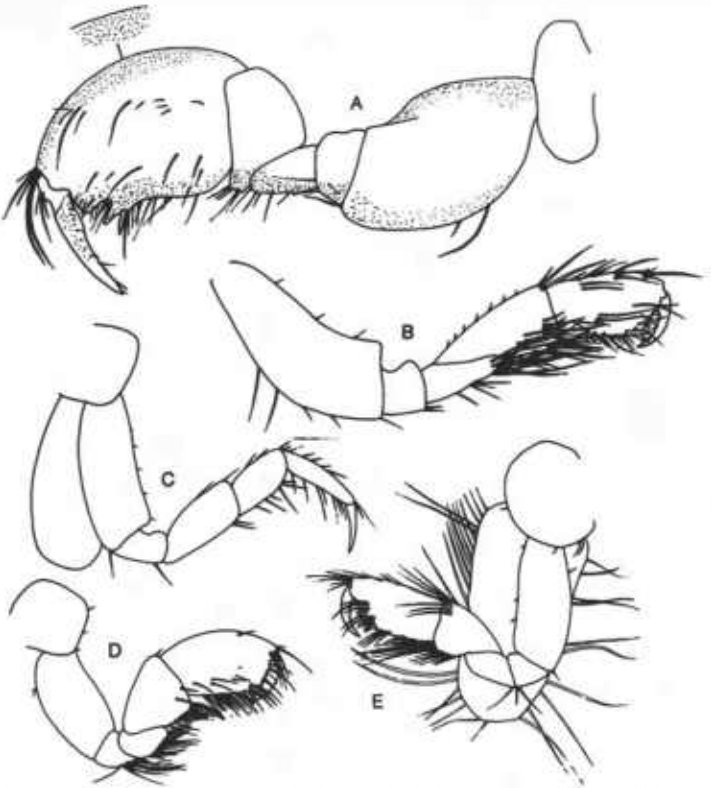

Fig. 23. *Lembos scolosternum* n.sp., A-C, male holotype, USNM 266452; D-E, female paratype, sta. LAB2, USNM 266453: A, gnathopd 1; B, gnathopod 2; C, pereopod 3; D, gnathopod 1; E, gnathopod 2.

Family Eusiridae Stebbing, 1888

Nasageneia comisariensis n.sp.

Figs. 24 - 27

Nasageneia sp..- Ortiz and Lemaitre, 1994: 124.

Material. Holotype: ovigerous female (2.9 mm), South of Punta Comisario, sta. LAB1, 4 Jul. 1991, 2-3 m, USNM 266449. Paratypes: 3 males, 3 females, same sta. as holotype, USNM 266450, 266451.

Diagnosis. Eyes (Fig. 24A) relatively small. Pereon (Fig. 24A) segments smooth. Pleon (Fig. 24A) segments slightly carinate. Epimeron 1 (Fig. 24A) ventral margin armed with 1 spine, epimeron 2 with 2, epimeron 3 with 3. Epimeron 3 with irregularly shaped serrations. Gnathopod 1 (Fig. 27A) with 1 spine and 4 setae on palmar corner. Gnathopod 2 (Fig. 27B) with

2 spines and 3 setae on palmar corner. Uropod 3 (Fig. 24D) with peduncle lacking spines or setae. Telson (Fig. 24E) with median cleft more than half length of telson. Maxilliped inner lobe with 3 odontoid spines on apical border. Lower lip (Fig. 25E) lacking inner lobes.

Additional description. Head (Fig. 24A) with rostrum directed downward; anteroventral angle about 90°. Eyes (Fig. 24A) with ommatidea darkening towards center of eye. Antenna 1 shorter than antenna 2, equal to half body length; with aesthetascs on most joints of flagellum.

Outer lobe (Fig. 25A) of maxilliped not reaching palp article 2; articles 2 and 3 of palp with densely setigerous inner margins. Left mandible (Fig. 25B) with incisor armed with 8 teeth; lacinia mobilis bifid, with 3 serrated raker spines; molar prominent, without plumose setae. Right mandible (Fig. 25C) with 4-toothed incisor; lacinia mobilis with 6 teeth, and 4 raker spines. Mandibular palp article 2 with 4 distal setae; article 3 elongate, with 7 or 8 setae on inner margin. Maxilla 1 (Fig. 25D), inner lobe with 3 spines and row of short setae; outer lobe with 5 serrate spines, and few simple setae; article 2 of palp with 6 setae on distal margin. Maxilla 2 (Fig. 25F), inner lobe with 12 distal setae, and 3 strong spines laterally. Lower lip (Fig. 25E) rounded, covered with setae on upper and medial regions.

Gnathopod 1 (Fig. 26A) slightly larger than gnathopod 2; article 2 with weak triangular distal lobe; article 6 longer than article 5; dactylus slightly longer than palm. Gnathopod 2 (Fig. 26B) similar to gnathopod 1 except for posterodistally pointing lobe on article 5, and number of spines on palmar corner. Brood lamella on gnathopod 2 shorter than article 2.

Pereopod 3 (Fig. 26C), article 2 as long as gill. Gill on pereopod 4 (Fig. 26D) longer than articles 2 and 3 combined. Pereopod 5 (Fig. 26E), article 2 with posterior lobe; gill as long as article 2. Pereopod 6 (Fig. 26F), article 2 with wide posterior lobe; gill smaller than article 2. Pereopod 7 (Fig. 26G), article 2 with posterior lobes rounded. Plumose oostegites well developed on gnathopod 2 and pereopods 3 and 4; oostegite small and plumose on pereopod 5. Coxa 1 subquadrate; coxae 2, 3 and 7 rounded; coxa 4 wider than high; coxa 5 bilobed.

Uropod 1 (Fig. 24B) with peduncle slightly longer than subequal rami. Uropod 2 (Fig. 24C) shortest; inner ramus longer than outer. Uropod 3 (Fig. 24D), outer ramus shorter than inner; with spines and plumose setae.

Male. Similar to female, except for following. Antennae lacking sense organs. Article 6 of both gnathopods (Fig. 27A,B) longer than article 5, armed with some spines on ventral and palm margins. Gnathopod 2, article 5 with posterodistal lobe. Uropod 3 less setose than in female.

Etymology. The specific name refers to the locality where this species was collected, Punta Comisario.

Relationships. Ledoyer (1986) described *Nasageneia yucatanensis*, from Laguna de Términos, Mexico, and Ortiz and Lalana (1994) a second species of this genus from the area, *N. bacescui*, from Cuba. *Nasageneia comisariensis* n.sp. differs from *N. yucatanensis* in having small eyes; presence of three odontoid spines on the distal part of the inner lobe of the maxilliped; lower lip without inner lobes; four setae distally on article 2 of the mandibular palp; different pattern of spines on the ventral margin of the epimera 1 to 3, with 1, 2 and 3 spines respectively; a non-folded gill on pereopod 5; a non-crenulate posterior lobe on article 2 of pereopod 6; and inner lobe of the maxilliped with three odontoid spines apically. *Nasageneia comisariensis* n.sp. differs from *N. bacescui*, in the smaller, rounded eyes; gnathopod 1 with two spines on the palmar corner; gnathopod 2 with one spine on the palmar corner; pereopod 5 with a slender article 2; and a less serrate margin on the posterior lobe of pereopod 7.

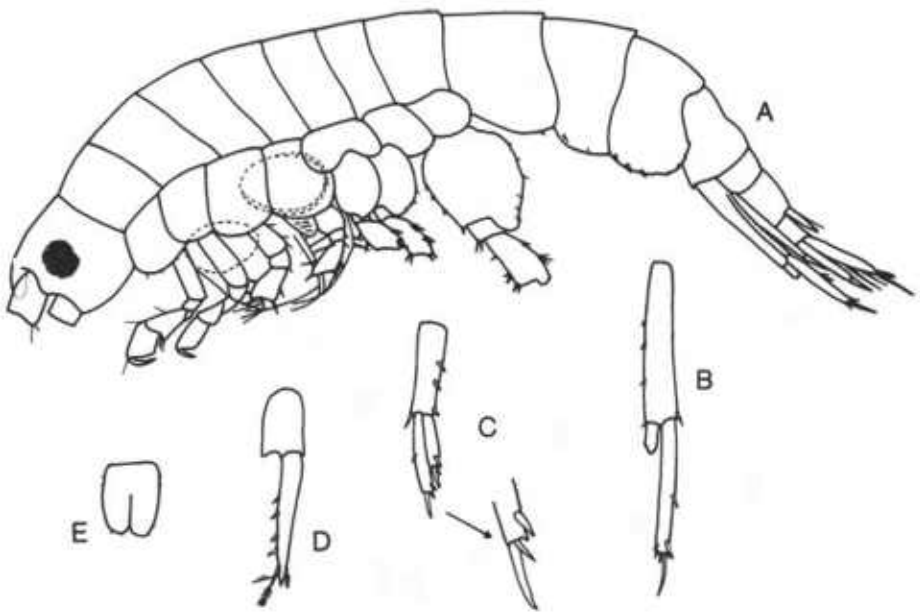

Fig. 24. *Nasageneia comisariensis* n.sp., female holotype, USNM 266449: A, whole animal (carrying three eggs); B, uropod 1; C, uropod 2; D, uropod 3 (one ramus missing); E, telson.

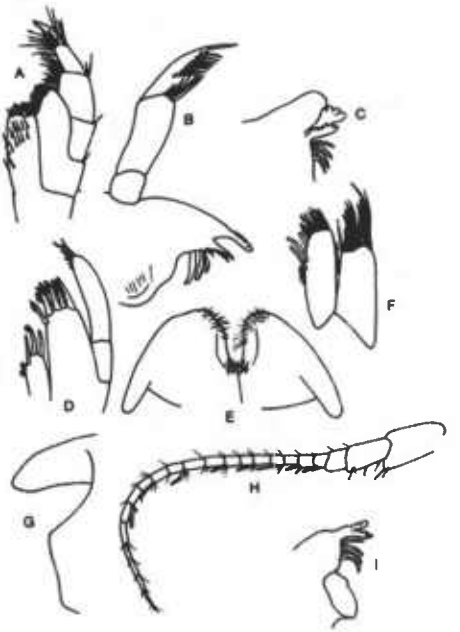

Fig. 25. *Nasageneia comisariensis* n.sp., A-G, female holotype, USNM 266449; H, female paratype, sta. LAB1, USNM 266451; I, male paratype, sta. LAB1, USNM 266451: A, maxilliped; B, left mandible; C, right mandible; D, maxilla 1; E, lower lip; F, maxilla 2; G, rostrum (lateral view). H, antenna 1; I, left mandible.

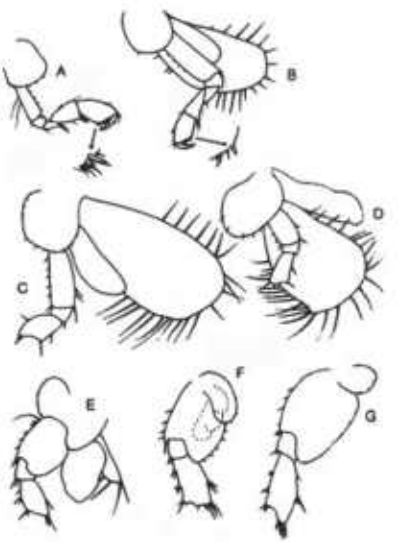

Fig. 26. *Nasageneia comisariensis* n.sp., female holotype, USNM 266449: A, gnathopod 1; B, gnathopod 2; C, pereopod 3; D, pereopod 4; E, pereopod 5; F, pereopod 6; G, pereopod 7.

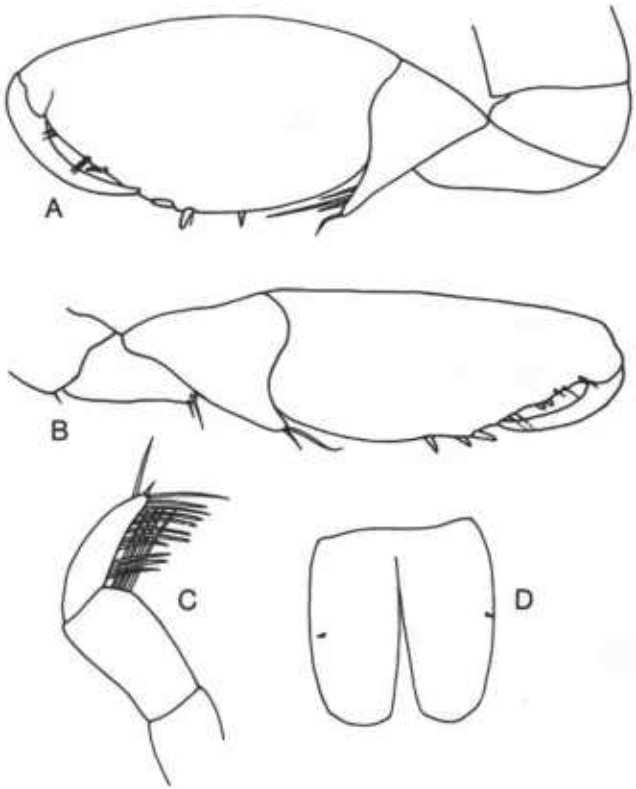

Fig. 27. *Nasageneia comisariensis* n.sp., male paratype, sta LAB1, USNM 266451: A, gnathopod 1 (right); B, gnathopod 2 (left); C, palp of mandible; D, telson.

Family Sebidae Walker, 1908

Seba robusta n.sp.

Figs. 28, 29, 30A-E, 31A-G

Seba sp.- Ortiz and Lemaitre, 1994: 125.

Material. Holotype: male (1.3 mm), North side of Isla Grande, Islas del Rosario, sta. IR5, 17 Jul. 1991, 1-2 m, dredge, USNM 266437. Paratype: 1 female, 1 male (juvenile), Southwest side of Isla Grande, Islas del Rosario, sta. IR4, 17 Jul. 1991, 1-2 m, USNM 266438.

Diagnosis. Head (Fig. 28) without eyes or vestiges of ommatidea. Pereon, pleon and urosoma (Fig. 28) naked dorsally. Antenna 1 (Fig. 28) with articles 1 and 2 subequal in length; article 3 less than half length of article 1;

flagellum with 4 articles decreasing in size, all armed with setae. Accessory flagellum present, formed of 2 articles; article 2 vestigial. Antenna 2 (Fig. 28) with article 5 half as long as article 4; flagellum formed of 3 articles, armed with setae. Gnathopod 2 (Fig. 30D) chelate; article 3 elongate, armed with 2 distal spines; article 5 half length of article 6. Pereopods 3 and 4 (Fig. 31A,B) each with 2 setae on anterodistal lobe of article 4. Male pereopods 5-7 (Fig. 31C-E) each with 2, 4, and 4 spines respectively on posterodistal lobe of article 4. Male pereopod 7 with 7 spines on anterior margin of article 2. Male gnathopod 1 with large tubercle on palmar face near articulation. Telson entire, subtriangular.

Additional description. Left mandible (Fig. 29D) with incisor bearing 4 short teeth; lacinia mobilis straight, with 5 short teeth, and 2 wide and 4-5 sharp ridges. Mandible (Fig. 29D) with palp formed of 3 articles; with single terminal spine and some very short setae distally on articles 2 and 3. Outer lobes of lower lip (Fig. 29E) angled above; inner lobes obsolete. Inner plate of maxilla 1 (Fig. 29B) rounded, naked; outer lobe with 7 stout spines; palp formed of 1 article with 3 spines. Maxilliped (Fig. 29A) inner lobe with 1 spine and 1 seta; outer lobe slightly shorter than article 1 of palp, with 2 chisel-like spines; palp with 4 articles, article 3 spinose.

Gnathopod 1 (Fig. 30A) robust; article 2 unarmed; articles 4 and 5 with posterodistal setae; palm margin of article 6 complex, oblique, and with hinge process with 2 teeth; palmar corner produced anteriorly, with pair of locking spines on tip; intermediate tooth present, well separated from hinge process and palmar corner by broad sinuses; ventral margin of article 6 with posteromedian tuft of setae. Gnathopod 2 (Fig. 30D) elongate, chelate; articles 3 and 5 subequal; article 5 half length of article 6; dactylus with tip turned downwards; article 2 unarmed; article 3 with 2 distal setae; articles 4 and 5 each with 1 ventrodistal seta; movable finger with 2 short and 2 long setae; fixed finger with 8 setae distally, and pair of locking spines at tip.

Pereopod 3 (Fig. 31A) with 3 spines on anterior margin of article 2; anterodistal lobe of article 4 with 2 spines. Pereopod 4 (Fig 31B) with 1 spine on anterior margin of article 2; anterodistal lobe of article 4 with 2 spines. Pereopod 5 (Fig. 31C) with 4 spines on anterior margin of article 2, and 2 spines on posterodistal lobe of article 4. Pereopod 6 (Fig. 31D) with 6 spines on anterior margin of article 2, and 4 spines on posterodistal lobe of article 4. Pereopod 7 (Fig. 31E) with 7 spines on anterior margin of article 2, and 4 spines on posterior lobe of article 4. Coxae 3 and 4 (Fig. 28) subquadrate, 4 slightly excavate on posteroventral margin, each coxa with 1 tooth on anterior margin. Coxa 5 (Fig 28) bilobed, with 1 seta on anterior lobe. Coxa 6 and 7

(Fig. 28) each with 1 posteroventral seta. Pereopods 5-7 (Fig. 31C-F) each with article 2 having wide posterior lobe and minutely serrate margins. Pereopod 6 (Fig. 31D) article 2 with tooth on proximal margin overlapping coxa.

Uropod 1 with 1 spine on distal part of peduncle. Uropod 2 without spines. Uropod 3 (Fig. 29G) with ramus slightly shorter than telson; ramus with stout spine distally. Posterior corner of epimeron 3 (Fig. 28) curved posteriorly, with single seta on ventral margin.

Juvenile males. Similar to terminal males, except for small tubercle on palmar face of dactylus close to articulation with palm.

Female. Similar to male, except for following. Gnathopod 1 article 5 with posterodistal spines; article 6 with posteromedial facial setae, posterodistal corner produced anteriorly and with pair of locking spines on tip; palm with row of 5 setae, margin slightly serrate; dactylus elongate, closing on palmar corner. Coxa 7 devoid of setae. Pereopod 7 article 2 with anterior margin unarmed, with wide minutely serrate posterior lobe bearing minute setae; article 3 anterior margin with 1 seta; article 4 with well developed posterodistal lobe with 3 spines, last spine subterminal.

Etymology. The specific name is from the Latin *robustus*, meaning robust, strong, and refers to the size and strength of the first gnathopod and pereopods.

Relationships. Of the Atlantic congeners, this new species is most similar to *Seba tropica* McKinney, 1980 (Figs. 30F,G, 31G), known from Florida, the Caribbean and Gulf of Mexico. We compared our specimens of *S. robusta* n.sp. with the types of *S. tropica* (female holotype, USNM 172181; female and male paratypes, USNM 172182), and find that the two species can be differentiated by a number of characters. The young male paratype of *S. tropica* lacks a tubercle on the palmar face of the dactylus of gnathopod 1 (Fig. 30G), whereas a young male of *S. robusta* n.sp. of similar body size has a tubercle (Fig. 30A). In addition, gnathopod 1 of adult males of *S. robusta* n.sp. have a short article 5 (about one-third length of article 6); the palmar margin of article 6 is complex, oblique, with a hinge process having two irregular teeth, a palmar corner with setae near two locking spines, and an intermediate tooth separated by a wide deep sinus on each side; and the dactylus is very irregular, bearing 2 setae near the tip. Pereopod 7 has article 2 broader than that of *S. tropica* (Fig. 31G), with seven spines on the anterior margin; article 4 has a posteroventral lobe with four spines, whereas three are present in *S. tropica*.

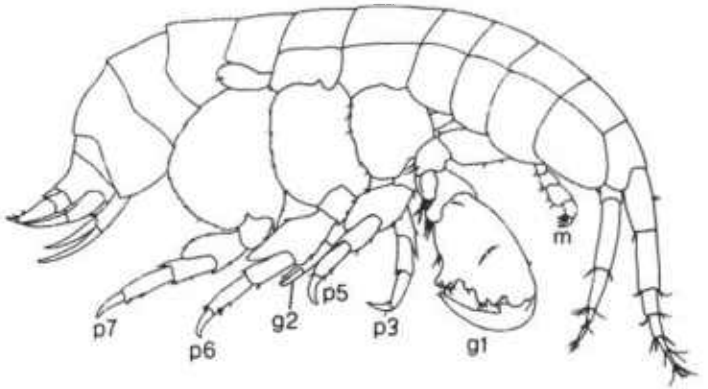

Fig. 28. *Seba robusta* n.sp., male holotype, lateral view, USNM 266437. g1,2: gnathopods; p3-7: pereopods (p4 not shown, hidden).

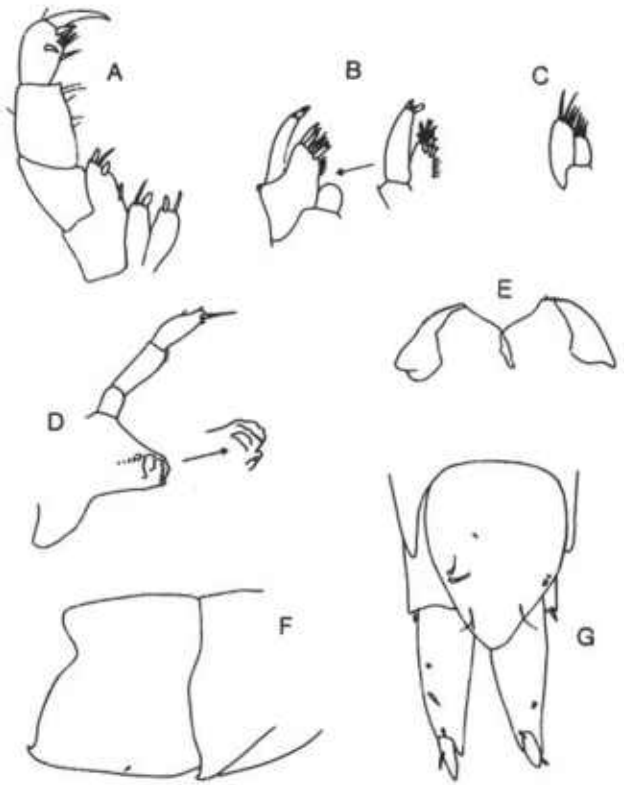

Fig. 29. *Seba robusta* n.sp., male holotype, USNM 266437: A, maxilliped; B, first maxilla; C, maxilla 2; D, left mandible; E, lower lip; F, epimera 2 and 3, lateral view; G, uropod 3 and telson.

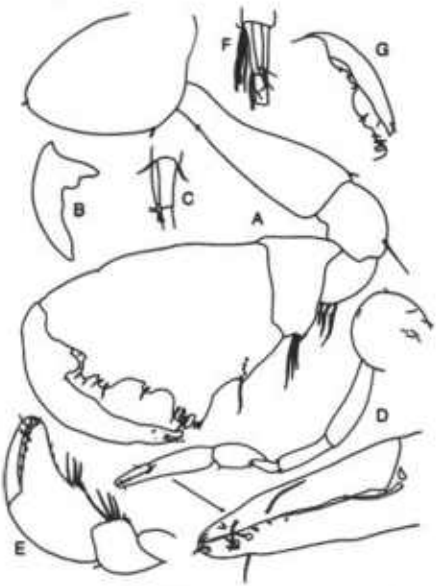

Fig. 30. A-E, *Seba robusta* n.sp., A,B,E, paratypes, sta. IR4, USNM 266438; C,D, male holotype, USNM 266437: A, gnathopod 1 of terminal male; B, dactylus of gnathopod 1 of young male; C, antenna 1 accessory flagellum; D, gnathopod 2; E, gnathopod 1 of female. F,G, *Seba tropica* McKinney, 1980, young male, sta. IR4, USNM 172182: F, antenna 1 accessory flagellum; G, dactylus and palm of gnathopod 1 of same.

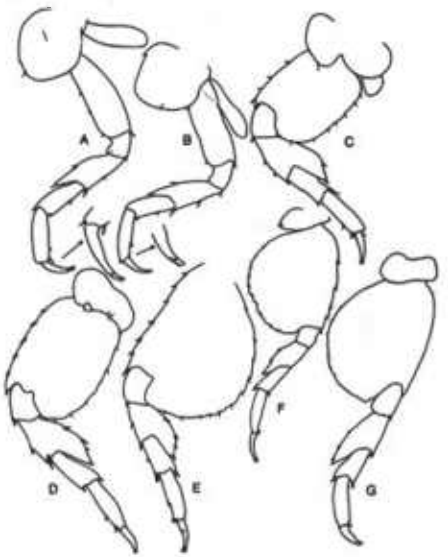

Fig. 31. *Seba robusta* n.sp., A-E, male holotype, USNM 266437; F, paratype, sta. IR4, USNM 266438: A, pereopod 3; B, pereopod 4; C, pereopod 5; D, pereopod 6; E, pereopod 7; F, pereopod 7 of female. G, *Seba tropica* McKinney, 1980, sta. IR4, USNM: pereopod 7 of male.

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AUTHOR'S ADDRESSES Centro de Investigaciones Marinas, Universidad de La Habana, La Habana, Cuba (M.O.). Department of Invertebrate Zoology, National Museum of Natural History, Smithsonian Institution, Washington, D. C. 20560, U.S.A. E-mail: lemaitrr@nmnh.si.edu (R.L.).