

**Two species of *Oxyurostylis* (Crustacea: Cumacea: Diastylidae),
O. smithi Calman, 1912 and *O. lecroyae*, a new species
from the Gulf of Mexico**

Daniel Roccatagliata and Richard W. Heard

(DR) Departamento de Biología, Facultad de Ciencias Exactas y Naturales,
Universidad de Buenos Aires, Ciudad Universitaria, 1428-Buenos Aires, Argentina;
(RWH) Gulf Coast Research Laboratory, P.O. Box 7000,
Ocean Springs, Mississippi 39566-7000, U.S.A.

Abstract.—A form of *O. smithi* Calman, 1912 and *Oxyurostylis lecroyae*, new species, are described from the northeastern Gulf of Mexico. The specimens of *O. smithi* described herein and those collected near the type locality, Woods Hole, Massachusetts, differ in the development and arrangement of the carapace carinae, and in the shape and relative length of the female fifth thoracic segment. *Oxyurostylis lecroyae* is distinguished from all the other described species of the genus by the presence of a horizontal carina on the carapace of the adult female.

Calman (1912) created the genus *Oxyurostylis* to receive *O. smithi*, a species he described based on a few specimens from the Woods Hole, Massachusetts, area, but in the material examined two specimens from the Gulf of Mexico were also included. Subsequently, numerous authors reported the occurrence of *O. smithi* from the Bay of Fundy to Louisiana (e.g., Bousfield & Leim 1960, Bowen et al. 1979, Farrel 1979, Zimmer 1980, Corey 1984, Modlin & Dardeau 1987, Cahoon & Tronzo 1990, Băcescu 1992).

In addition to *O. smithi*, five other species of the genus *Oxyurostylis* have been described: *O. pacifica* Zimmer, 1936 and *O. tertia* Zimmer, 1943 from California and Baja California; *O. atlantica* Radhadevi & Kurian, 1981 from Florida and Yucatán; *O. antipai* Petrescu et al., 1993 from Jamaica; and *O. salinoi* Brum, 1966 from Brazil.

In the present paper two species of *Oxyurostylis* from the northeastern Gulf of Mexico are described, one designated as *O. lecroyae*, new species, and the other provisionally considered as a form of *O. smithi* Calman, 1912. Although these descriptions

clarify some taxonomic aspects of the *Oxyurostylis* from the Gulf of Mexico, comparisons among the species of this uniform and problematic genus still remain incomplete.

Material and Methods

Total body length was measured from the tip of the pseudorostrum to the tip of the telson. Cephalothoracic and thoracic lengths include the distal process of the fifth thoracic segment.

Small juveniles of *O. smithi* could not be identified with certainty; therefore, these specimens were omitted from the list of material examined. Since this limitation also applies to most of the immature instars of *O. lecroyae*, new species, only preparatory female and adults from both sexes are included in the material examined for this species.

Specimens examined under scanning electron microscope (SEM) were dehydrated, critical-point dried, mounted on stubs and coated with 15nm of gold-palladium.

The materials used in this study were

borrowed from museums, donated by colleagues, and collected by the authors. The following museums loaned material to the authors: Museu Nacional do Rio de Janeiro (MNRJ); National Museum of Natural History, Smithsonian Institution (USNM); and Gray Museum, Marine Biological Laboratory, Woods Hole.

In addition to the specimens from the Gulf of Mexico described herein, the following material from the North American Atlantic coast and Southern Brazil was examined for comparative purposes:

Oxyurostylis smithi Calman, 1912.—Woods Hole, Massachusetts, surface: 16 Sep 1882, 1 preparatory ♀, 1 adult ♂, 1 preparatory ♂ (USNM 44145). Date unknown, 1 adult ♂ (USNM 44160). 6 May 1906, 3 adult ♂♂, 1 juvenile (USNM 44163). Date unknown, 1 preparatory ♀, 1 preparatory ♂, 2 juveniles (USNM 44164). Date unknown, 1 preparatory ♀, 2 juveniles (USNM 44165). 2 May 1888, 11 adult ♂♂, 1 juvenile (USNM 63646). Vineyard Sound, Massachusetts: depth unknown, 3 Sep —?, 1 juvenile (USNM 34897). Surface, 29 Jul 1881, 1 adult ♂, 1 juvenile (USNM 44152). Surface, 22 Aug 1881, 1 preparatory ♀, 1 adult ♂, 1 preparatory ♂, 2 juveniles (USNM 44154). Barnstable Harbor, Massachusetts: depth unknown, 7 May 1968, 1 marsupial ♀ (Gray Museum 1125). Off Falmouth Harbor, Massachusetts: 41°31.5'N, 70°36.5'W, depth unknown, 30 Mar 1965, 5 preparatory ♀♀, 1 preparatory ♂, 1 juvenile (Gray Museum 2337). Off New Jersey: 39°21'00"N, 74°05'18"W, 26 m, 7 Nov 1976, 10 marsupial ♀♀, 5 preparatory ♀♀, 2 adult ♂♂, 5 juveniles (USNM 179608). 39°15'18"N, 74°08'00"W, 36 m, 14 Feb 1977, 6 preparatory ♀♀, 1 adult ♂, 1 preparatory ♂, 11 juveniles (USNM 179612). West end of Skull Creek, South Carolina: depth unknown, date unknown, 3 marsupial ♀♀, 9 preparatory ♀♀, 2 preparatory ♂♂, 5 juveniles (USNM 92000). One mile inside May River, South Carolina: depth unknown, 17 Jan 1891, 2

preparatory ♀♀, 1 adult ♂, 2 preparatory ♂♂, 7 juveniles (USNM 92021).

Oxyurostylis salinoi Brum, 1966.—Ubatuba, Praia do Flamengo, São Paulo: 12 m, 18 Oct 1961, Sta. 3(6)II, 5 marsupial ♀♀, 2 preparatory ♀♀, 2 adult ♂♂, 1 preparatory ♂ (Paratypes, MNRJ 4213). Ubatuba, Lagosteiro, São Paulo 6 m, 19 Jan 1962, Sta. 4(6)III: 4 marsupial ♀♀, 2 preparatory ♀♀, 2 preparatory ♂♂ (Paratypes, MNRJ 4215).

Oxyurostylis smithi Calman, 1912
(Figs. 1–22, 35, 36)

Material examined.—Galveston Island, West Bay, Texas, 0.5–1.5m: Feb 1971, 1 marsupial ♀, 5 preparatory ♀♀, 3 adult ♂♂, 2 preparatory ♂♂. Mar 1971, 4 marsupial ♀♀, 1 adult ♂, 2 preparatory ♂♂. Apr 1971, 7 marsupial ♀♀, 1 preparatory ♀, 1 adult ♂, 3 preparatory ♂♂. Jan 1972, 2 marsupial ♀♀, 1 preparatory ♀, 2 adult ♂♂, 5 preparatory ♂♂. Feb 1973, 3 preparatory ♀♀, 3 adult ♂♂, 3 preparatory ♂♂. Feb 1974, 5 marsupial ♀♀, 9 preparatory ♀♀, 2 preparatory ♂♂, 3 juveniles. 2 Apr 1987, 2 marsupial ♀♀. 31 Mar 1988; 1 marsupial ♀, 3 preparatory ♀♀. Biloxi, Mississippi, approx. 1 m depth: 22 Feb 1992, 2 marsupial ♀♀, 1 adult ♂, 1 juvenile. 2 May 1992, 3 marsupial ♀♀, 3 preparatory ♀♀, 2 adult ♂♂, 6 preparatory ♂♂, 2 juveniles. 29 May 1992, 7 marsupial ♀♀, 8 preparatory ♀♀, 8 adult ♂♂, 1 preparatory ♂ (selected reference material: 6 marsupial ♀♀, 6 adult ♂♂, USNM 274182). 9 Jul 1992, 2 marsupial ♀♀, 1 preparatory ♀, 4 adult ♂♂, 3 preparatory ♂♂, 2 juveniles. 7 Nov 1992, 1 marsupial ♀, 18 preparatory ♀♀, 7 adult ♂♂, 3 preparatory ♂♂, 13 juveniles. Horn Island, Mississippi: depth unknown, 11 Jul 1973, 2 marsupial ♀♀, 1 preparatory ♀, 2 adult ♂♂ (USNM 150190). Ship Island, Mississippi: 4 ft; 2 Jul 1959; 10 marsupial ♀♀, 4 preparatory ♀♀, 1 adult ♂ (USNM Acc. #239395). Perdido Key, Florida: lagoon, 0.1–1 m, 1–5 Dec 1991, 46 marsupial ♀♀, 55 preparatory ♀♀, 19 adult ♀♀, 33 pre-

paratory ♂♂, 55 juveniles. 8–9 Mar 1992, 53 marsupial ♀♀, 49 preparatory ♀♀, 36 adult ♂♂, 54 preparatory ♂♂, 30 juveniles (selected reference material: 6 marsupial ♀♀, 6 adult ♂♂, USNM 274183). 1 Jun 1992, 1 marsupial ♀, 1 preparatory ♀, 3 juveniles. 21 Sep 1992, 6 marsupial ♀♀, 3 preparatory ♀♀, 1 preparatory ♂, 1 juvenile. St. Andrew Bay, Carl Gray Park, Florida: 0–0.5 m, 11 Dec 1991, 15 marsupial ♀♀, 21 preparatory ♀♀, 6 adult ♂♂, 15 preparatory ♂♂, 36 juveniles (selected reference material: 5 marsupial ♀♀, 5 adult ♂♂, USNM 274185). Tampa Bay, Florida (precise location not available): 0.5–1 m, grass bed; 13 Dec 1992, 59 marsupial ♀♀, 72 preparatory ♀♀, 93 adult ♂♂, 46 preparatory ♂♂ (selected reference material: 20 marsupial ♀♀, 20 adult ♂♂, USNM 274186). Courtney Campbell Causeway, Tampa Bay, Florida: 1–1.5 m, 23 Jun 1992, 41 marsupial ♀♀, 50 preparatory ♀♀, 22 adult ♂♂, 26 preparatory ♂♂ (selected reference material: 20 marsupial ♀♀, 10 adult ♂♂, USNM 274184). Westinghouse, Tampa Bay, Florida: 0.7–1 m, 22 Jul 1981, 1 preparatory ♀, 1 juvenile. Fort de Soto, Tampa Bay, Florida: 1–1.5 m, 31 Oct 1976, 4 marsupial ♀♀, 4 preparatory ♀♀, 1 adult ♂, 1 juvenile. Anna Maria Island, Tampa Bay, Florida: 1–1.5 m, 6 Aug 1981, 1 juvenile.

Description of the marsupial female.—Length: 4.8 mm to 9.3 mm.

Carapace (Figs. 1, 2, 35, 36): Width exceeding depth and approximately 0.70 times length. Dorsal outline of carapace moderately arched, with a small posterior elevation. Ocular lobe usually with several irregular lenses. Frontal lobe with a very feeble transverse line at midpoint, with almost imperceptible elevation on each side posteriorly (to reveal these features it is usually necessary to use transmitted light and/or rotate the specimen). Carapace with 2 oblique carinae, anterior carina with a pronounced angular projection (geniculation), sometimes produced into a tooth (Fig. 2a); posterior carina usually less prominent than anterior, with upper end not reaching

cardiac area and lower end disappearing just before meeting anterior oblique carina. Distance between left and right teeth or projections less than twice maximum width of frontal lobe. Posterior end of carapace with a marginal carina. Cardiac area variably depressed, not confined by longitudinal carinae. Pseudorostral lobe with a carina beginning near anterior margin of carapace, turning toward frontal lobe, and ending on frontal lobe suture. A connecting carina runs from the pseudorostral carina to the angular projection of anterior oblique carina. Both pseudorostral carina and connecting carina may be faintly indicated or absent (examination of the specimen under transmitted light and in different positions facilitates the detection of these carinae when they are poorly defined). Antennal notch widely open, antero-lateral angle obsolete.

Thorax approximately $\frac{3}{4}$ carapace length. First segment visible as a narrow band dorsally and laterally. Fifth segment shorter than fourth at dorsal mid-line, with posterolateral corners rounded.

Abdomen equal to or slightly shorter than cephalothorax.

Telson (Fig. 14): 1.5–1.7 times as long as last abdominal segment; post-anal part longer than pre-anal part, lined with weak spines on each side.

First antenna (Fig. 3): first article of peduncle 0.4 times, or slightly more, length of remaining two peduncular articles and main flagellum combined; plumose seta on inner distal angle shorter than article. Main and accessory flagella with 5 and 3 articles, respectively.

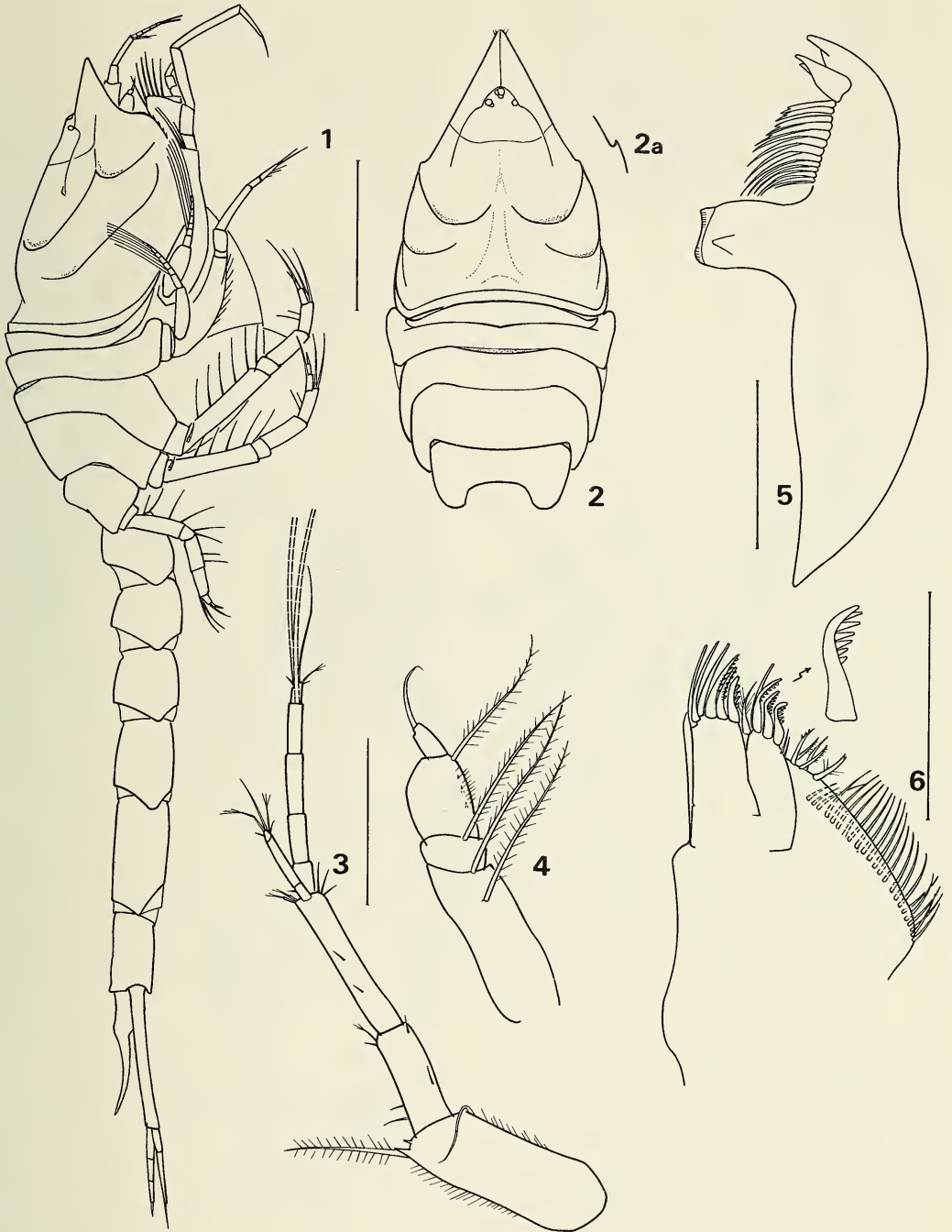
Second antenna (Fig. 4): first, second and third articles having 2, 1, and 1 strong plumose setae, respectively; fourth article small, with a distal simple seta.

Mandible (Fig. 5): bearing 11–14 setae between incisor and molar processes; some setae with bifurcate tips.

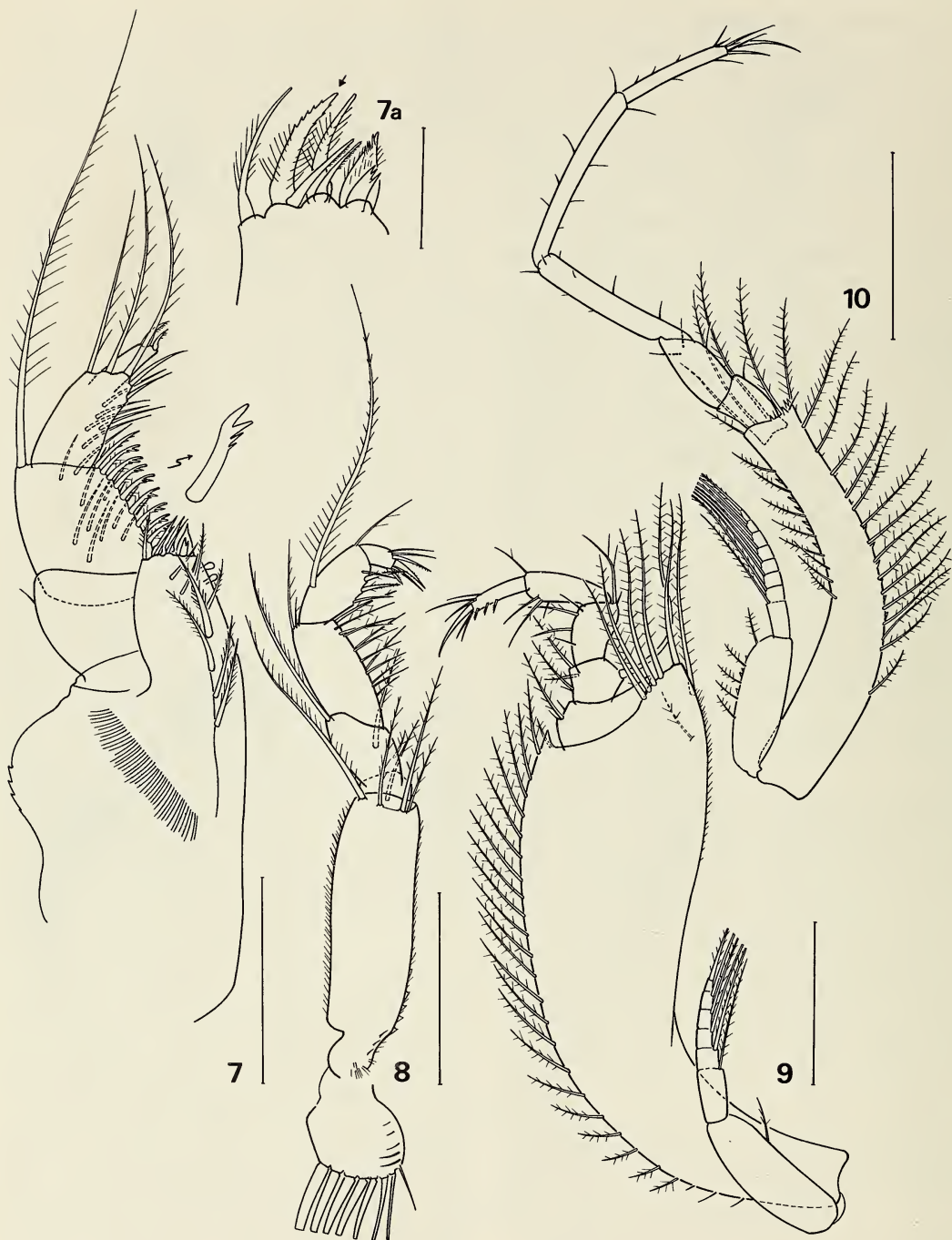
First maxilla: palp bearing two setae.

Second maxilla (Fig. 6): endites with 3 pectinate spines each.

First maxilliped (Figs. 7, 7a): basis, outer



Figs. 1-6. *Oxyurostylis smithi* Calman, 1912. Marsupial ♀: 1, habitus. 2, dorsal view of carapace and thorax. 2a, angle of anterior oblique carina produced into a tooth. 3, first antenna. 4, second antenna. 5, left mandible. 6, second maxilla. Scales: Figs. 1, 2: 1 mm (same scale); Figs. 3, 4: 0.3 mm (same scale); Figs. 5, 6: 0.2 mm.



Figs. 7-10. *Oxyurostylis smithi* Calman, 1912. Marsupial ♀: 7, first maxilliped (branchial apparatus and siphon omitted). 7a, detail of the endite of first maxilliped (arrow: second seta). 8, second maxilliped. 9, third maxilliped. 10, first pereopod. Scales: Fig. 7: 0.2 mm; Fig. 7a: 0.05 mm; Figs. 8, 9: 0.3 mm; Fig. 10: 0.5 mm.

margin with a serrated rounded lobe; endite, distal end with 6 setae (second seta serrate) and 1 tooth with several cusps. Carpus with a row of marginal spines similar to that shown in detail (not all the ventral surface setae drawn).

Second maxilliped (Fig. 8): propodus with 8–9 setae, some pectinate, on inner margin (only some drawn).

Third maxilliped (Fig. 9): basis, inner margin with plumose setae and 1 strong distal tooth; outer process reaching approximately as far as middle of merus, with 6–8 large plumose setae distally, and 1 short plumose seta on dorsal surface. Ischium, outer margin produced into a well-developed lobe, inner margin with 1 plumose seta. Merus with 3 plumose setae on inner margin (one shorter than other two) and 1 strong plumose seta on outer margin. Remaining articles with simple or sparsely plumose setae. Carpus with 3–4 setae on inner margin and 1 distal seta on outer margin. Propodus with 3 setae on inner margin and 1 distal seta on outer margin. Dactylus with 3–4 small pectinate spines on inner margin and several setae distally.

First pereopod (Fig. 10): basis approximately $\frac{2}{3}$ as long as remaining articles combined, with plumose setae on both margins and distally; longest distal plumose seta not reaching carpus-propodus articulation. Ischium, merus and carpus combined slightly shorter than propodus and dactylus combined. Dactylus 0.60–0.65 times as long as propodus.

Second pereopod (Fig. 11): basis with a row of teeth on outer margin and numerous plumose setae. Merus with 3–4 plumose setae. Carpus, outer margin with a row of teeth, appearing strongly serrate when seen laterally, and several small setae (distal setae largest).

Third and fourth pereopods (Figs. 12, 13) with a rudimentary, 2-articulate exopod; fifth pereopod without exopod.

Uropod (Fig. 14): peduncle extending beyond apex of telson, bearing 7–16 spines with sensory tips on inner margin. Rami

subequal, equal to or slightly longer than half of peduncle. Endopod, first article longer than remaining two, second article equal to or slightly longer than third; first, second and third articles bearing 3–5, 2–4, and 2–3 spines with sensory tips on inner margin, and 1 weak distal spine on outer margin, respectively; terminal spine approximately as long as third article. Exopod: distal article with several weak spines on outer margin (only more dorsal spines drawn), 1 weak subterminal spine on inner margin, and 2 strong unequal spines distally (shorter spine less than $\frac{1}{2}$ length of longer one).

Description of the adult male.—In addition to the sexual differences in the development of the second antennae, exopods, and pleopods, the adult male differs from the adult female in the following characters:

Length 4.8 mm to 7.6 mm.

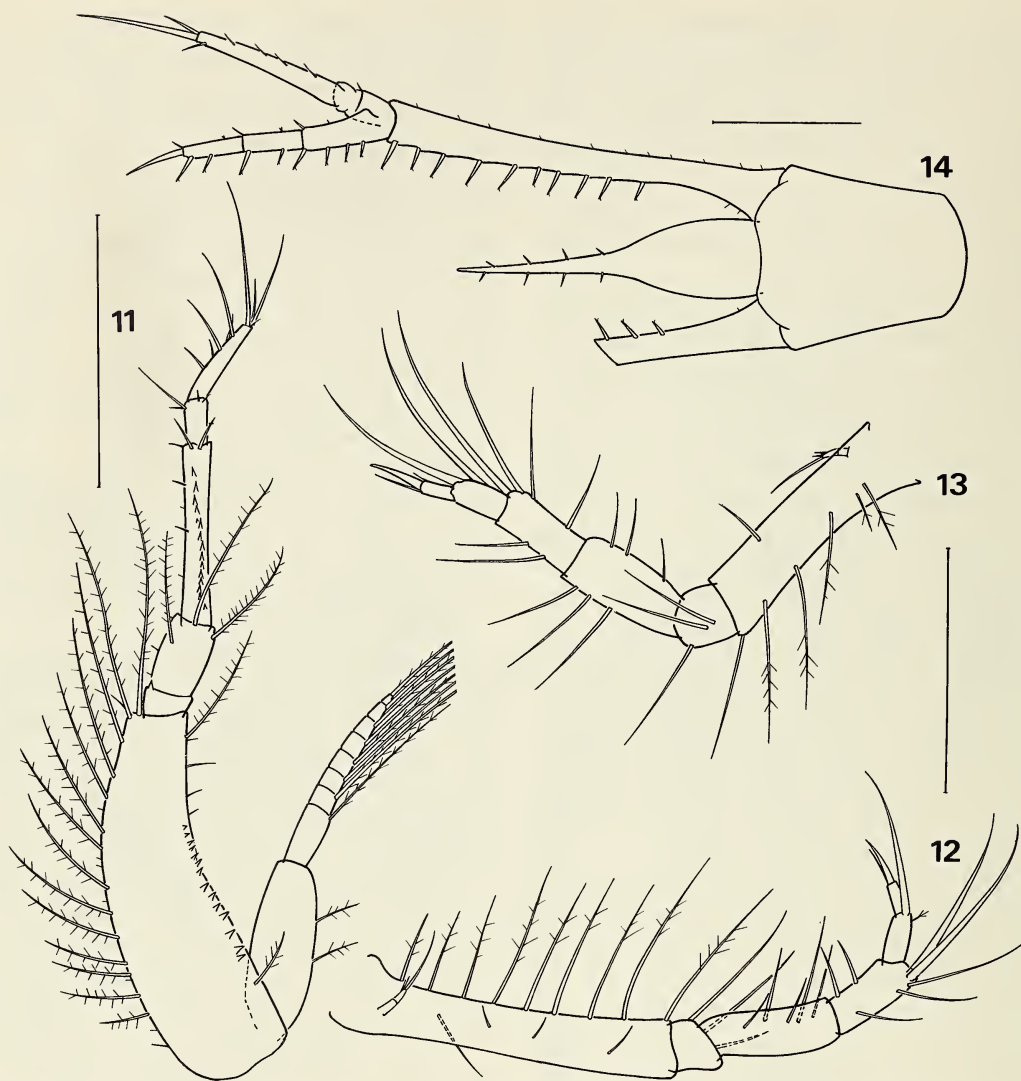
Carapace (Figs. 15, 17): dorsal outline almost straight; carinae described for female less noticeable or absent. Side of carapace with an acute horizontal carina running from posterior margin to intersect posterior oblique carina (these two carinae meet approximately at midpoint of carapace length; the oblique carina is barely traceable and frequently disappears before reaching the horizontal carina); in a few specimens the horizontal carina extends, as a fine line, to anterior oblique carina. Angular projection of anterior oblique carina never developed into tooth. Antero-lateral margin with 2–3 strong teeth.

Thorax: first segment only visible dorsally. Third segment with a rounded mid-ventral protuberance (hyposphenium, Fig. 17) bearing small setae distally. Fourth segment slightly produced mid-ventrally. Fifth segment, postero-lateral corners strongly produced and acute, almost reaching end of first abdominal segment.

Abdomen approximately 0.9 times as long as cephalothorax.

Telson (Fig. 22): 1.7–2.0 times as long as last abdominal segment, with a mid-dorsal depression bordered by a sharp carina.

First antenna (Figs. 18, 18a): main fla-



Figs. 11-14. *Oxyurostylis smithi* Calman, 1912. Marsupial ♀: 11-13, second, third and fourth peraeopods. 14, uropod and telson. Scales: Figs. 11-14: 0.5 mm (Figs. 12, 13 same scale).

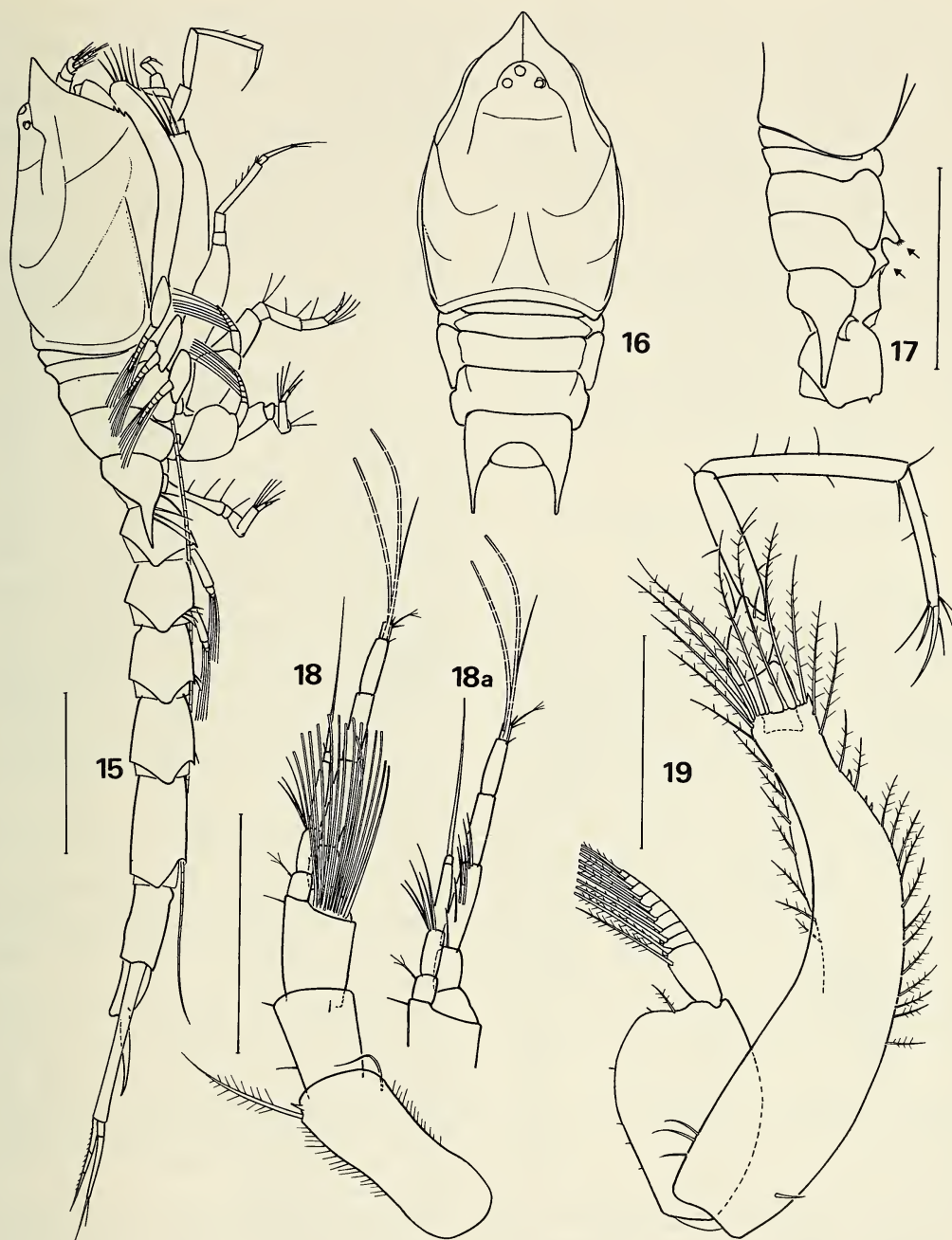
gellum 6-articulate, first article with numerous aesthetascs. Accessory flagellum 4-articulate.

Third maxilliped: propodus with 4-5 setae on inner margin.

First peraeopod (Fig. 19): basis stronger than in female, slightly shorter than remaining articles combined. Ischium, merus, and carpus combined approximately 0.8 times as long as propodus and dactylus combined. Dactylus approximately 0.7 times as long

as propodus. Exopod more robust than in female.

Second peraeopod (Fig. 20): basis stronger than in female, outer serration absent. Carpus, strong serration absent, with 3-5 well developed setae on inner margin, 4-6 unequal weak spines (shorter spines with sensory tips) distally, and 1 seta or weak spine with sensory tip approximately $\frac{2}{3}$ distance along article (sometimes absent). Exopod more robust than in female.



Figs. 15–19. *Oxyurostylis smithi* Calman, 1912. Adult ♂: 15, habitus. 16, dorsal view of carapace and thorax. 17, lateral view of thorax (legs omitted) showing hyposphenia (arrows). 18, first antenna. 18a, detail of flagella (aesthetascs omitted). 19, first peracopod. Scales: Figs. 15–17: 1 mm (Figs. 15, 16 same scale); Figs. 18, 18a: 0.3 mm (same scale); Fig. 19: 0.5 mm.

Third (Fig. 21) and fourth peraeopods with stronger basis than in females, with well developed exopods; fifth peraeopod, basis weaker than in female.

Uropod (Fig. 22): inner margin of peduncle with 12–20 bipectinate spines with sensory tips. Endopod, first, second and third articles with 6–9, 4–7, and 3–5 bipectinate spines with sensory tips, respectively.

Distribution.—From Bay of Fundy (Canada) to northern coasts of the Gulf of Mexico (0–30 m). The additional records reported here are from south Florida to Texas, Gulf of Mexico, in lagoons and other shallow protected areas (0–1.5 m).

Oxyurostylis lecrovae, new species
(Figs. 23–34, 37, 38)

Holotype.—Marsupial ♀ (USNM 274187). Type locality: Biloxi, Mississippi, approximately 1 m depth, 28 Aug 1991.

Paratypes.—From the same locality: 28 Aug 1991: 3 marsupial ♀♀, 2 adult ♂♂ (USNM 274188). 30 Dec 1991, 15 marsupial ♀♀, 2 adult ♂♂ (USNM 274189).

Additional material examined.—Bird Island, Galveston Bay, Texas: 3–3.5 m, 18 Sep 1991, 1 preparatory ♀. Cameron, Louisiana, 7 mi off shore: 29°39'52"N, 93°28'35"W, 10 m, Jun 1981, 8 marsupial ♀♀, 2 preparatory ♀♀ (USNM 189196). Bay Marchand Lease Area, Louisiana: 29°02'50"N, 90°09'46"W, 12 m, 13 Jan 1979, 2000 m east of platform, 4 marsupial ♀♀, 2 adult ♂♂ (USNM 187408). 500 m north of platform, 3 marsupial ♀♀, 1 preparatory ♀ (USNM 187413). 500 m south of platform, 5 marsupial ♀♀ (USNM 187424). Biloxi, Mississippi; approx. 1 m depth: 28 Aug 1991, 8 marsupial ♀♀, 7 preparatory ♀♀, 6 adult ♂♂. 25 Sep 1991, 2 marsupial ♀♀, 9 preparatory ♀♀, 5 adult ♂♂. 14 Oct 1991, 5 marsupial ♀♀, 2 preparatory ♀♀, 3 adult ♂♂. 30 Dec 1991, 29 marsupial ♀♀, 2 preparatory ♀♀, 2 adult ♂♂. 29 May 1992, 1 marsupial ♀. Courtney Campbell Causeway, Tampa Bay, Florida: 1–1.5 m, ? 1991, 5 marsupial ♀♀, 11

preparatory ♀♀, 28 adult ♂♂. Lido Beach, Sarasota, Florida: 1–1.5 m, 3 Dec 1992, 1 marsupial ♀, 1 preparatory ♀, 1 adult ♂. Marco Island, Florida: 25°57.94'N, 81°45.30'W, 7 ft, 9 Sep 1991, 10 marsupial ♀♀, 9 preparatory ♀♀, 4 adult ♂♂.

Description of the marsupial female.—Length: 2.9 mm to 5.9 mm.

Carapace (Figs. 23–25, 37, 38): width exceeding depth, 0.73–0.85 times length. Carinae variably developed, acute and distinct or blunt and perceptible only by rotating the specimen; arrangement as in the *O. smithi* specimens described above, except for the following: transverse frontal lobe carina absent or perceivable as a very feeble line never extended to pseudorostral lobes (observable only using transmitted light); posterior oblique carina absent; side of carapace with a horizontal carina running from posterior margin of carapace to intersect anterior oblique carina. Angular projection of oblique carina not developed into a tooth. Other aspects of carapace as in the *O. smithi* specimens described above.

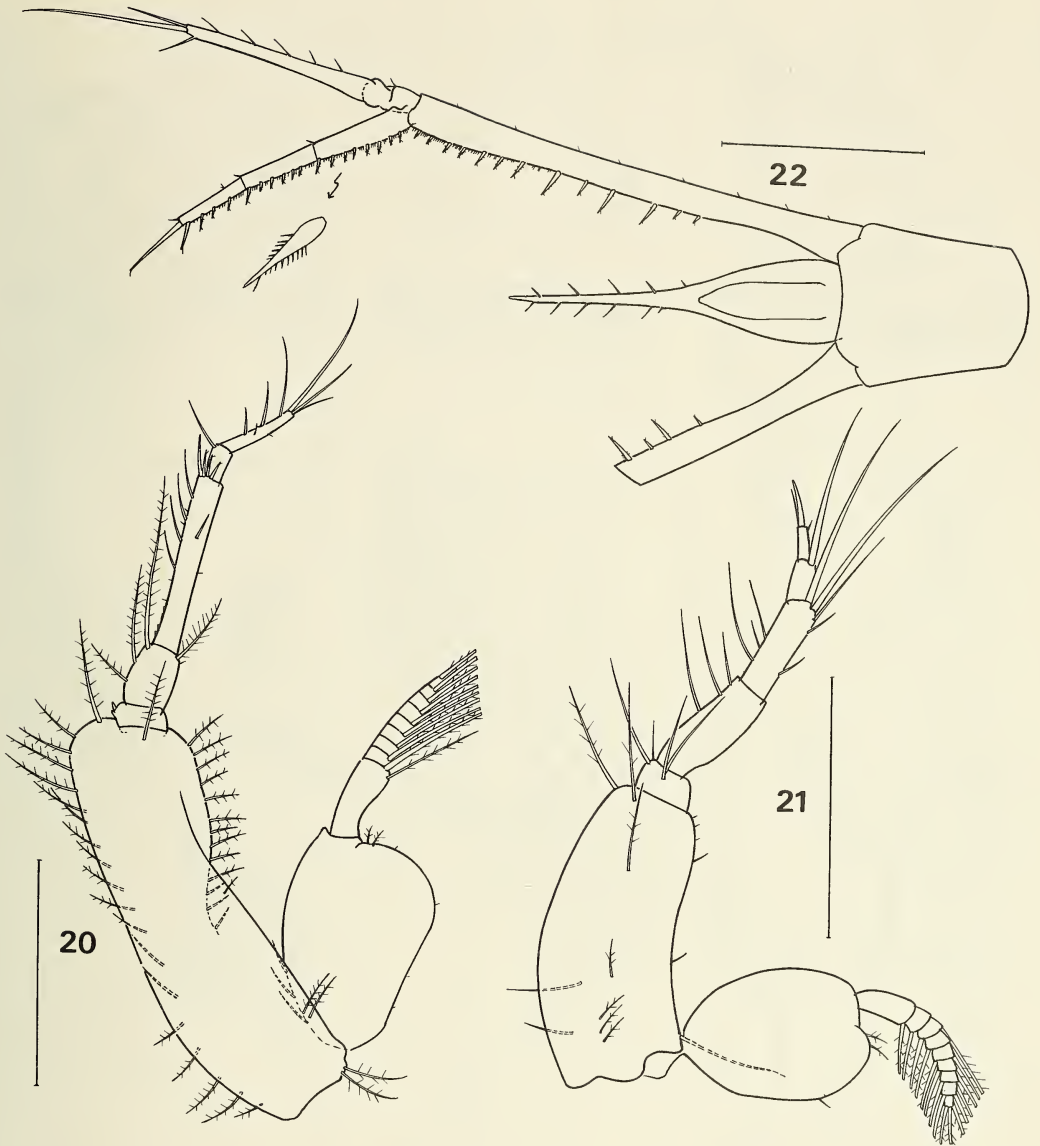
Thorax as in the *O. smithi* specimens described above.

Abdomen approximately 0.8 as long as cephalothorax.

Telson (Fig. 30): 1.8–2.0 times as long as last abdominal segment; post-anal part longer than pre-anal part, lined with weak spines on each side.

First antenna (Fig. 26): first article of peduncle approximately $\frac{1}{3}$ as long as remaining two peduncular articles and main flagellum combined, plumose seta on distal inner angle approximately as long as article. Main and accessory flagella with 5 and 3 articles, respectively.

First peraeopod (Fig. 29): basis approximately 0.7 times as long as remaining articles combined, with plumose setae on both margins and distally; longest distal seta extends slightly beyond carpus-propodus articulation. Ischium, merus and carpus combined approximately 0.80 times as long as propodus and dactylus combined. Dactylus 0.70–0.75 times as long as propodus.

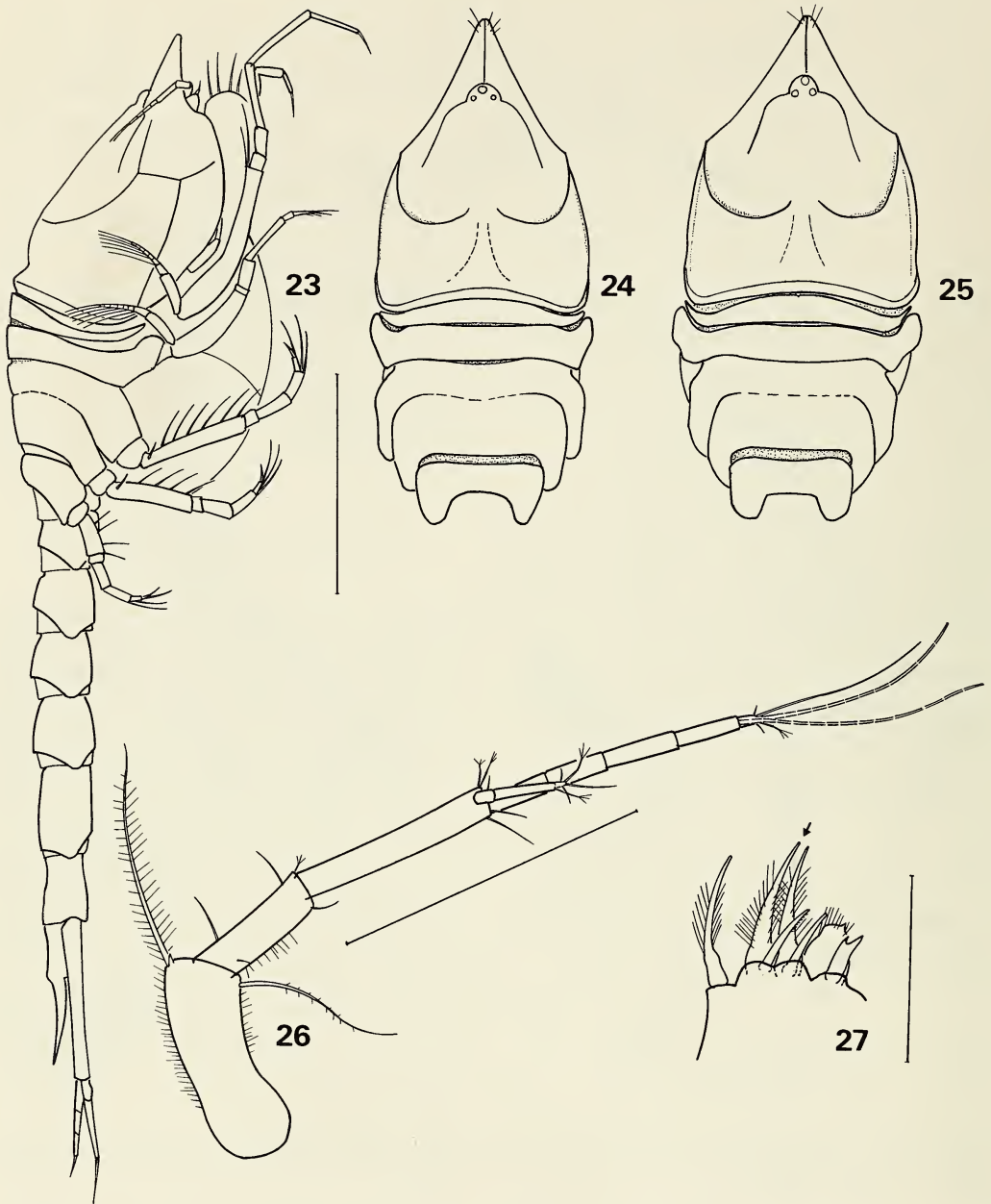


Figs. 20-22. *Oxyurostylis smithi* Calman, 1912. Adult ♂: 20, second pereopod. 21, third pereopod. 22, uropod and telson. Scales: 0.5 mm.

Uropod (Fig. 30): peduncle extending as far as or beyond apex of telson, inner margin with 9-15 spines with sensory tips. Endopod equal to or slightly longer than exopod; approximately $\frac{1}{2}$ as long as peduncle; first article longer than remaining two; second article slightly shorter than third; first, second and third articles with 3-6, 2-3, and 2-3 spines with sensory tips on inner mar-

gin, and 1 weak distal spine on outer margin, respectively; terminal spine approximately as long as third article. Exopod, distal article with several weak spines on outer margin (only more dorsal spines drawn), 1 subterminal weak spine on inner margin, and 2 unequal larger spines distally (shorter spine more than $\frac{1}{2}$ length of longer one).

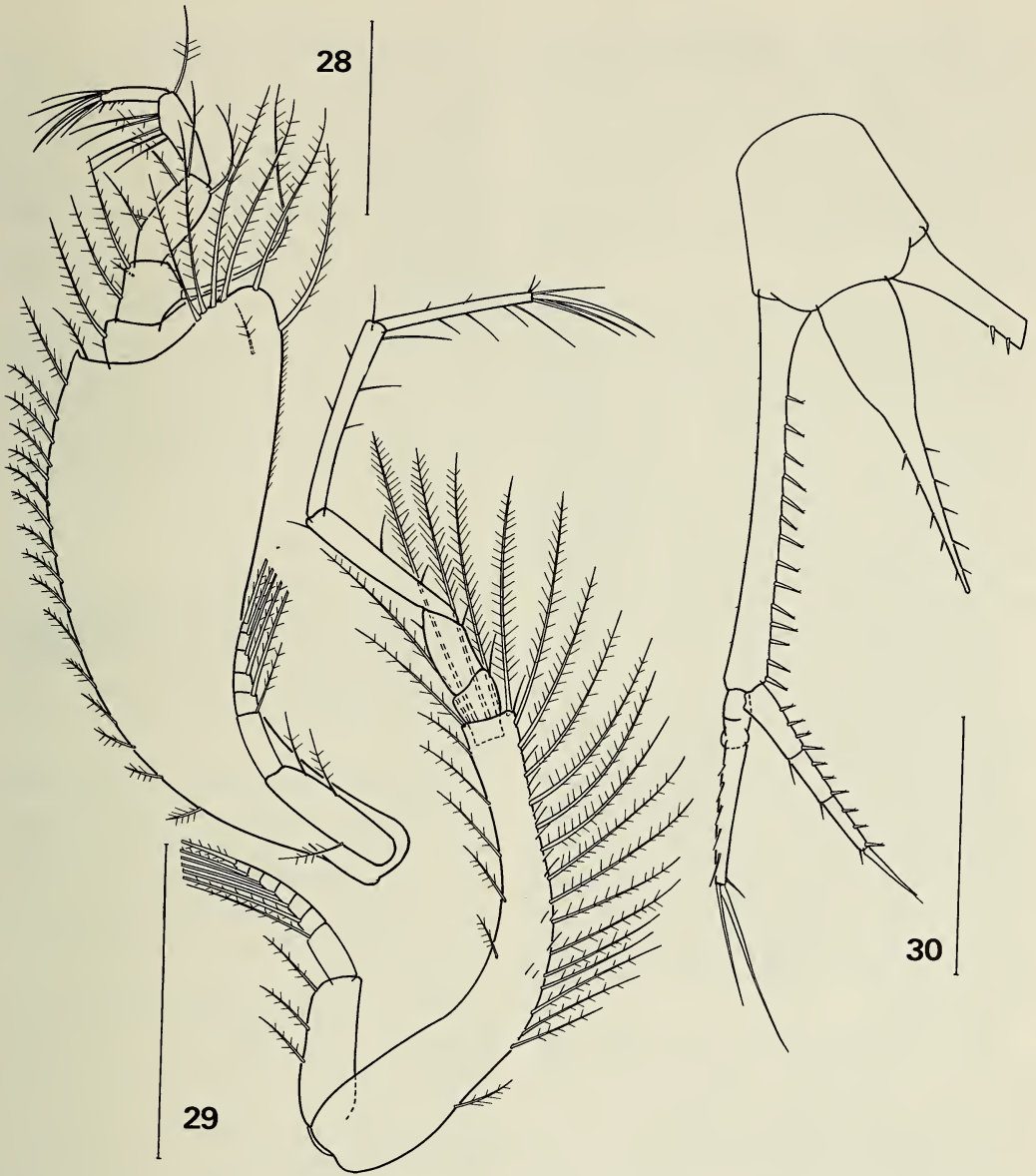
Remaining appendages differing very



Figs. 23–27. *Oxyrostylis lecrovae*, new species. Marsupial ♀: 23, habitus. 24, dorsal view of carapace and thorax. 25, idem, from another ♀ showing a slight different width/length carapace proportion. 26, first antenna. 27, detail of the endite of first maxilliped (arrow, second seta). Scales: Figs. 23–25: 1 mm (same scale); Fig. 26: 0.3 mm; Fig. 27: 0.05 mm.

slightly from those of the *O. smithi* specimens described above. The main differences are as follows: mandible with 10–12 setae between incisor and molar processes.

First maxilliped (Fig. 27): endite, second seta not serrate. Second maxilliped, inner marginal setae of propodus approximately twice as abundant as in the *O. smithi* spec-



Figs. 28–30. *Oxyurostylis lecroayae*, new species. Marsupial ♀: 28, Third maxilliped. 29, first pereopod. 30, uropod and telson. Scales: Fig. 28: 0.3 mm; Figs. 29, 30: 0.5 mm.

imens described above. Third maxilliped (Fig. 28), basis: outer process with 6 plumose setae distally; merus with 3 inner marginal setae as in the *O. smithi* specimens described above, but shortest seta weak, simple or sparsely plumose; propodus with 4–5 setae on inner margin; dactylus with 1–2 pectinate spines on inner margin. Second

pereopod, serration on carpus less developed.

Description of the adult male.—In addition to the sexual differences in the development of the second antennae, exopods and pleopods, the adult male differs from the adult female in the following characters:

Length: 4.7 mm to 5.7 mm.

Carapace (Fig. 31): width 0.66–0.78 times length, dorsal outline almost straight. Oblique carina weak, blunt, perceptible only by rotating the specimen. Horizontal carina always prominent, extending from posterior margin of carapace to oblique carina. Antero-lateral margin without teeth (not as in the *O. smithi* specimens described above.)

Thorax: first segment only visible dorsally. Fifth segment, postero-lateral corners strongly produced, acute, almost reaching end of first abdominal segment; last three segments with mid-ventral protuberances (hyposphenia, Fig. 32), viz., third segment with a hooked protuberance bearing small setae distally, fourth and fifth segments with a triangular sharp protuberance, more developed on fourth than on fifth segment.

Abdomen: first segment usually with a small mid-ventral tooth.

Telson (Fig. 34): 2.1–2.4 times as long as last abdominal segment, with a mid-dorsal depression bordered by a sharp carina.

First antenna as in the *O. smithi* specimens described above, except for the following: first article of peduncle 0.36–0.38 times as long as remaining two peduncular articles and main flagellum combined; plumose seta on inner distal angle of first peduncular article is shorter than article (not as in female).

Third maxilliped: basis, inner distal tooth larger than in female; propodus with 5–7 setae on inner margin; dactylus with 2–3 pectinate spines on inner margin.

First pereopod (Fig. 33): basis stronger than in female, equal to or slightly shorter than remaining articles combined. Ischium, merus and carpus combined approximately 0.7 times as long as propodus and dactylus combined. Dactylus 0.75–0.80 times as long as propodus. Exopod more robust than in female.

Second pereopod as in the *O. smithi* specimens described above except carpus with 3–4 setae on inner margin and 4–5 spines with sensory tips distally.

Uropod (Fig. 34): peduncle extending be-

yond apex of telson; inner margin with 22–27 bipectinate spines with sensory tips. Endopod slightly longer than exopod; first, second and third articles with 5–8, 4–7, and 4–6 bipectinate spines with sensory tips, respectively. All of these spines are similar to that shown in detail for *O. smithi* in Fig. 22.

Distribution.—Gulf of Mexico, from Texas to Florida, 1–12 m depth.

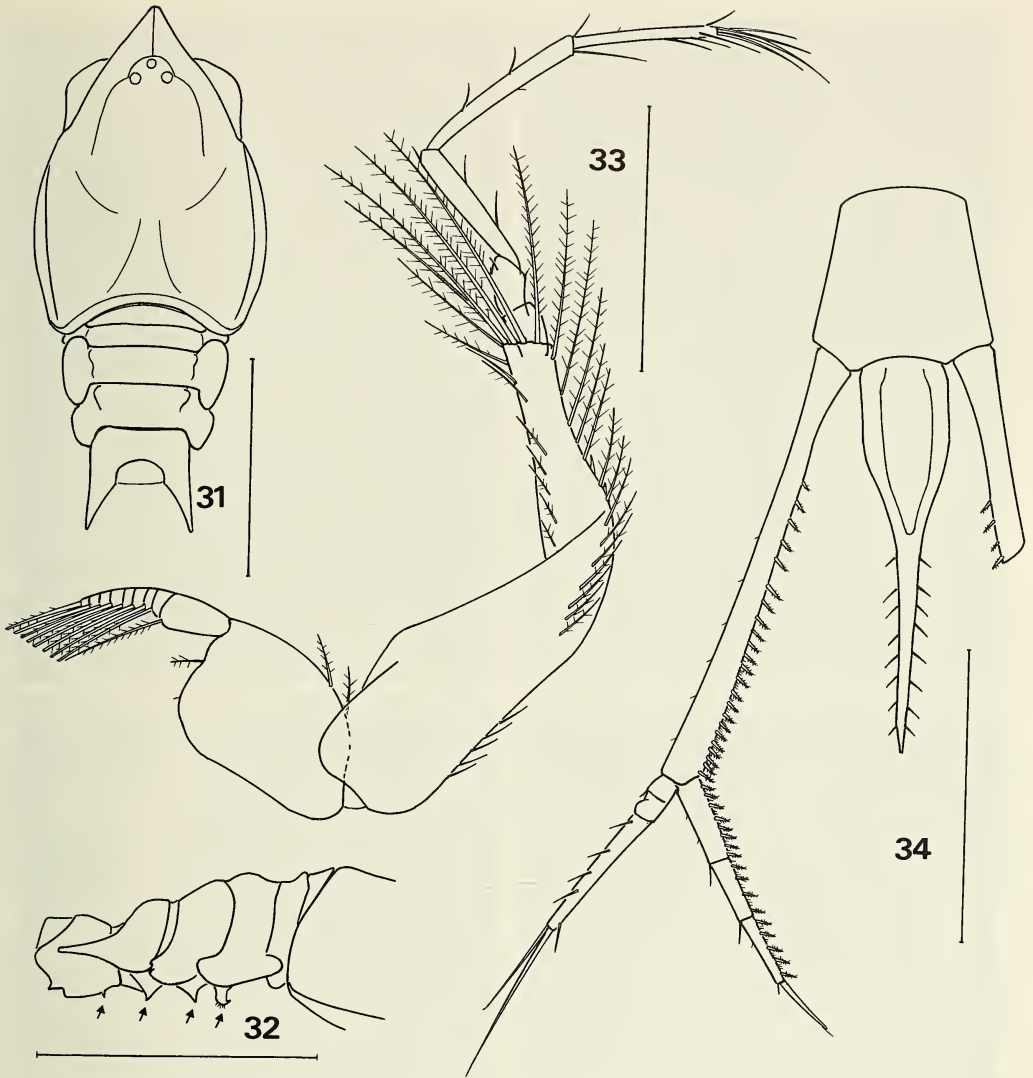
Derivation of the specific epithet.—This species is named for our colleague Sara LeCroy, in recognition for the sound advice and encouragement received during the preparation of this and many other papers.

Discussion

The genus *Oxyurostylis* includes six known species, all collected in the Americas at depths between 0 and 30 m (Calman 1912, Zimmer 1936, 1943; Brum 1966, Radhadevi & Kurian 1981, Petrescu et al. 1993).

Calman (1912) described *O. smithi* based on specimens from the Woods Hole area, but he also listed one specimen from Punta Rassa (Florida) and another from Calcasieu Pass (Louisiana) in the material examined. Unfortunately, these two specimens are severely damaged.

Zimmer (1980) examined additional specimens from the Woods Hole area, Chesapeake Bay, Cape Hatteras, and South Carolina, and he found some specimens with a carina connecting the pseudorostral and the first oblique carinae, and an angular projection (geniculation) on the first oblique carina. The authors also found these two above mentioned features in some of the specimens from South Carolina studied by Zimmer, whereas in all the specimens from the Woods Hole and New Jersey areas that the authors examined, the connecting carina is incipient, not reaching the anterior oblique carina, and the angular projection is not observed. Zimmer concluded that these differences show a certain geographical variation which, however, is not sufficiently

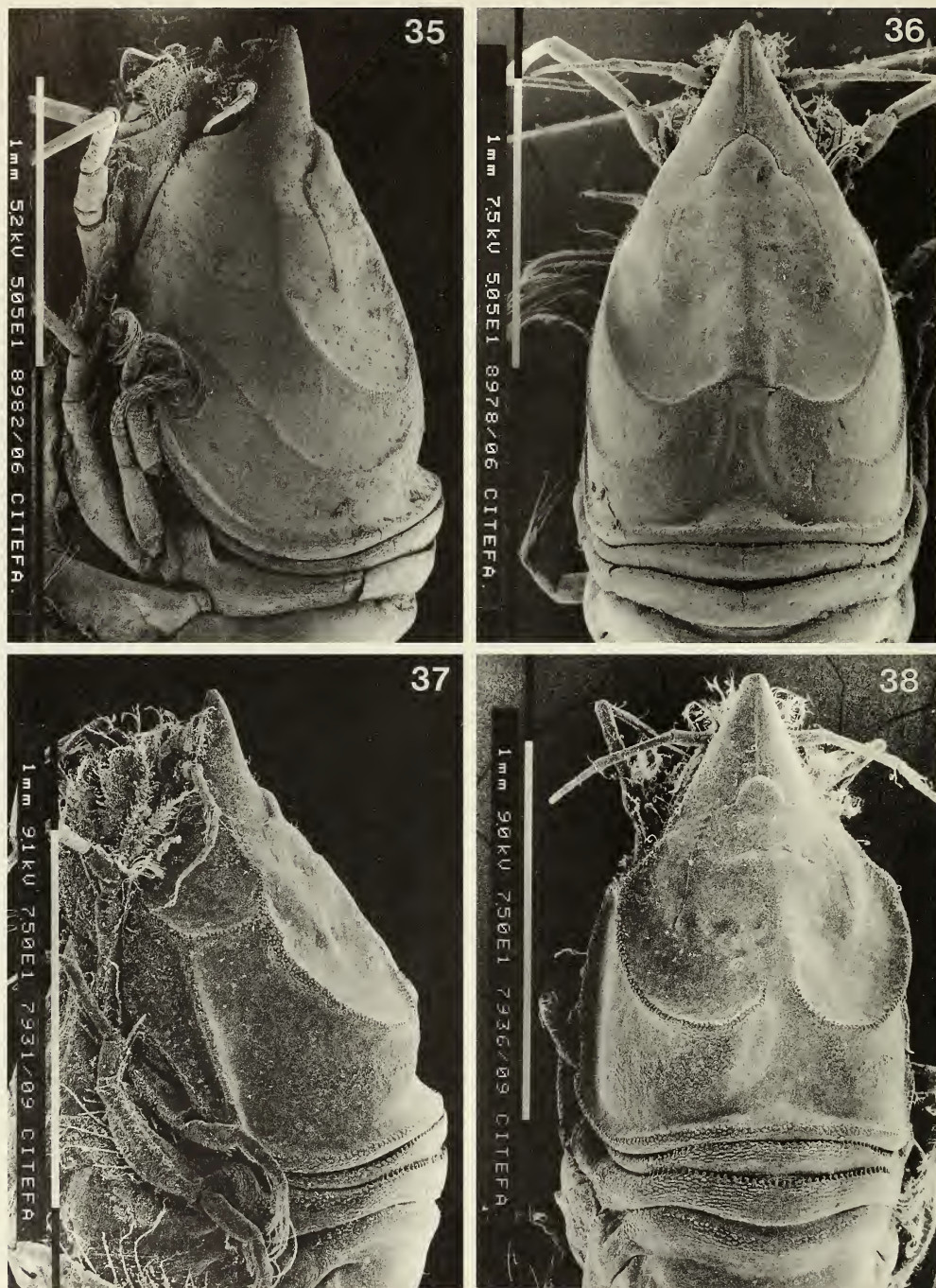


Figs. 31–34. *Oxyurostylis lecrovae*, new species. Adult ♂: 31, dorsal view of carapace and thorax. 32, lateral view of thorax (legs omitted) showing hyposphenia (arrows). 33, first pereopod. 34, uropod and telson. Scales: Figs. 31, 32: 1 mm; Figs. 33, 34: 0.5 mm.

pronounced for the establishment of a geographical race.

All the specimens the authors examined from Massachusetts and New Jersey conform to Calman's original description and differ from the specimens from the Gulf of Mexico, described herein, in the following: (1) pseudorostral and both oblique carinae prominent, acute, separated from each other by conspicuous depressed areas, (2) frontal

lobe crossed by two transverse carinae, the posterior one always well developed, (3) connecting carina incipient, not reaching the anterior oblique carina, (4) anterior oblique carina without angular projection or tooth, (5) oblique carinae meeting dorsally to form the lateral side of the cardiac area, (6) fifth thoracic segment approximately as long as fourth at dorsal mid-line, postero-lateral corners bluntly pointed (this differ-



Figs. 35–38. SEM photographs. *Oxyrostylis smithi* Calman, 1912 Marsupial ♀: 35, lateral view of carapace. 36, dorsal view of carapace. *Oxyrostylis lecrovae*, new species. Marsupial ♀ with well developed carinae: 37, lateral view of carapace. 38, dorsal view of carapace. Scales: 1 mm.

ence applies only to females, in males the fifth thoracic corners are always strongly produced and acute).

The phenotypic differences between the populations from the northeastern Gulf of Mexico and the type locality area may deserve subspecific recognition. However, the authors prefer to avoid the introduction of a new name until more specimens from protected and exposed beaches, as well as from the sublittoral areas, are available.

Brum (1966) described *Oxyurostylis salinoi* from Brazil. The adult female of this species and that of *O. smithi* described herein differs mainly in the following: (1) pseudorostral carina serrated, (2) carapace plateau provided with mid-dorsal denticles, (3) first thoracic segment visible only dorsally, (4) main flagellum of first antenna composed of four articles, (5) first peraeopod elongated, basis about half as long as the remaining distal articles together. The females of *O. salinoi* have a small exopod on the third and fourth peraeopods, not observed by Brum (1966). All of these characteristics were confirmed by examining some of the paratypes.

Oxyurostylis lecroyae, new species, is unique in the genus in that the adult female has a horizontal carina on the carapace.

Radhadevi & Kurian (1981) described *O. atlantica* from the Gulf of Mexico and the Caribbean Sea. Regrettably, this description is insufficient and based only on a few juveniles. The authors consider *O. atlantica* a species inquirenda until it is more thoroughly investigated.

Although the descriptions of *O. smithi* and *O. lecroyae* presented herein clarify some taxonomic aspects of the genus, our knowledge of the *Oxyurostylis* from the Gulf of Mexico is still incomplete. The authors examined additional subtidal Gulf material closely related to *O. smithi* and *O. lecroyae*, but unfortunately these specimens were few and badly preserved, and therefore not included in the present taxonomic study.

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