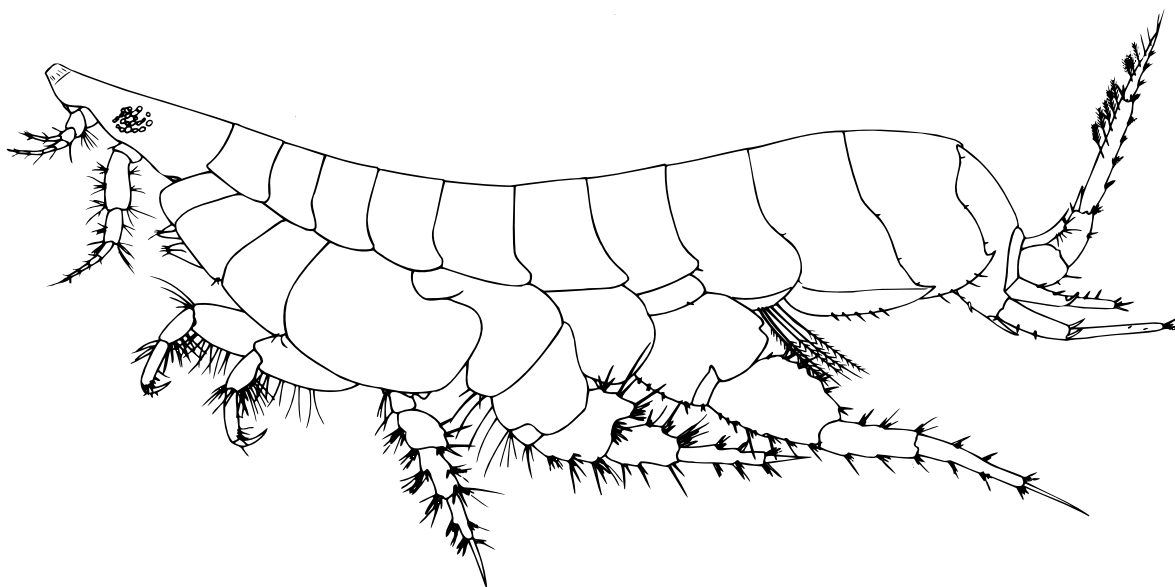


AN ILLUSTRATED IDENTIFICATION GUIDE TO THE NEARSHORE MARINE AND ESTUARINE GAMMARIDEAN AMPHIPODA OF FLORIDA

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VOLUME 5

**FAMILIES LEUCOTHOIDAE, LILJEBORGIIDAE, NEOMEGAMPHOPIDAE,
OCHLESIDAE, PHLIANTIDAE, PHOXOCEPHALIDAE, PLATYISCHNOPIDAE,
PLEUSTIDAE, PODOCERIDAE, PONTOPOREIIDAE, SEBIDAE,
STENOTHOIDAE, SYNOPIIDAE AND TALITRIDAE**

Cover illustration: *Eudevenopus honduranus* Thomas and Barnard, 1983
(reproduced from Thomas and Barnard, 1983)

**State of Florida
Department of Environmental Protection
Tallahassee**

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May 2011

**An Illustrated Identification Guide to the Nearshore Marine and Estuarine
Gammaridean Amphipoda of Florida**

Volume 5

**Families Leucothoidae, Liljeborgiidae, Neomegamphopidae, Ochlesidae, Phliantidae,
Phoxocephalidae, Platyischnopidae, Pleustidae, Podoceridae, Pontoporeiidae,
Sebidae, Stenothoidae, Synopiidae and Talitridae**

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Family Leucothoidae Dana, 1852

Regional diagnosis: Antennae 1-2 extending anteriorly from head; antenna 1 not reduced, reaching beyond peduncle article 4 of antenna 2; antenna 2 not reduced, more than half length of antenna 1; head not globular, rostrum small, straight, buccal mass not exceptionally large relative to size of head, eyes present, lateral, well-developed; mandible without molar, palp present, 3-articulate; coxae 1-3 subequal in depth; gnathopod 1 well-developed, carpochele, smaller than gnathopod 2, carpus and propodus of adult male without long terminal setae, dactyl present in adult male (may be minute); gnathopod 2, ischium not elongate, less than twice as long as wide, carpal lobe strongly produced, elongate, reaching or nearly reaching palmar angle and tip of closed dactyl, propodus stout, subovate, larger than carpus; pereopod 7 subequal to pereopod 6 in length; urosome segments 1-3 separate, segment 1 not elongate, deeper than long; uropod 3 biramous; telson entire, subtriangular.

Florida genera: *Leucothoe*

Remarks: Although the family Anamixidae is currently considered to be synonymous with the Leucothoidae (Lowry et al., 2000; Lowry and Springthorpe, 2001; Lowry and Stoddart, 2003), this was not the case when Volume 1 of this guide (LeCroy, 2000), which contains the key to families, was produced. As a consequence, the two families were treated separately in that key and for reasons of internal consistency, are treated separately herein. However, it should be remembered that the Leucothoidae now also contains the genus *Anamixis*, as well as other “anamixid” genera not found in Florida waters.

Genus *Leucothoe* Leach, 1814

Regional diagnosis: That of the family.

Florida species: *L. ashleyae*, *L. barana*, *L. flammosa*, *L. garifunae*, *L. kensleyi*, *L. laurensi*, *L. ubouhu*, *L. wuriti*, *Leucothoe* sp. B, *Leucothoe* sp. D, *Leucothoe* sp. F

Remarks: The genus *Leucothoe* is a large one, containing approximately 96 known species worldwide (White and Thomas, 2009), as well as a great many undescribed species. They are usually sponge commensals, although some species are found in bivalve molluscs or ascidians rather than sponges. Members of the genus are closely similar in morphology and, until relatively recently (Crowe, 2006), the type species of the genus, *Leucothoe spinicarpa* (Abildgaard, 1789) from Denmark, was poorly described. This has resulted in a great deal of taxonomic confusion within the group and many species have been lumped together in the literature as *L. spinicarpa*. This includes a number of Florida records (e.g. Pearse, 1912, 1932; Lewis, 1987; Charvat, et al., 1990; Nelson, 1995), which are unlikely to actually represent *L. spinicarpa*, and the material on which these records are based will have to be reexamined in light of recent descriptions of new species in the area in order to determine their true identity.

An additional Florida species of *Leucothoe*, *Leucothoe* sp. 1 of Thomas (1993), occurs from North Carolina to the Florida Keys and is also found in Belize (Thomas, 1993). No material of this species was located during the preparation of this guide and therefore it could not be included in the key. However it is easily recognized by the presence of a long, blade-like anterodistal process overhanging the insertion of the dactyl on gnathopod 2, very similar to the process found in *L. laurensi*. This species differs from *L. laurensi* in the very short dactyl of gnathopod 1, which does not extend beyond the tip of the carpal lobe. The dactyl of *L. laurensi* is much longer, extending well beyond the tip of the carpal lobe.

A second undescribed species, *Leucothoe* sp. B of Thomas and Klebba (2007; not *Leucothoe* sp. B herein) is known to occur in the Florida Keys (Long Key), but could not be included in this guide because of a lack of material for examination. This species occurs in the egg cockle *Laevicardium laevigatum* (Linnaeus, 1758) and only three specimens have been found to date (K. Klebba White, pers. comm.). It may be recognized by the presence of apical plumose setae on the three large palmar processes of the male second gnathopod and by the truncate anterodorsal angle of the midventral keel on the head (Thomas and Klebba, 2007; K. Klebba White, pers. com.)

Finally, although Thomas and Klebba (2007) mention in the text that *L. urospinosa* Serejo, 1998 from Brazil also occurs in Florida, this is incorrect and the species is currently known only from Brazil and Belize (K. Klebba White, pers. com.)

KEY TO FLORIDA SPECIES OF *LEUCOTHOE*

1. < Gnathopod 1, dactyl very short, tip not reaching beyond tip of carpal lobe 2

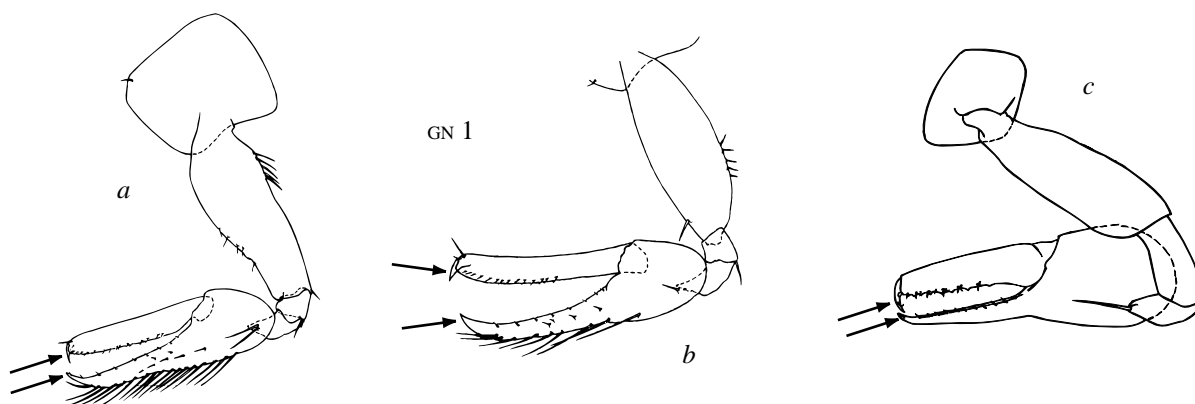


Figure 503.

- < Gnathopod 1, dactyl long, tip extending well past tip of carpal lobe 3

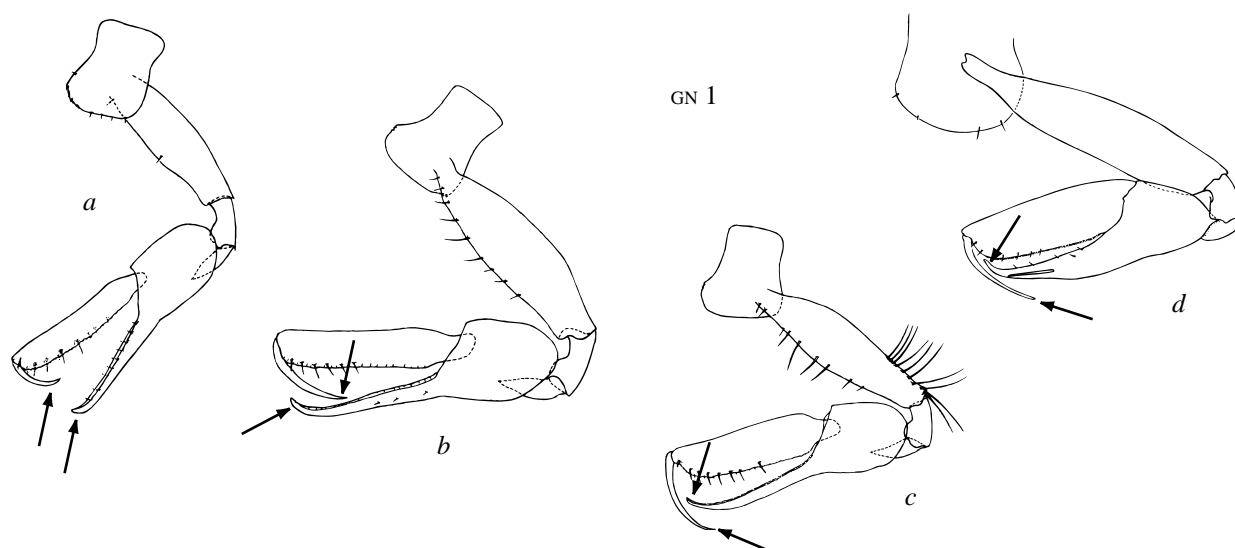


Figure 504.

2. < Ocular lobe rounded; gnathopod 1, basis, posterior margin with proximal or central row of short setae, carpal lobe stout, posterior margin lined with long setae, propodus, posterior margin entire; pereopod 7, basis not narrowing distally, posterior margin weakly convex *Leucothoe flammosa*

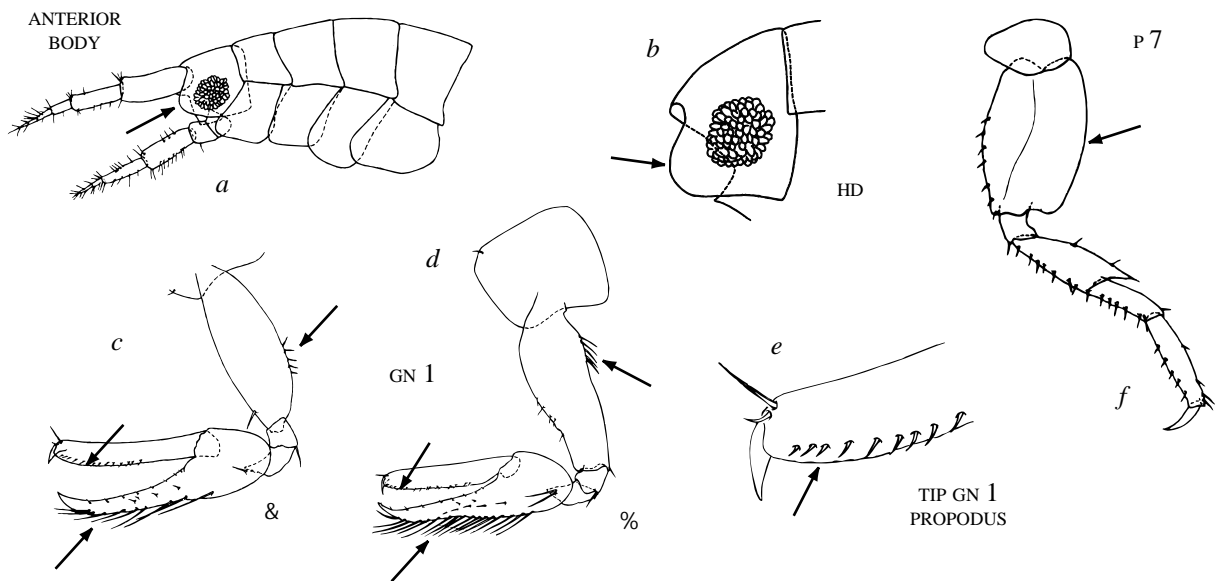


Figure 505.

- < Ocular lobe angled; gnathopod 1, basis, posterior margin without proximal or central row of short setae, carpal lobe slender, posterior margin not lined with long setae, propodus, posterior margin coarsely serrate; pereopod 7, basis narrowing distally, posterior margin strongly convex *Leucothoe* sp. D

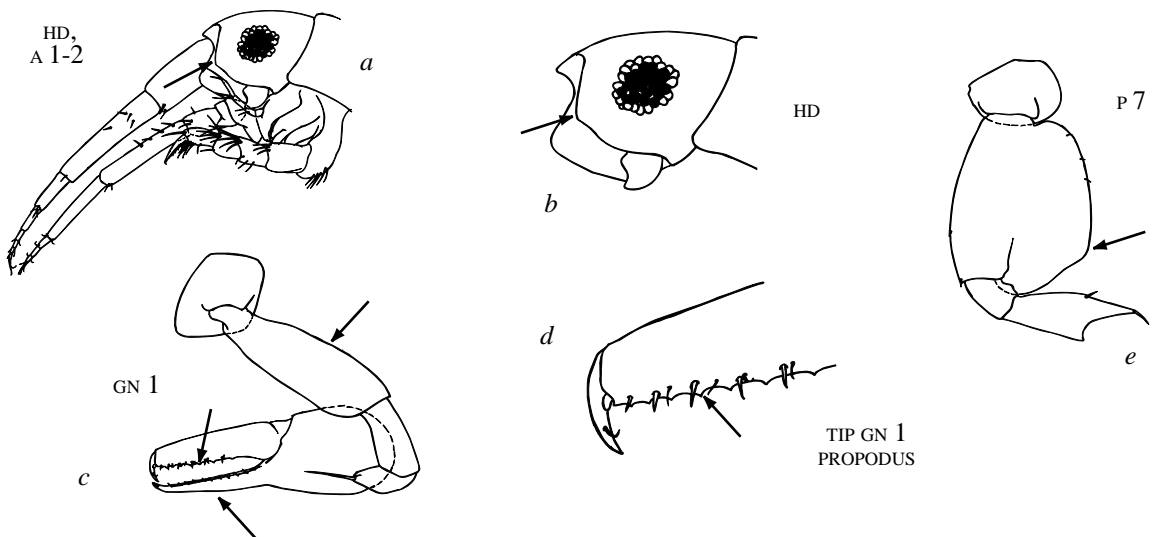


Figure 506.

3. < Mandible, incisor process entire, spines in raker row short, left lacinia mobilis reduced, spine-like, palp article 3 only slightly shorter than article 2; coxa 1, anteroventral angle not produced; gnathopod 1, carpal lobe with long seta on distomedial surface; gnathopod 2, propodus with long, blade-like anterodistal process overhanging insertion of dactyl, palm flat, nearly transverse, shorter than hind margin, without teeth or processes, dactyl stout, weakly curved, with apical nail, posterior margin lined with fine setules *Leucothoe laurensi*

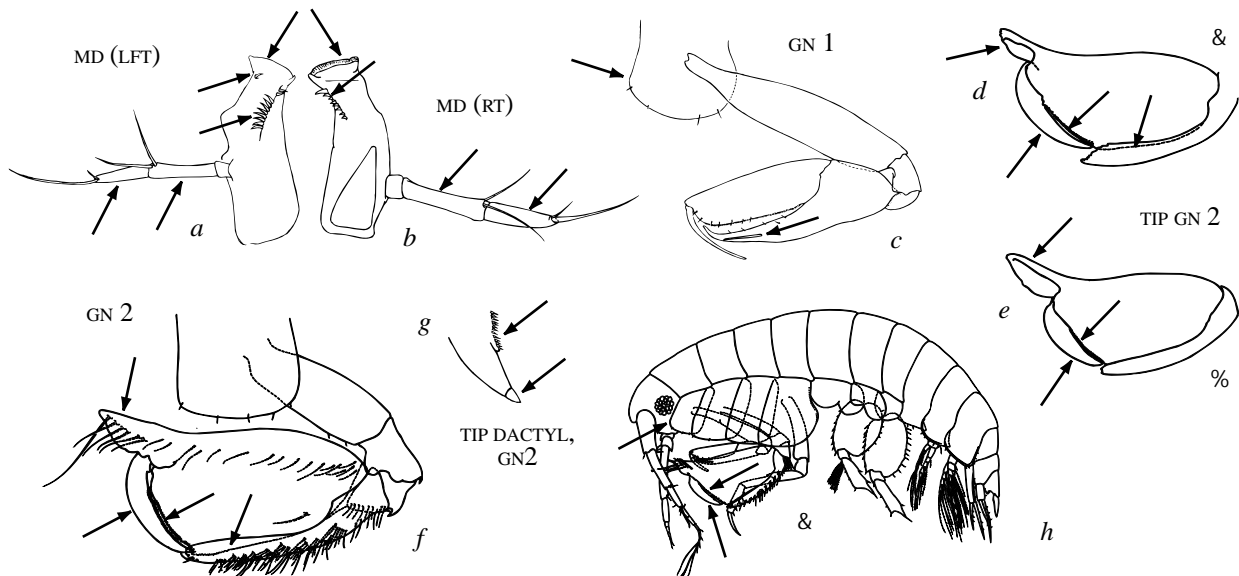


Figure 507.

- < Mandible, incisor process dentate or serrate, spines in raker row long, left lacinia mobilis unreduced, fan-shaped, apical margin dentate or serrate, palp article 3 no more than two thirds length of article 2; coxa 1, anteroventral angle produced; gnathopod 1, carpal lobe without long seta on distomedial surface; gnathopod 2, propodus without long, blade-like anterodistal process overhanging insertion of dactyl, palm convex, oblique, usually continuous with, subequal to or longer than hind margin (if shorter than hind margin, then strongly dentate), dactyl slender, strongly curved, without apical nail, posterior margin entire, without fine setules 4

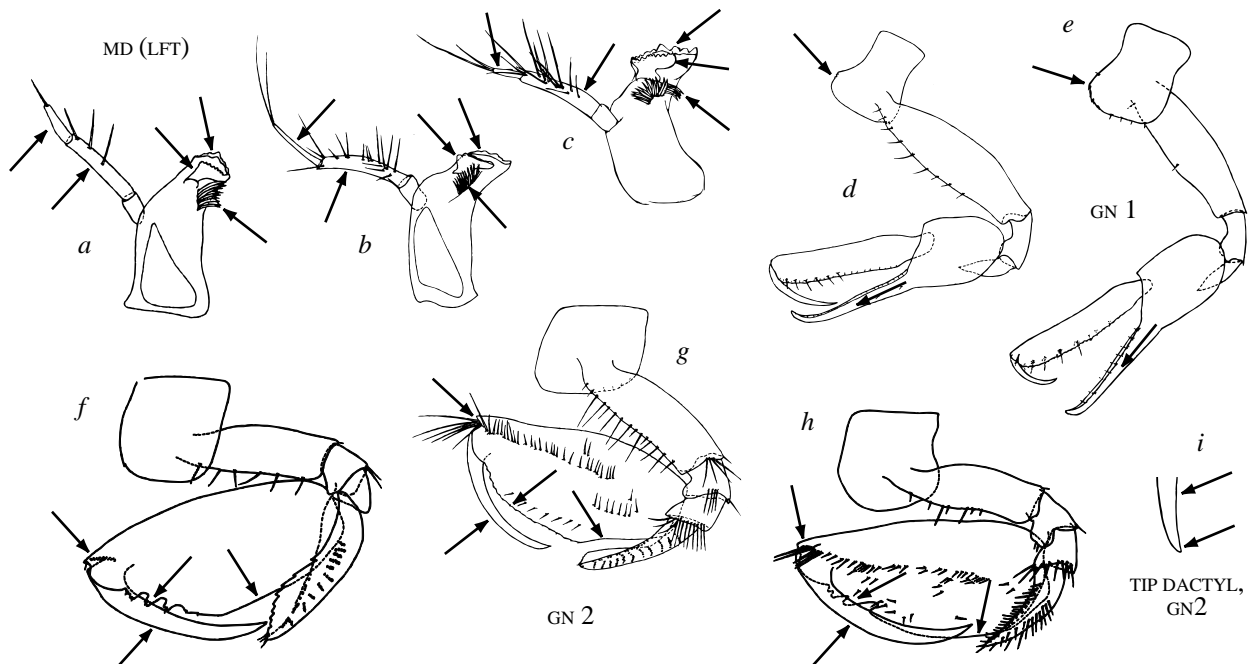


Figure 508.

4. < Ocular lobe acute; mandible, palp article 3 with 1 apical seta; coxa 4, anteroventral angle acute, often minutely notched; gnathopod 2 of male, propodus, palm lacking teeth or processes (may be crenulate) *Leucothoe kensleyi*

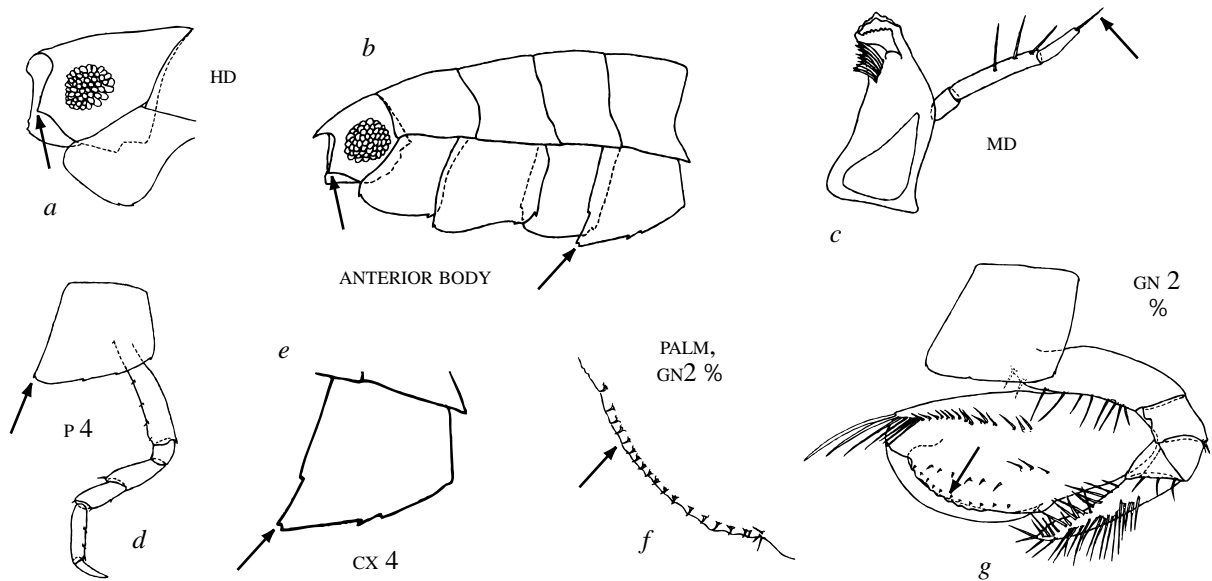


Figure 509.

- < Ocular lobe rounded, angled or subacute; mandible, palp article 3 with 2 apical setae; coxa 4, anteroventral angle rounded, entire; gnathopod 2 of male, propodus, palm with teeth or processes (may be small) 5

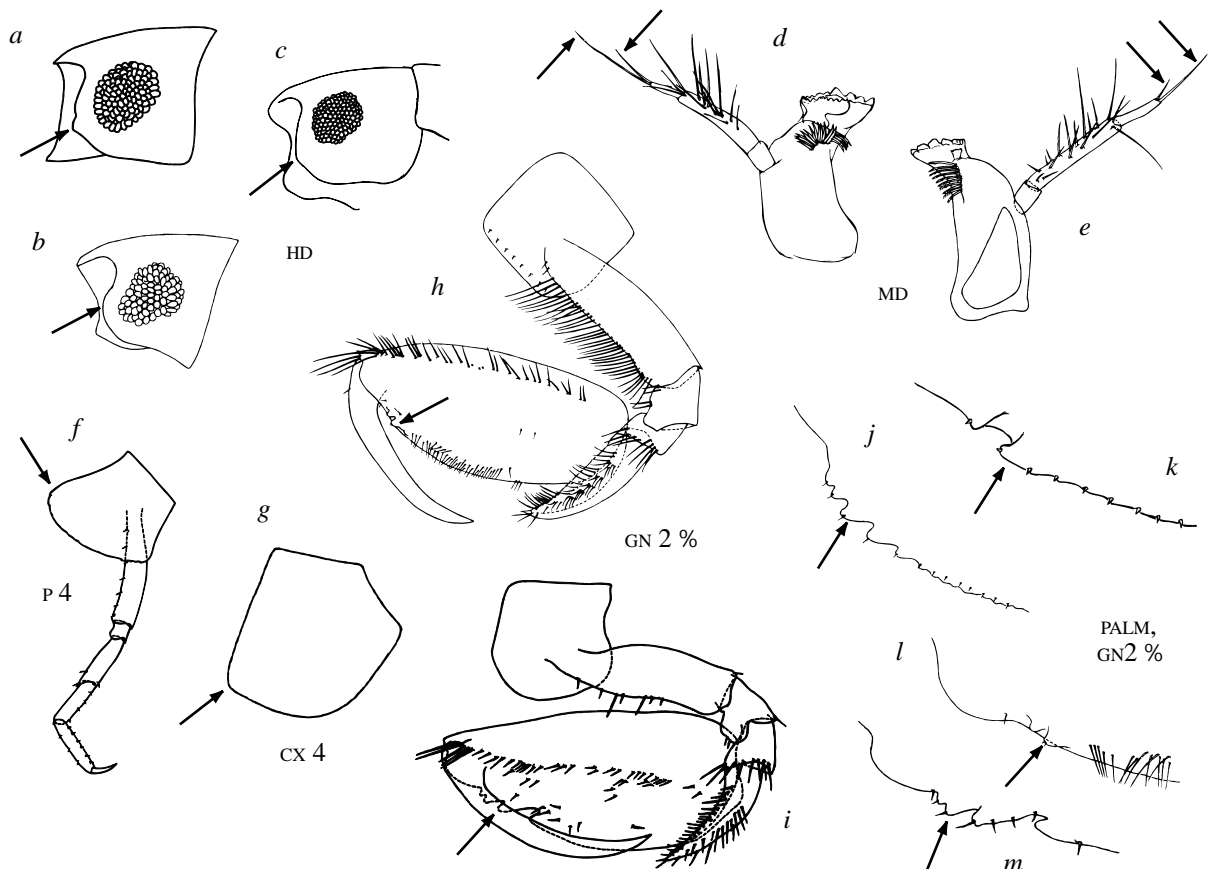


Figure 510.

5. < Ocular lobe rounded 6



Figure 511.

- < Ocular lobe angled or subacute 8

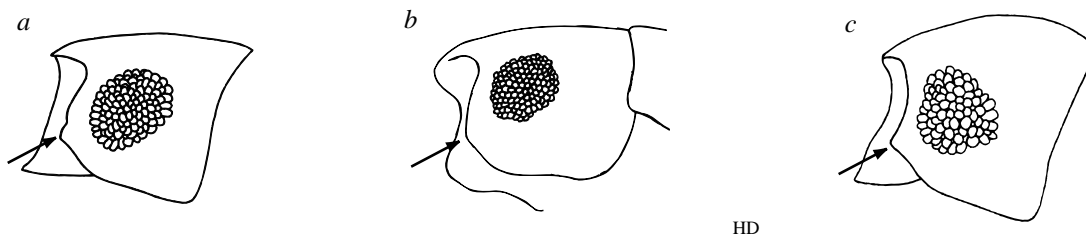


Figure 512.

6. < Mandible, palp article 3, shortest apical seta approximately one third length of longest; coxa 1 with long, anteroventral submarginal seta on medial surface; gnathopod 2, carpal lobe not broadly expanded distally, propodus, primary mediofacial setal row diverging strongly from anterior margin, secondary mediofacial setal row absent; epimeron 3, posteroventral angle produced and subacute *Leucothoe wuriti*

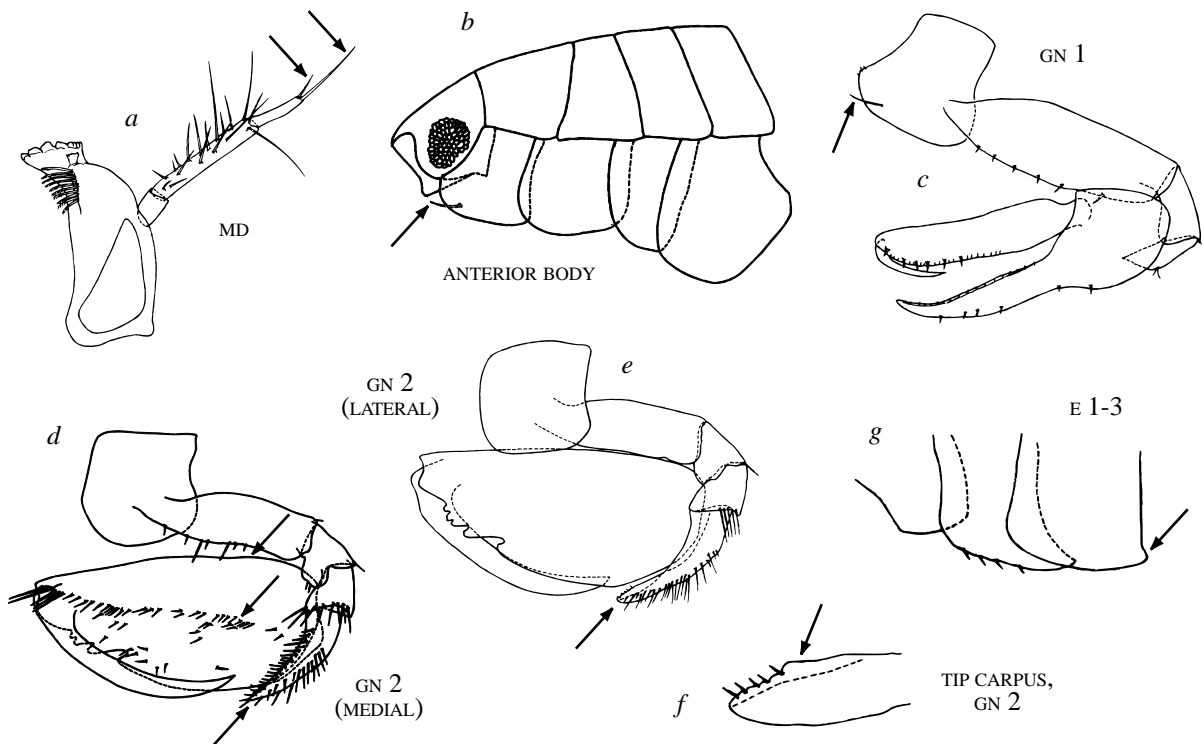


Figure 513.

< Mandible, palp article 3, shortest apical seta at least one half length of longest; coxa 1 without long, anteroventral submarginal seta on medial surface; gnathopod 2, carpal lobe broadly expanded distally, propodus, primary mediofacial setal row parallel to or diverging weakly from anterior margin, secondary mediofacial setal row present; epimeron 3, posteroventral angle subquadrate 7

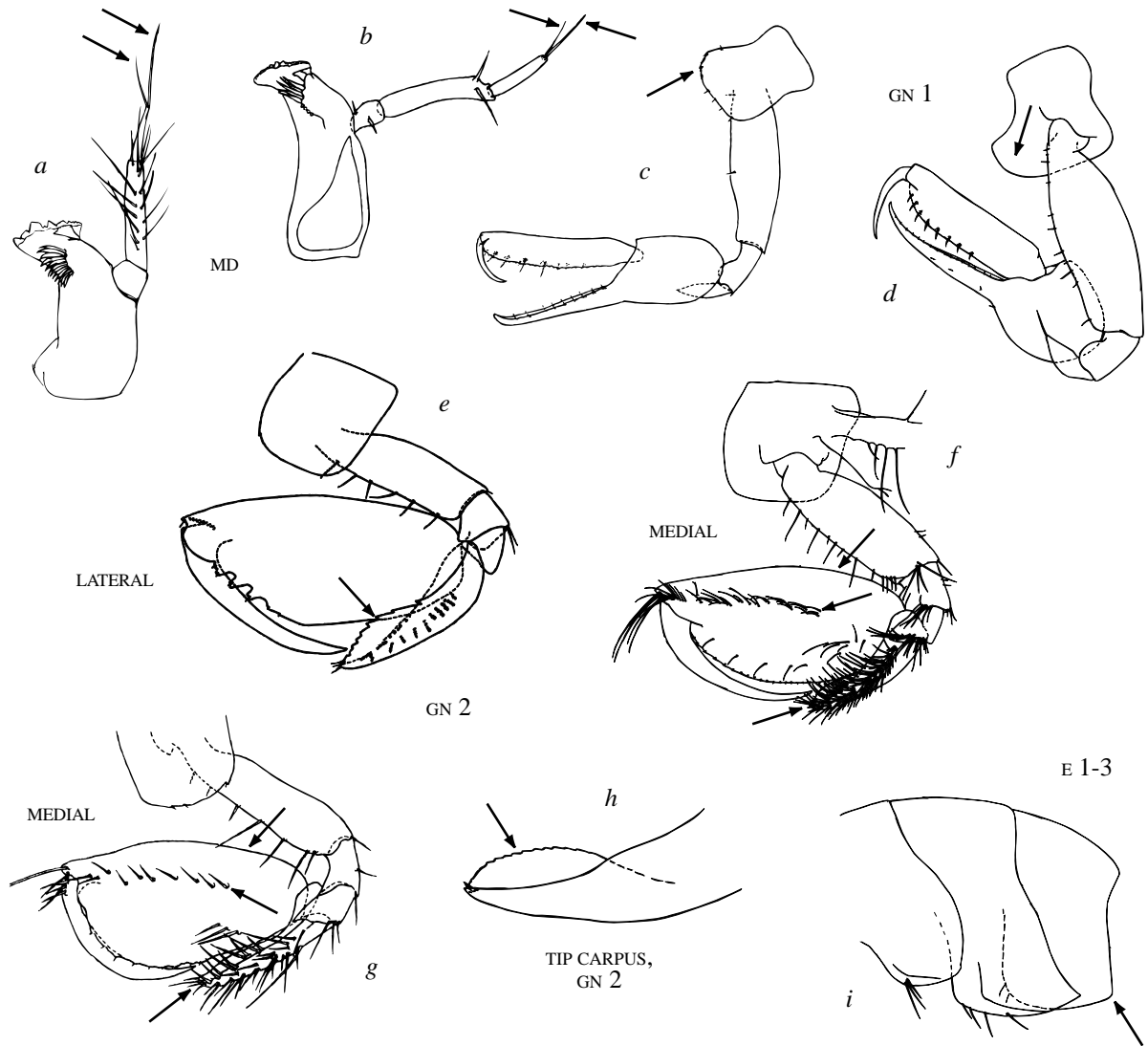


Figure 514.

7. < Head, midventral keel, anterior margin concave, without small central bump, anteroventral angle rounded; mandible, incisor process weakly dentate, palp article 2 with 2 short distal setae only, article 3 relatively stout (L:W = 3:1), not tapering distally; gnathopod 2, basis, anterior margin without separate cluster of close-set setae distally, carpal lobe obliquely truncate distally, distal and lateral margins serrate, propodus of male with 2-3 large palmar processes near dactylar articulation *Leucothoe ashleyae*

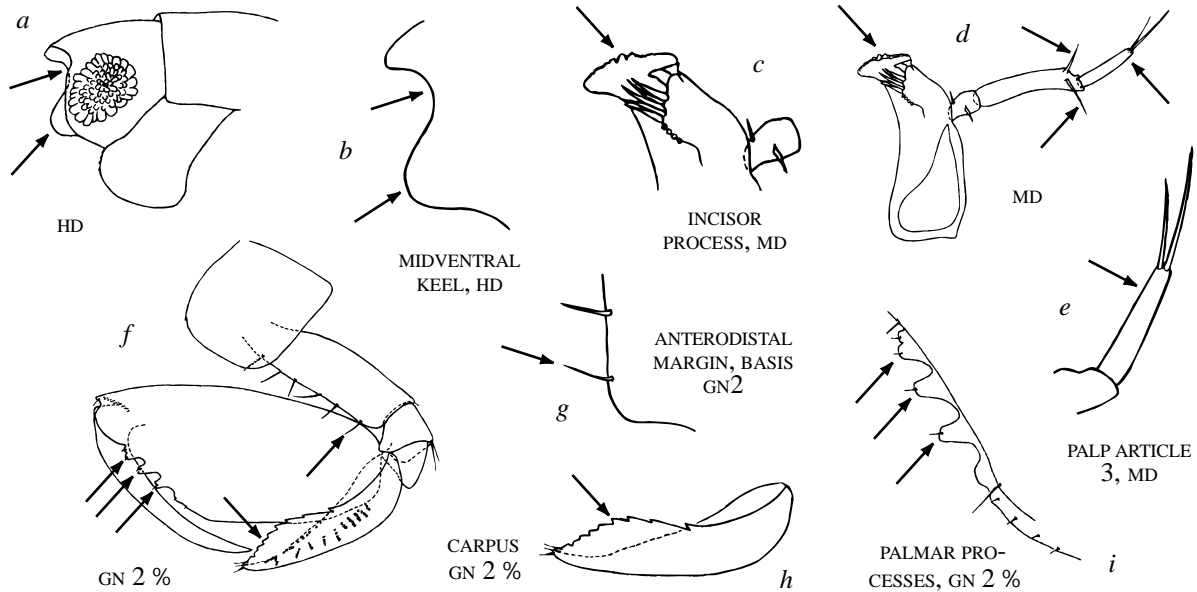


Figure 515.

- < Head, midventral keel, anterior margin sinuous, with small central bump, anteroventral angle angled; mandible, incisor process strongly dentate, palp article 2 with 10-15 long marginal setae, article 3 slender (L:W = 12:1), tapering distally; gnathopod 2, basis, anterior margin with separate cluster of 2-4 close-set setae distally, carpal lobe rounded distally, distal and lateral margins crenulate, propodus of male with 2-7 small palmar processes in distal half *Leucothoe* sp. B

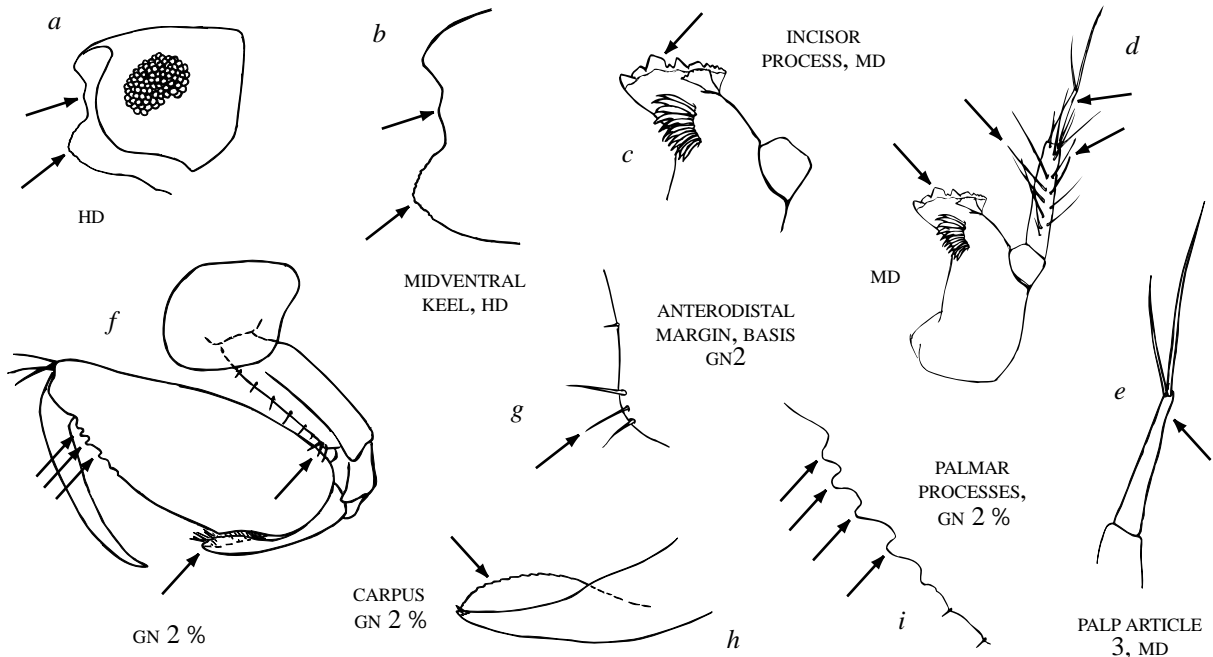


Figure 516.

8. < Head, midventral keel, anteroventral angle acute, extending forward beyond anterodorsal angle; gnathopod 1 of female, basis, posterior margin without distal cluster of long setae; gnathopod 2 of male, basis not expanded anterodistally, anterior margin with long or both long and short setae 9

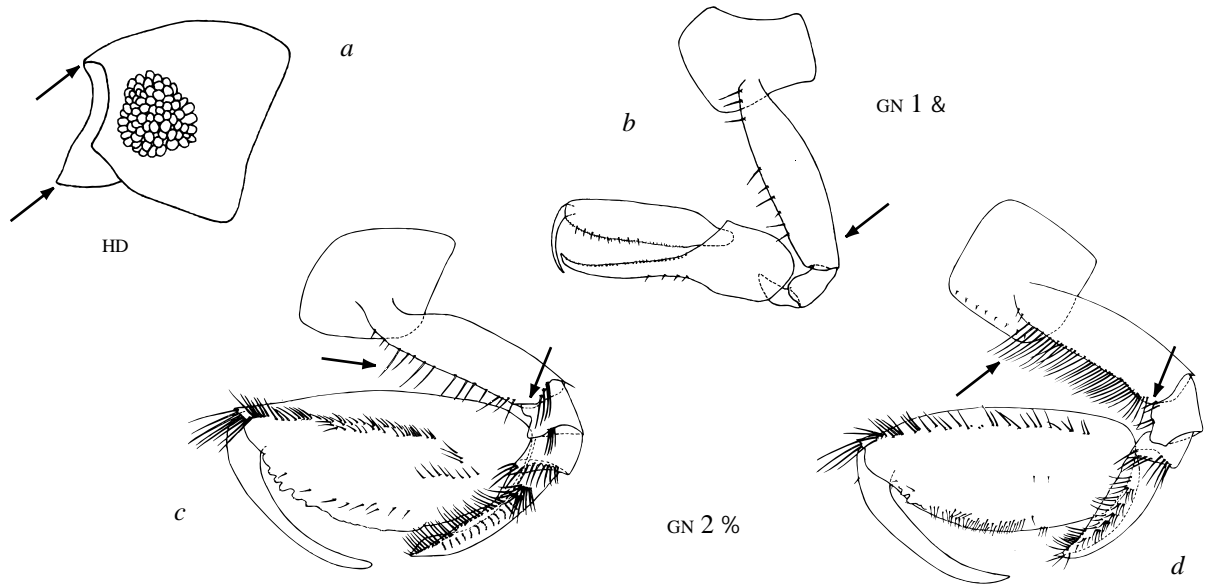


Figure 517.

- < Head, midventral keel, anteroventral angle subquadrate, extending forward subequally with anterodorsal angle; gnathopod 1 of female, basis, posterior margin with distal cluster of long setae; gnathopod 2 of male, basis slightly expanded distally, forming small lobe, anterior margin with short setae only 10

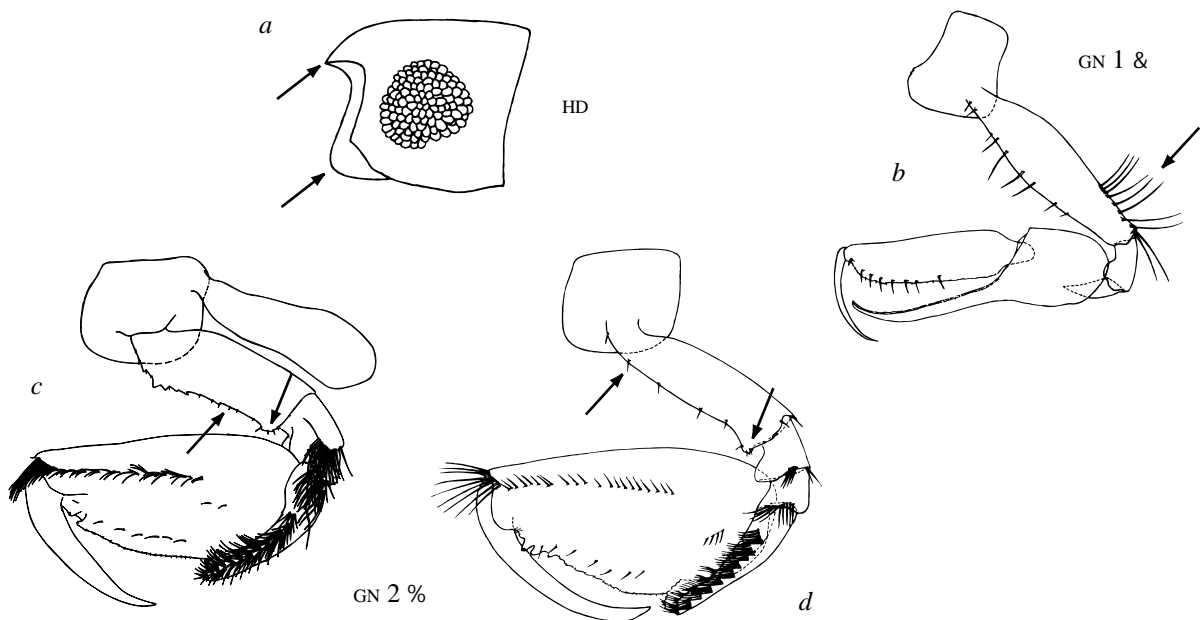


Figure 518.

9. < Mandible, incisor process strongly dentate; coxae 1-4, ventral margins weakly serrate or crenulate; coxa 2 broader than deep; coxa 4 not excavate posteriorly, ventral margin weakly convex; gnathopod 2, basis, anterior margin sparsely lined with long and short setae, propodus, secondary mediofacial setal row well-developed, palm with 4-5 small distal processes, processes distinctly weaker in female; peraeopod 7, basis not narrowing distally, posterior margin weakly convex; uropod 3, peduncle nearly twice length of rami

..... *Leucothoe barana*

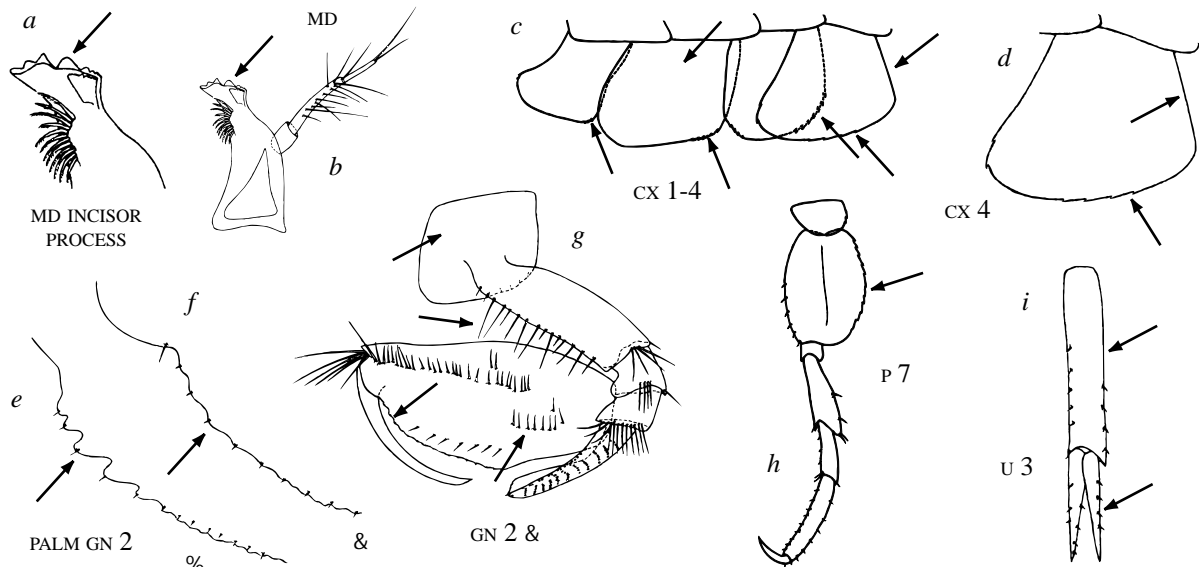


Figure 519.

- < Mandible, incisor process weakly dentate; coxae 1-4, ventral margins entire; coxa 2 subquadrate; coxa 4 excavate posteriorly, ventral margin strongly convex; gnathopod 2, basis, anterior margin densely lined with very long setae, propodus, secondary mediofacial setal row poorly developed or absent, palm with 2 very small distal processes, processes slightly weaker in female; peraeopod 7, basis narrowing distally, posterior margin strongly convex; uropod 3, peduncle slightly longer than rami

..... *Leucothoe garifunae*

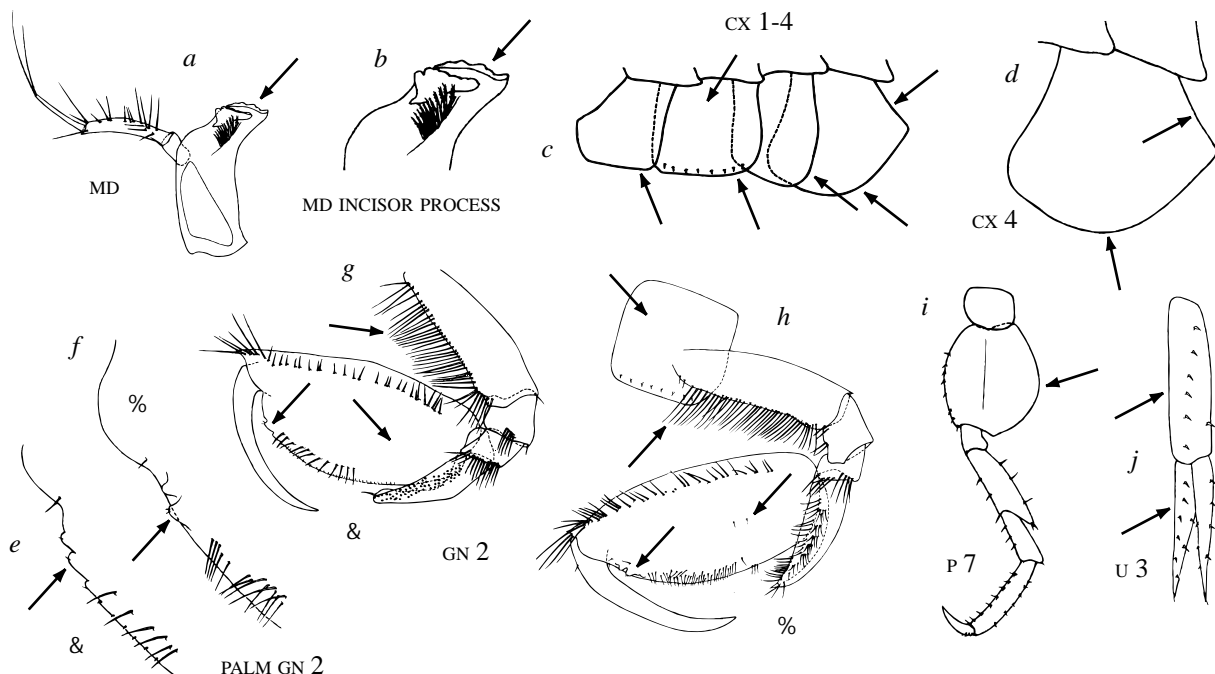


Figure 520.

10. < Mandible, palp article 3 slender ($L:W = 8:1$), approximately one half length of article 2; gnathopod 2, basis of male, anterior margin entire, not lined with sharp tubercles proximally, that of female with separate cluster of short, close-set setae distally, propodus of male with 2-3 distal palmar processes, two largest separated by a narrow, v-shaped gap; epimeron 1 without cluster of setae on anteroventral margin; uropod 3, peduncle approximately one and one half times length of rami, rami subequal in length *Leucothoe ubouhu*

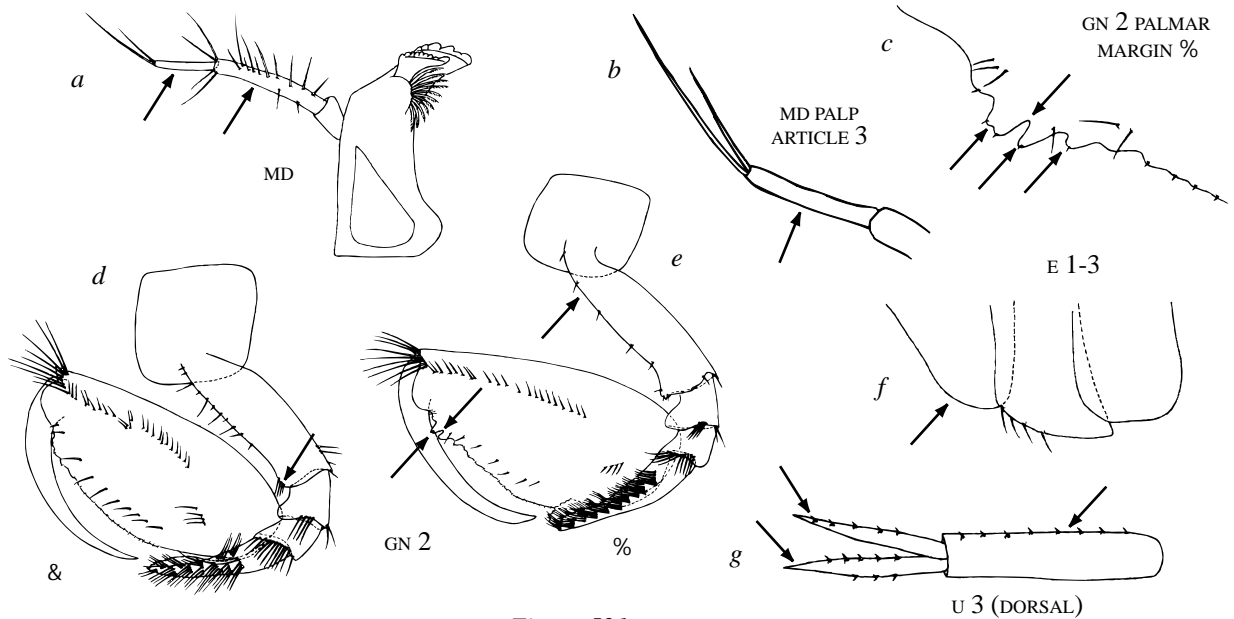


Figure 521.

- < Mandible, palp article 3 stout ($L:W = 4:1$), approximately one third length of article 2; gnathopod 2, basis of male, anterior margin lined with sharp tubercles proximally, that of female with separate cluster of long, close-set setae distally, propodus of male with 2 large distal palmar processes separated by a broad, u-shaped gap; epimeron 1 with cluster of setae on anteroventral margin; uropod 3, peduncle slightly longer than inner ramus, inner ramus slightly longer than outer *Leucothoe* sp. F

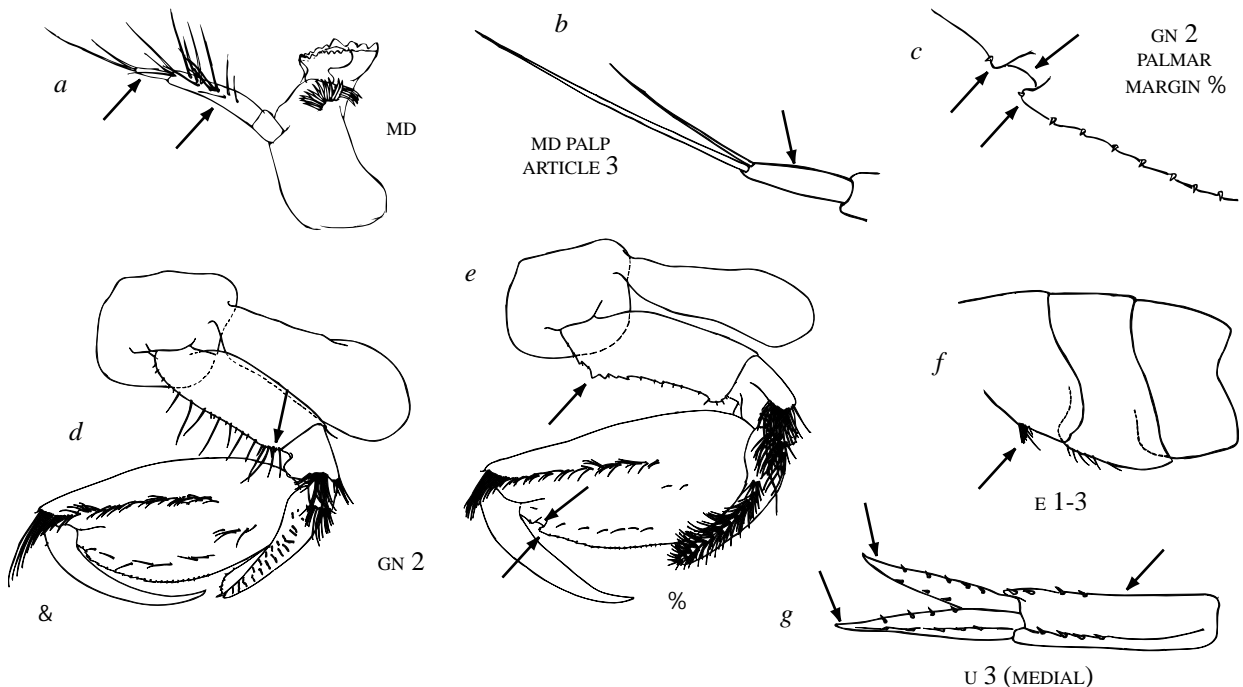


Figure 522.

***Leucothoe ashleyae* Thomas and Klebba, 2006**
(Figure 515)

Leucothoe ashleyae Thomas and Klebba, 2006, pp. 14-16, figs. 1-3, 7.

Regional diagnosis: Head, ocular lobe rounded, midventral keel, anterior margin concave, without small central bump, anteroventral angle rounded, extending forward subequally with anterodorsal angle; mandible, incisor process weakly dentate, spines in raker row long, left lacinia mobilis unreduced, fan-shaped, apical margin dentate or serrate, palp article 2 with 2 short distal setae only, article 3 stout (L:W = 3:1), not tapering distally, approximately one-half length of article 2, with 2 apical setae, shortest apical seta at least one-half length of longest; coxae 1-4, ventral margins entire; coxa 1 without long, anteroventral, submarginal seta on medial surface, anteroventral angle produced; coxa 2 subquadrate; coxa 4 excavate posteriorly, ventral margin strongly convex, anteroventral angle rounded, entire; gnathopod 1, basis, posterior margin without proximal or central row of short setae, that of female without distal cluster of long setae, carpal lobe slender, without long seta on distomedial surface, posterior margin not lined with long setae, propodus, posterior margin minutely serrate, dactyl long, tip extending well past tip of carpal lobe; gnathopod 2, basis, anterior margin sparsely lined with long setae, without separate cluster of close-set setae distally, that of male entire, without sharp tubercles proximally, not expanded anterodistally, carpal lobe broadly expanded, obliquely truncate distally, distal and lateral margins serrate, propodus without long, blade-like anterodistal process overhanging insertion of dactyl, primary medifacial setal row diverging slightly from anterior margin, secondary medifacial setal row present, well-developed, palm convex, oblique, that of male shorter than hind margin, with 2-3 large processes near dactylar articulation, processes separated by narrow, u-shaped gaps, that of female longer than hind margin, weakly crenulate or serrate, dactyl slender, strongly curved, without apical nail, posterior margin entire, without fine setules; pereopod 7, basis narrowing distally, posterior margin strongly convex; epimeron 1 with cluster of setae on anteroventral margin; epimeron 3, posteroventral angle subquadrate; uropod 3, peduncle subequal to inner ramus in length, inner ramus slightly longer than outer.

Distribution: South Florida; Florida Keys; Bahamas; Vieques, Puerto Rico; Belize; Roatan, Honduras (Thomas and Klebba, 2006).

Ecology: This species occurs in coral reef habitats and is an endocommensal of the sponges *Aiolochoira crassa* (Hyatt, 1875), *Amphimedon compressa* Duchassaing and Michelotti, 1864, *Callyspongia vaginalis* (Lamarck, 1814), *Haliclona mucifibrosa* de Weerd, Rützler & Smith, 1991, *Iotrochota birotulata* (Higgin, 1877), *Mycale laxissima* (Duchassaing and Michelotti, 1864), *Niphates digitalis* (Lamarck, 1814), *Niphates erecta* Duchassaing and Michelotti, 1864, and *Tedania ignis* (Duchassaing and Michelotti, 1864) (Thomas and Klebba, 2006; 2007). *Leucothoe ashleyae* has been found at depths ranging from 1 to 20 m (Thomas and Klebba, 2006).

Remarks: *Leucothoe ashleyae* is a relatively small species, ranging from 3 to 4.5 mm in length. It is one of only two Florida species in the genus to have a broadly expanded carpal lobe on gnathopod 2, the other being *Leucothoe* sp. B. However, the morphology of the carpal lobe is somewhat different between the two species (obliquely truncate distally with serrate distal and lateral margins in *L. ashleyae* vs. rounded distally with crenulate distal and lateral margins in *L. sp. B*). *Leucothoe ashleyae* also differs from *Leucothoe* sp. B in size; *L. sp. B*, although variable, is generally larger than *L. ashleyae*, often much larger, ranging from 5 to 10 mm in length. Other differences include the mandibular morphology (weakly dentate incisor process, sparsely setose palp article 2 and relatively stout article 3 in *L. ashleyae* vs. strongly dentate incisor process, densely setose palp article 2 and slender article 3 in *L. sp. B*), the shape of the midventral keel on the head (evenly concave in *L. ashleyae* vs. sinuous in *L. sp. B*) and the dentition of the palm of gnathopod 2 in the male (large processes in *L. ashleyae* vs. small processes, often more numerous processes in *L. sp. B*).

Leucothoe ashleyae is relatively uncommon in Florida waters and has only been found in small numbers within the tube sponge *Callyspongia vaginalis* in the Florida Keys (Thomas and Klebba, 2006; 2007). These amphipods feed by filtering particles from the water passing through the central cavity of the sponge, trapping them on the numerous setae lining the medial surfaces of the carpal lobes on the second gnathopods (Thomas & Kelbba, 2006; 2007).

See Thomas and Klebba, 2006; 2007

***Leucothoe barana* Thomas and Klebba, 2007**
(Figure 519)

Leucothoe barana Thomas and Klebba, 2007, pp. 5-10, figs. 1-3, 7A-B.

Regional diagnosis: Head, ocular lobe angled, midventral keel, anterior margin concave, without small central bump, anteroventral angle acute, extending forward beyond anterodorsal angle; mandible, incisor process strongly dentate, spines in raker row long, left lacinia mobilis unreduced, fan-shaped, apical margin dentate or serrate, palp article 2 with 12-14 long marginal setae, article 3 slender (L:W = 12:1), not tapering distally, approximately one-half length of article 2, with 2 apical setae, shortest apical seta at least one-half length of longest; coxae 1-4, ventral margins weakly serrate or crenulate; coxa 1 without long, anteroventral submarginal seta on medial surface, anteroventral angle produced; coxa 2 broader than deep; coxa 4 not excavate posteriorly, ventral margin weakly convex, anteroventral angle rounded, entire; gnathopod 1, basis, posterior margin without proximal or central row of short setae, that of female without distal cluster of long setae, carpal lobe slender, without long seta on distomedial surface, posterior margin not lined with long setae, propodus, posterior margin minutely crenulate, dactyl long, tip extending well past tip of carpal lobe; gnathopod 2, basis, anterior margin sparsely lined with both long and short setae, without separate cluster of close-set setae distally, that of male entire, not lined with sharp tubercles proximally, not expanded anterodistally, carpal lobe not broadly expanded, subtruncate or rounded distally, distal margin crenulate, lateral margin entire, propodus without long, blade-like anterodistal process overhanging insertion of dactyl, primary mediodorsal setal row diverging slightly from anterior margin, secondary mediodorsal setal row present, well-developed, palm convex, oblique, longer than hind margin, that of male with 4-5 small processes near dactylar articulation, processes separated by narrow u- or v-shaped gaps, that of female entire or with very weak processes, dactyl slender, strongly curved, without apical nail, posterior margin entire, without fine setules; pereopod 7, basis not narrowing distally, posterior margin weakly convex; epimeron 1 without cluster of setae on anteroventral margin; epimeron 3, posteroventral angle subquadrate; uropod 3, peduncle nearly twice length of rami, rami subequal in length.

Distribution: Florida Keys to Belize (Thomas and Klebba, 2007).

Ecology: This species occurs in grassbed and patch reef habitats within the sponges *Amphimedon compressa*, *Calyx podatypa* (de Laubenfels, 1934), *Iotrochota birotulata*, *Leucetta imberbis* (Duchassaing and Michelotti, 1864), *Niphates erecta*, *Spheciospongia vesparium* (Lamarck, 1815), *Svenzea zeai* (Alvarez, van Soest and Rützler, 1998) and *Tedania ignis* at depths of 1 to 15 m (Thomas and Klebba, 2007). In Florida, it has only been found in *Spheciospongia vesparium*, the loggerhead sponge (Thomas and Klebba, 2007).

Remarks: *Leucothoe barana* is a large species, with adults ranging in size from 8 to 10 mm. This species can be distinguished from all other Florida *Leucothoe* species except *L. garifunae* by the acute anteroventral angle of the midventral keel on the head extending anteriorly well beyond the anterodorsal angle. It is most easily separated from *L. garifunae* by the strongly dentate incisor process on the mandible (weakly dentate in *L. garifunae*), the non-excavate posterior margin and weakly convex ventral margin of coxa 4 (excavate and strongly convex in *L. garifunae*), the sparse long and short setae on the anterior margin of the basis of gnathopod 2 (dense long setae only in *L. garifunae*), the more slender basis of pereopod 7 with its weakly convex posterior margin (broad with a strongly convex posterior margin in *L. garifunae*) and by having the peduncle of uropod 3 nearly twice the length of the rami (only slightly longer than the rami in *L. garifunae*.)

In life, *Leucothoe barana* is either red or reddish purple.

See Thomas and Klebba, 2007.

***Leucothoe flammosa* Thomas and Klebba, 2007**
(Figure 505)

Leucothoe spinicarpa: Ortiz, 1975, p. 8

Leucothoe flammosa Thomas and Klebba, 2007, pp. 10-15, figs. 4-6, 7C-D.

Regional diagnosis: Head, ocular lobe rounded, midventral keel, anterior margin concave, without small central bump, anteroventral angle acute, not extending as far forward as anterodorsal angle; mandible, incisor process serrate, spines in raker row long, left lacinia mobilis unreduced, fan-shaped, apical margin dentate or serrate, palp article 2 with 9-11 relatively short marginal setae, article 3 stout (L:W = 4:1), not tapering distally, approximately one-half length of article 2, with 2 apical setae, shortest apical seta at least one-half length of longest; coxae 1-4, ventral margins entire; coxa 1 without long, anteroventral submarginal seta on medial surface, anteroventral angle slightly produced; coxa 2 broader than deep; coxa 4 not excavate posteriorly, ventral margin weakly convex, anteroventral angle rounded, entire; gnathopod 1, basis, posterior margin with proximal or central row of short setae, that of female without distal cluster of long setae, carpal lobe stout, without long seta on distomedial surface, posterior margin lined with long setae, propodus, posterior margin entire, dactyl very short, tip not reaching beyond tip of carpal lobe; gnathopod 2, basis, anterior margin sparsely lined with short setae, without separate cluster of close-set setae distally, that of male entire, not lined with sharp tubercles proximally, not expanded anterodistally, carpal lobe not broadly expanded, rounded distally, distal margin crenulate, lateral margin entire, propodus without long, blade-like anterodistal process overhanging insertion of dactyl, primary mediofacial setal row parallel to anterior margin, secondary mediofacial setal row absent, palm slightly convex, oblique, slightly longer than hind margin, entire, lacking teeth or processes in both sexes, dactyl slender, strongly curved, without apical nail, posterior margin entire, without fine setules; peraeopod 7, basis not narrowing distally, posterior margin weakly convex; epimeron 1 with single seta on anteroventral margin; epimeron 3, posteroventral angle subquadrate; uropod 3, peduncle nearly twice length of rami, rami subequal in length.

Distribution: Florida Keys to Belize (Thomas and Klebba, 2007).

Ecology: *Leucothoe flammosa* occurs in the branchial chamber of bivalve molluscs on patch reefs and in mangrove habitats. In Florida, host species include *Lima scabra* (Born, 1778) (rough file clam or flame scallop) and *Anadara notabilis* (Roding, 1798) (eared ark). In Belize, it is most common in *Lima scabra*, but also occurs in *Americardia media* (Linnaeus, 1758) (Atlantic strawberry cockle), *Dendostrea frons* (Linnaeus, 1758) (frond oyster), *Lithophaga antillarum* (d'Orbigny, 1842) (giant date mussel), *Lucina pennsylvanica* (Linnaeus, 1758) (Pennsylvania lucine) and *Mytilopsis leucophaeta* (Conrad, 1831) (dark false mussel) (Thomas and Klebba, 2007). This species is found at depths of 1 to 20 m (Thomas and Klebba, 2007).

Remarks: *Leucothoe flammosa* can be readily recognized by the distinctive morphology of gnathopod 1. It is the only species currently known from Florida waters that has a proximal or central row of short setae on the posterior margin of the basis, a proximally (male) or centrally (female) expanded basis and, even more noticeable, a row of long setae lining the posterior margin of the carpal lobe of that appendage. It is also one of only three local species to have a very short dactyl on gnathopod 1, resembling *Leucothoe* sp. D and *Leucothoe* sp. 1 of Thomas (1993) in that regard. However, it lacks the coarsely serrate posterior margin of the propodus of gnathopod 1 that distinguishes *Leucothoe* sp. D and also lacks the long, blade-like anterodistal process on the propodus of gnathopod 2 that is present in *Leucothoe* sp. 1. It is a medium-sized species, ranging in length from 4 to 6 mm.

See Thomas and Klebba, 2007.

***Leucothoe garifunae* Thomas and Klebba, 2007**
(Figure 520)

Leucothoe garifunae Thomas and Klebba, 2007, pp. 15-19, figs. 8-10, 14A-B.

Regional diagnosis: Head, ocular lobe subacute, midventral keel, anterior margin concave, without small central bump, anteroventral angle acute, extending forward beyond anterodorsal angle; mandible, incisor process weakly dentate, spines in raker row long, left lacinia mobilis unreduced, fan-shaped, apical margin dentate or serrate, palp article 2 with 14-16 relatively short marginal setae, article 3 slender (L:W = 18:1), slightly tapering distally, approximately two-thirds length of article 2, with 2 apical setae, shortest apical seta at least one-half length of longest; coxae 1-4, ventral margins entire; coxa 1 without long, anteroventral submarginal seta on medial surface, anteroventral angle produced; coxa 2 subquadrate; coxa 4 excavate posteriorly, ventral margin strongly convex, anteroventral angle rounded, entire; gnathopod 1, basis, posterior margin without proximal or central row of short setae, that of female without distal cluster of long setae, carpal lobe slender, without long seta on distomedial surface, posterior margin not lined with long setae, propodus, posterior margin minutely crenulate, dactyl long, tip extending well past tip of carpal lobe; gnathopod 2, basis, anterior margin densely lined with very long setae, without separate cluster of close-set setae distally, that of male entire, not lined with sharp tubercles proximally, not expanded anterodistally, carpal lobe not broadly expanded, subtruncate distally, distal and lateral margins entire, propodus without long, blade-like anterodistal process overhanging insertion of dactyl, primary mediofacial setal row parallel to anterior margin, secondary mediofacial setal row poorly developed or absent, palm convex, oblique, continuous with hind margin, with 2 very small processes near dactylar articulation, those of male separated by narrow, u-shaped gap, processes slightly weaker in female, dactyl slender, strongly curved, without apical nail, posterior margin entire, without fine setules; pereopod 7, basis narrowing distally, posterior margin strongly convex; epimeron 1 without cluster of setae on anteroventral margin; epimeron 3, posteroventral angle subquadrate; uropod 3, peduncle slightly longer than rami, rami subequal in length.

Distribution: South Florida to Belize (Thomas and Klebba, 2007).

Ecology: This species occurs in patch reef habitats and is an endocommensal of the sponges *Desmapsamma anchorata* (Carter, 1882) (= *Holopsamma helwigi* de Laubenfels, 1936) in Florida and *Iotrochota birotulata*, *Pseudoceratina crassa* and *Leucetta imberbis* in Belize (Thomas and Klebba, 2007). *Leucothoe garifunae* has been found at depths ranging from 1 to 4 m (Thomas and Klebba, 2007).

Remarks: Adults of *Leucothoe garifunae* range from 5-6 mm in length and can be distinguished from all other Florida *Leucothoe* species by the presence of long, dense setae lining the anterior margin of the basis of gnathopod 2 in both males and females. It resembles *L. barana* in having a produced, acute anteroventral angle on the midventral keel of the head, but differs from that species in the morphology of the mandible, coxae 1-4, gnathopod 2, pereopod 7 and uropod 3 (see the Remarks section under *L. barana* for specific differences between these two species.)

See Thomas and Klebba, 2007.

***Leucothoe kensleyi* Thomas and Klebba, 2006**
(Figure 509)

Leucothoe tridens: Barnard, 1965, p. 492; 1970, p. 211, fig. 137; 1971, p. 103 (not *Leucothoe tridens* Stebbing, 1888)
Leucothoe kensleyi Thomas and Klebba, 2006, pp. 17-22, figs. 4-7.

Regional diagnosis: Head, ocular lobe acute, midventral keel, anterior margin slightly concave to nearly straight, without small central bump, anteroventral angle subquadrate, extending forward subequally with anterodorsal angle; mandible, incisor process weakly dentate, spines in raker row long, left lacinia mobilis unreduced, fan-shaped, apical margin dentate or serrate, palp article 2 with 3 short marginal setae in distal one-half, article 3 stout (L:W = 4:1), not tapering distally, approximately one-half length of article 2, with 1 short apical seta; coxae 1-4, ventral margins serrate; coxa 1 without long, anteroventral submarginal seta on medial surface, anteroventral angle produced; coxa 2, slightly broader than deep; coxa 4 not excavate posteriorly, ventral margin nearly straight, anteroventral angle acute, often minutely notched; gnathopod 1, basis, posterior margin without proximal or central row of short setae, that of female without distal cluster of long setae, carpal lobe slender, without long seta on distomedial surface, posterior margin not lined with long setae, propodus, posterior margin minutely serrate, dactyl long, tip extending well past tip of carpal lobe; gnathopod 2, basis, anterior margin sparsely lined with moderately long setae, without separate cluster of close-set setae distally, that of male entire, not lined with sharp tubercles proximally, not expanded anterodistally, carpal lobe not broadly expanded, rounded distally, distal margin serrate, lateral margin entire, propodus without long, blade-like anterodistal process overhanging insertion of dactyl, primary mediofacial setal row diverging slightly from anterior margin, secondary mediofacial setal row present in male, absent in female, palm convex, oblique, longer than hind margin, crenulate or entire, lacking teeth or processes in both sexes, dactyl slender, strongly curved, without apical nail, posterior margin entire, without fine setules; pereopod 7, basis not narrowing distally, posterior margin weakly convex; epimeron 1 without cluster of setae on anteroventral margin; epimeron 3, posteroventral angle subquadrate; uropod 3, peduncle approximately one and one-half times length of inner ramus, inner ramus slightly longer than outer.

Distribution: South Carolina (Southeastern Regional Taxonomic Center [SERTC], South Carolina Department of Natural Resources [SCDNR], unpublished records); South Florida and the Florida Keys to Belize (Thomas and Klebba, 2006); Turks and Caicos Islands; Hawaii (Thomas and Klebba, 2006).

Ecology: This species occurs in grassbed and coral habitats within the sponges *Aiolochoira crassa* (Hyatt, 1875), *Amphimedon compressa* Duchassaing and Michelotti, 1864, *Callyspongia vaginalis*, *Iotrochota birotulata*, and *Mycale laxissima* (Duchassaing and Michelotti, 1864), although *Callyspongia vaginalis* is the only recorded host species in Florida (Thomas and Klebba, 2006; 2007). It has also been collected from the calcareous alga *Goniolithon* and other algae washings (pers. obs.). *Leucothoe kensleyi* has been found at depths of 0.5 to 20 m.

Remarks: *Leucothoe kensleyi* does not closely resemble any other Florida *Leucothoe* species and can be readily recognized by the acute ocular lobe, the palm of gnathopod 2 lacking distinct processes in both sexes and the shape of coxae 1-4 with their serrate, nearly flat ventral margins. Coxa 4 is especially distinctive, with an acute, often minutely notched anteroventral angle and without a posterior excavation. It is a small species and adult sizes range between 2.5 and 3.5 mm.

This species is often found cooccurring with *L. ashleyae* in the sponge *Callyspongia vaginalis* in both the Florida Keys and Belize. However, in Florida collections from this host, *L. kensleyi* is the dominant species numerically, whereas in Belize, *L. ashleyae* is much more abundant (Thomas and Klebba, 2006).

See Thomas and Klebba, 2006; 2007

***Leucothoe laurensi* Thomas and Ortiz, 1995**
(Figure 507)

Leucothoe laurensi Thomas and Ortiz, 1995, pp. 613-616, figs. 1-2.

Regional diagnosis: Head, ocular lobe rounded, midventral keel, anterior margin concave, without small central bump, anteroventral angle subquadrate, extending forward subequally with anterodorsal angle; mandible, incisor process entire, spines in raker row short, left lacinia mobilis reduced, spine-like, palp article 2 with 2 long distal setae only, article 3 stout (L:W = 4:1), slightly tapering distally, slightly shorter than article 2, with 2 apical setae, shortest apical seta approximately one-third length of longest; coxae 1-4, ventral margins entire; coxa 1 without long, anteroventral submarginal seta on medial surface, anteroventral angle not produced; coxa 2 deeper than broad; coxa 4, not excavate posteriorly, ventral margin weakly convex, anteroventral angle subquadrate, entire; gnathopod 1, basis, posterior margin without proximal or central row of short setae, that of female without distal cluster of long setae, carpal lobe stout, with long seta on distomedial surface, posterior margin not lined with long setae, propodus, posterior margin minutely spinose, dactyl long, tip extending well past tip of carpal lobe; gnathopod 2, basis, anterior margin with scattered short setae, without separate cluster of close-set setae distally, that of male entire, not lined with sharp tubercles proximally, not expanded anterodistally, carpal lobe not broadly expanded, narrowly rounded distally, distal margin crenulate, lateral margin entire, propodus with long, blade-like anterodistal process overhanging insertion of dactyl, primary mediofacial setal row parallel to anterior margin, secondary mediofacial setal row weak or absent, palm flat, nearly transverse, shorter than hind margin, lined with short, stubby spines, without teeth or processes in both sexes, dactyl stout, weakly curved, with apical nail, posterior margin lined with fine setules; pereopod 7, basis narrowing distally, posterior margin strongly convex; epimeron 1 without cluster of setae on anteroventral margin; epimeron 3, posteroventral angle subquadrate; uropod 3, peduncle slightly shorter than inner ramus, inner ramus slightly longer than outer.

Distribution: Southeastern United States from North Carolina to the Florida Keys; Isla de la Juventud, Cuba; Ascension Island to the Central Caribbean (Thomas and Ortiz, 1995); ?Brazil (Serejo, 1998a); Turks and Caicos Islands; South Carolina (SERTC, SCDNR, unpublished records).

Ecology: *Leucothoe laurensi* has been found under coral overhangs in coral reef habitats and also on fine sand bottoms at depths ranging from 5 to 50 m (Thomas and Ortiz, 1995).

Remarks: This small (2-4 mm), distinctive species is easily recognized by a combination of the upturned, blade-like anterodistal process on the propodus of gnathopod 2 in both sexes and the long dactyl of gnathopod 1. The blade-like propodal process on gnathopod 2 is only present on one other species of *Leucothoe* known from Florida, an undescribed species referred to as *Leucothoe* sp. 1 by Thomas (1993). However, in this species, the dactyl of gnathopod 1 is extremely short, not extending beyond the tip of the carpal lobe.

Material closely resembling this species in the morphology of gnathopod 2 has been collected from Panama (K. Klebba White, pers. com.) and Brazil (Serejo, 1998a); however these specimens differ in having a more oblique palm and a more slender dactyl on gnathopod 2 and may represent an undescribed species. Material from Grand Cayman Island in the Caribbean also appears to be different. In these specimens, the row of fine setules lining the posterior margin of the dactyl of gnathopod 2 in *L. laurensi* is replaced with a row of short, stout spatulate spines. It seems likely that *L. laurensi* actually represents a cryptic species complex within the genus *Leucothoe* and material with the characteristic “*laurensi*” gnathopod 2 needs to be closely examined to determine if this is the case.

Although the second gnathopods of males and females are very similar in *L. laurensi*, the palm is slightly more oblique and the dactyl a little more slender in adult males than in females.

See Thomas and Ortiz, 1995

***Leucothoe ubouhu* Thomas and Klebba, 2007
(Figure 521)**

Leucothoe ubouhu Thomas and Klebba, 2007, pp. 25-30, figs. 15-18, 22A-B.

Regional diagnosis: Head, ocular lobe angled, with slight anteroventral concavity, midventral keel, anterior margin concave, without small central bump, anteroventral angle subquadrate, extending forward subequally with anterodorsal angle; mandible, incisor process strongly dentate, spines in raker row long, left lacinia mobilis unreduced, fan-shaped, apical margin dentate or serrate, palp article 2 with 15-16 long and short marginal setae, article 3 slender (L:W = 8:1), not tapering distally, approximately one-half length of article 2, with 2 apical setae, shortest apical seta at least one-half length of longest; coxae 1-4, ventral margins entire; coxa 1 without long, anteroventral submarginal seta on medial surface, anteroventral angle produced; coxa 2 broader than deep; coxa 4 excavate posteriorly, ventral margin strongly convex, anteroventral angle rounded, entire; gnathopod 1, basis, posterior margin without proximal or central row of short setae, that of female with distal cluster of long setae, carpal lobe slender, without long seta on distomedial surface, posterior margin not lined with long setae, propodus, posterior margin minutely serrate, dactyl long, tip extending well past tip of carpal lobe; gnathopod 2, basis of male, anterior margin entire, not lined with sharp tubercles proximally, sparsely lined with short setae, slightly expanded distally, forming small lobe, that of female sparsely lined with long and short setae, with separate cluster of short, close-set setae distally, carpal lobe not broadly expanded, obliquely truncate distally, distal margin serrate or crenulate, lateral margin entire, propodus without long, blade-like anterodistal process overhanging insertion of dactyl, primary mediofacial setal row diverging slightly from anterior margin, secondary mediofacial setal row present, well-developed, palm convex, oblique, continuous with hind margin, that of male with 2-3 large distal processes, two largest processes separated by narrow v-shaped gap, that of female entire, crenulate distally, dactyl slender, strongly curved, without apical nail, posterior margin entire, without fine setules; pereopod 7, basis narrowing distally, posterior margin strongly convex; epimeron 1 without cluster of setae on anteroventral margin; epimeron 3, posteroventral angle rounded; uropod 3, peduncle approximately one and one-half times length of rami, rami subequal in length.

Distribution: Florida Keys to Belize (Thomas and Klebba, 2007).

Ecology: *Leucothoe ubouhu* occurs on patch reefs in the sponges *Cliona varians* (Duchassaing and Michelotti, 1864), *Hyrtios* sp., *Lissidendoryx isodictyalis* (Carter, 1882), *Mycale laxissima*, and *Spongia officinalis obliqua* Duchassaing and Michelotti, 1864 in Belize. The host is unknown in Florida waters (Thomas and Klebba, 2007). This species has been found at depths of 1 to 15 m (Thomas and Klebba, 2007).

Remarks: *Leucothoe ubouhu* is one of only two Florida *Leucothoe* species with the combination of an angled ocular lobe, a midventral keel with a subquadrate anteroventral angle extending forward subequally with the anterodorsal angle, a cluster of long setae on the posterodistal margin of the basis of gnathopod 1 in the female and a slight anterodistal expansion of the basis of gnathopod 2 in the male, forming a small lobe. It differs from the second species, *Leucothoe* sp. F, in the slender palp article 3 of the mandible (stout in *L.* sp. F), the absence of sharp proximal tubercles on the anterior margin of the basis of gnathopod 2 in the male (sharp tubercles present in *L.* sp. F), distal palmar processes on the propodus of gnathopod 2 in the male separated by a narrow, v-shaped notch (notch broad and u-shaped in *L.* sp. F), the lack of anteroventral setae on epimeron 1 (setae present in *L.* sp. F) and the longer peduncle and subequal rami of uropod 3 (peduncle shorter and rami unequal in *L.* sp. F). Both species are similar in size, with adult lengths ranging from 7 to 9 mm.

See Thomas and Klebba, 2007.

***Leucothoe wuriti* Thomas and Klebba, 2007
(Figure 513)**

Leucothoe spinicarpa: Ortiz, 1975, p. 10, Fig. 5.

Leucothoe wuriti Thomas and Klebba, 2007, pp. 30-35, Figs. 19-21, 22C-D.

Leucothoe n. sp. A: Thomas and Klebba, 2007, p. 40, 41, Fig. 25, Tab. 4.

Regional diagnosis: Head, ocular lobe rounded, midventral keel, anterior margin nearly straight to slightly concave, without small central bump, anteroventral angle subquadrate, extending forward subequally with anterodorsal angle; mandible, incisor process strongly dentate, spines in raker row long, left lacinia mobilis unreduced, fan-shaped, apical margin dentate or serrate, palp article 2 with 16-18 long and short marginal setae, article 3 slender (L:W = 6:1), not tapering distally, approximately one-half length of article 2, with 2 apical setae, shortest apical seta approximately one-third length of longest; coxae 1-4, ventral margins entire; coxa 1 with long, anteroventral submarginal seta on medial surface, anteroventral angle produced; coxa 2 slightly broader than deep; coxa 4 excavate posteriorly, ventral margin strongly convex, anteroventral angle rounded, entire; gnathopod 1, basis, posterior margin without proximal or central row of short setae, that of female without distal cluster of long setae, carpal lobe slender, without long seta on distomedial surface, posterior margin not lined with long setae, propodus, posterior margin minutely serrate, dactyl long, tip extending well past tip of carpal lobe; gnathopod 2, basis, anterior margin sparsely lined with long and short setae, without separate cluster of close-set setae distally, that of male entire, not lined with sharp tubercles proximally, not expanded anterodistally, carpal lobe not broadly expanded, subtruncate distally, distal margin crenulate, lateral margin entire, propodus without long, blade-like anterodistal process overhanging insertion of dactyl, primary mediofacial setal row diverging strongly from anterior margin, secondary mediofacial setal row absent, palm convex, oblique, longer than hind margin, that of male with 2 large and 2-3 small distal processes, large processes separated by narrow, u-shaped gap, that of female entire, weakly crenulate distally, dactyl slender, strongly curved, without apical nail, posterior margin entire, without fine setules; pereopod 7, basis narrowing distally, posterior margin strongly convex; epimeron 1 without cluster of setae on anteroventral margin; epimeron 3, posteroventral angle produced, subacute; uropod 3, peduncle subequal to inner ramus in length, inner ramus slightly longer than outer.

Distribution: Biscayne Bay; Florida Keys to Belize (Thomas and Klebba, 2007).

Ecology: *Leucothoe wuriti* is a tunicate commensal, occurring on prop roots in mangrove habitats and in other fouling communities. It is found in the solitary tunicates *Phallusia nigra* Savigny, 1816 and *Ascidia curvata* (Traustedt, 1882) in Belize, but has only been reported from the former host species in Florida and Cuba (Thomas and Klebba, 2007). This species occurs at depths of 2 to 15 m (Thomas and Klebba, 2007).

Remarks: *Leucothoe wuriti* is a medium-sized species (5-7 mm) that can be distinguished from all other *Leucothoe* species currently known in Florida by the presence of a long, anteroventral submarginal seta on the medial surface of coxa 1. This seta is large enough to see without dissection if the specimen is held upside down and the space between the medial surface of coxa 1 and the mouthpart bundle is examined. The seta is usually perpendicular to the surface of the coxa, extending directly inward toward the mouthparts.

In life, *L. wuriti* exhibits a red checkerback color pattern, which extends down onto the coxae and bases of the appendages as a pattern of small spots and blotches. The antennae are also banded in red (Thomas and Klebba, 2007).

Although Thomas and Klebba (2007) indicate that the only differences between the male and female in this species are differences in the setation of the basis and the width of the carpus of gnathopod 1, in material from Biscayne Bay, the palm of female is entire, with very weak crenulations distally. The palm of the male gnathopod 2 in this material has strong distal processes closely resembling those illustrated by Thomas and Klebba (2007), who do not illustrate the second gnathopod of the

female for their material. The Biscayne Bay material agrees well with their description in all other respects.

Note that the illustrations labeled *Leucothoe* sp. A in row A of Figure 25 and in Table 4 of Thomas and Klebba (2007) actually represent *Leucothoe wuriti* rather than a new species (K. Klebba White, pers. comm.)

See Thomas and Klebba, 2007.

***Leucothoe* sp. B**
(Figure 516)

Leucothoe n. sp. C: Thomas and Klebba, 2007, p. 40, Fig. 25.

Leucothoe n. sp. B: Thomas and Klebba, 2007, p. 41, Tab. 4 (not *Leucothoe* n. sp. B: Thomas and Klebba, 2007, p. 40, Fig. 25.)

Regional diagnosis: Head, ocular lobe rounded, midventral keel, anterior margin sinuous, with small central bump, anteroventral angle angled, extending forward subequally with anterodorsal angle; mandible, incisor process strongly dentate, spines in raker row long, left lacinia mobilis unreduced, fan-shaped, apical margin dentate or serrate, palp article 2 with 10-15 long marginal setae, article 3 slender (L:W = 9:1), tapering distally, approximately one-half length of article 2, with 2 apical setae, shortest apical seta at least one-half length of longest; coxae 1-4, ventral margins entire; coxa 1 without long, anteroventral submarginal seta on medial surface, anteroventral angle produced; coxa 2 subquadrate; coxa 4 excavate posteriorly, ventral margin strongly convex, anteroventral angle rounded, entire; gnathopod 1, basis, posterior margin without proximal or central row of short setae, that of female without distal cluster of long setae, carpal lobe slender, without long seta on distomedial surface, posterior margin not lined with long setae, propodus, posterior margin minutely serrate, dactyl long, tip extending well past tip of carpal lobe; gnathopod 2, basis, anterior margin with separate cluster of 2-4 close-set setae distally, that of male entire, not lined with sharp tubercles proximally, sparsely lined with moderately long and short setae, not expanded distally, that of female sparsely lined with long and short setae, carpal lobe broadly expanded, rounded distally, distal and lateral margins crenulate, propodus without long, blade-like anterodistal process overhanging insertion of dactyl, primary mediofacial setal row diverging slightly from anterior margin, secondary mediofacial setal row present, well-developed, palm convex, oblique, that of male longer than hind margin, with 2-7 small processes in distal half, processes separated by moderately broad u-shaped gaps, that of female continuous with hind margin, entire, weakly crenulate distally, dactyl slender, strongly curved, without apical nail, posterior margin entire, without fine setules; pereopod 7, basis narrowing distally, posterior margin strongly convex; epimeron 1 with cluster of setae on anteroventral margin; epimeron 3, posteroventral angle subquadrate; uropod 3, peduncle slightly longer than inner ramus, inner ramus slightly longer than outer.

Distribution: South Carolina (SERTC, SCDNR, unpublished records); 16 miles off Sapelo Island, Georgia; South Florida and the Florida Keys; Pine Island Sound and Charlotte Harbor, Florida (FDEP, Punta Gorda Laboratory, unpublished records); Tampa Bay, Tarpon Springs, and Apalachee Bay, Florida; Mobile Bay, Alabama; 7 1/2 Fathom Reef, Texas; Carrie Bow Cay, Belize (K. Klebba White, pers. com.)

Ecology: *Leucothoe* sp. B has been found in live bottom habitats, grassbeds, mangrove creeks, and on sponge reefs, as well as on mixed grass and sand bottoms, jetties, and, occasionally, muddy bottoms with abundant soft corals. Known hosts include *Spherospongia vesparium* (loggerhead sponge), *Tedania ignis* (fire sponge), *Styela plicata* (Lesueur, 1823) (leathery sea squirt) and *Molgula* sp. (sea grape). This species occurs at depths ranging from 1 to 14 m.

Remarks: *Leucothoe* sp. B is a very widespread, very variable species and, given the variation in morphology and the very different known host taxa, including both sponges and tunicates, probably represents a species complex rather than a single species. However, based on current knowledge of the genus, it has not yet been possible to distinguish individual species within the group.

Leucothoe sp. B is one of only three Florida species of *Leucothoe* with a rounded ocular lobe, the other two being *L. wuriti* and *L. ashleyae*, and differs from all but *L. ashleyae* in having a broadly expanded or flared carpal lobe on gnathopod 2. Differences between *L. ashleyae* and *Leucothoe* sp. B are presented in the Remarks section for the former species. *Leucothoe* sp. B is readily distinguished from *L. wuriti* by the lack of a long, anteroventral submarginal seta on the medial surface of coxa 1 (present in *L. wuriti*), the broadly expanded carpus of gnathopod 2 (not expanded in *L.*

wuriti), the presence of a secondary mediofacial setal row on the propodus of gnathopod 2 (absent in *L. wuriti*) and the subquadrate posteroventral angle on epimeron 3 (produced and subacute in *L. wuriti*).

There is considerable variation in both body size (5-10 mm) and the morphology of the propodus of gnathopod 2 in *Leucothoe* sp. B and at least some of this variation in morphology is related to differences in size, gender and developmental stage. Large males have much more well-defined and more numerous palmar processes than small males, whereas females have very reduced palmar processes. In addition, the secondary mediofacial row on the propodus contains more setae in the female than in male and is occasionally absent in very large males. There is also some variation in the morphology of the anterior margin of the midventral keel, with small individuals sometimes lacking the small central bump. In addition, eye color and size may be somewhat variable, but the eyes are generally large and red, although they may occasionally be dark.

***Leucothoe* sp. D**
(Figure 506)

Regional diagnosis: Head, ocular lobe angled, midventral keel, anterior margin concave, without small central bump, anteroventral angle subquadrate, extending forward beyond anterodorsal angle; mandible, incisor process weakly dentate, spines in raker row moderately long, left lacinia mobilis unreduced, fan-shaped, apical margin dentate or serrate, palp article 2 with 2-3 moderately long marginal setae in distal half, article 3 stout (L:W = 2:1), not tapering distally, approximately three-fourths length of article 2, with 2 apical setae, shortest apical seta approximately one-third length of longest; coxae 1-4, ventral margins entire; coxa 1 without long, anteroventral submarginal seta on medial surface, anteroventral angle not produced or weakly produced; coxa 2 subquadrate; coxa 4, not excavate posteriorly, ventral margin weakly convex, anteroventral angle rounded, entire; gnathopod 1, basis, posterior margin without proximal or central row of short setae, that of female without distal cluster of long setae, carpal lobe slender, without long seta on distomedial surface, posterior margin not lined with long setae, propodus, posterior margin coarsely serrate, dactyl very short, tip not reaching beyond tip of carpal lobe; gnathopod 2, basis, anterior margin without separate cluster of close-set setae distally, that of male entire, not lined with sharp tubercles proximally, sparsely lined with short setae, not expanded distally, that of female sparsely lined with moderately long setae, carpal lobe not broadly expanded, narrowly rounded distally, distal margin weakly crenulate, lateral margin entire, propodus without long, blade-like anterodistal process overhanging insertion of dactyl, primary mediofacial setal row parallel to anterior margin, secondary mediofacial setal row absent, palm convex, oblique, subequal to hind margin in length, weakly crenulate distally, lacking teeth or processes in both sexes, dactyl slender, strongly curved, without apical nail, posterior margin entire, without fine setules; pereopod 7, basis narrowing distally, posterior margin strongly convex; epimeron 1 with 0-1 setae on anteroventral margin; epimeron 3, posteroventral angle subquadrate; uropod 3, peduncle approximately one and one-fourth times length of rami, rami subequal in length.

Distribution: Biscayne Bay and Long Key, Florida; Twin Cayes and Cat Caye, Belize

Ecology: *Leucothoe* sp. D occurs in soft sediment grassbeds and patch reef habitats in Belize (K. Klebba White, pers. com.) and in rubble/algae/grass habitats in the Florida Keys. It has been found in *Spheciospongia vesparium* (loggerhead sponge) in Florida and in *Haliclona mucifibrosa* and *Amphimedon compressa* (erect rope sponge) in Belize (K. Klebba White, pers. com.). *Leucothoe* sp. D occurs at depths of 1.5 to 18 m.

Remarks: This species may be distinguished by its very small size (2-3 mm), as well as by the short dactyl and the coarsely serrate posterior margin on the propodus of gnathopod 1. The only other known Florida *Leucothoe* species with a short dactyl on gnathopod 1 are *L. flammosa* and *Leucothoe* sp. 1 of Thomas (1993). *Leucothoe* sp. D can be readily separated from both of these species by the serrate posterior margin of the propodus of that appendage.

Leucothoe sp. D is very close to *L. cheiriserra* Serejo, 1998 from Brazil, differing in the angled ocular lobe (rounded in *L. cheiriserra*), the stout, blunt-tipped spine at the base of the dactyl of gnathopod 1 (slender, acute spine in *L. cheiriserra*), the distally tapered basis of pereopod 7 (basis rounded posterodistally in *L. cheiriserra*) and having the outer ramus of uropod 2 approximately three-fourths of the inner ramus in length (approximately two-thirds the inner in *L. cheiriserra*). Specimens of these two species need to be compared to determine if they actually represent members of the same species.

***Leucothoe* sp. F**
(Figure 522)

Regional diagnosis: Head, ocular lobe angled, midventral keel, anterior margin concave, without small central bump, anteroventral angle subquadrate, extending forward subequally with anterodorsal angle; mandible, incisor process strongly dentate, spines in raker row long, left lacinia mobilis unreduced, fan-shaped, apical margin dentate or serrate, palp article 2 with 12-14 long marginal setae, article 3 stout (L:W = 4:1), not tapering distally, approximately one third length of article 2, with 2 apical setae, shortest apical seta at least one-half length of longest; coxae 1-4, ventral margins entire; coxa 1 without long, anteroventral submarginal seta on medial surface, anteroventral angle produced; coxa 2 subquadrate; coxa 4 excavate posteriorly, ventral margin strongly convex, anteroventral angle rounded, entire; gnathopod 1, basis, posterior margin without proximal or central row of short setae, that of female, posterior margin with distal cluster of long setae, carpal lobe slender, without long seta on distomedial surface, posterior margin not lined with long setae, propodus, posterior margin minutely serrate, dactyl long, tip extending well past tip of carpal lobe; gnathopod 2, basis, anterior margin of male lined with sharp tubercles proximally, sparsely lined with short setae only, expanded distally, forming small lobe, that of female sparsely lined with long and short setae, with separate cluster of long, close-set setae distally, carpal lobe not broadly expanded, subtruncate distally, distal margin weakly serrate or crenulate, lateral margin entire, propodus without long, blade-like anterodistal process overhanging insertion of dactyl, primary mediofacial setal row diverging slightly from anterior margin, secondary mediofacial setal row present, well-developed, palm convex, oblique, that of male longer than hind margin, with 2 large distal processes separated by a broad u-shaped gap, that of female continuous with hind margin, crenulate, with 0-1 very small, subacute process distally, dactyl slender, strongly curved, without apical nail, posterior margin entire, without fine setules; pereopod 7, basis narrowing distally, posterior margin strongly convex; epimeron 1 with cluster of setae on anteroventral margin; epimeron 3, posteroventral angle subquadrate; uropod 3, peduncle slightly longer than inner ramus, inner ramus slightly longer than outer.

Distribution: Molasses Key, Spanish Harbor Key and Bahia Honda Key, Florida

Ecology: Although the exact habitat details for *Leucothoe* sp. F are unknown, it has been found several times within the host sponge *Spheciospongia vesparium* (loggerhead sponge). The depth range for this species is also unknown.

Remarks: Males of *Leucothoe* sp. F are immediately recognizable by a combination of their large size (8-11 mm) and the serrate anterior margin of the basis of gnathopod 2. Females of this species can be distinguished from all other Florida *Leucothoe* species except *L. ubouhu* by the presence of a cluster of long setae on the posterodistal margin of the basis of gnathopod 1. Females of *Leucothoe* sp. F differ from those of *L. ubouhu* in the presence of a cluster of setae on the anteroventral margin of epimeron 1 (lacking in *L. ubouhu*), the shorter peduncle of uropod 3 (slightly longer than the longest ramus in *Leucothoe* sp. F vs. one and one-half times the length of the rami in *L. ubouhu*) and the unequal rami of uropod 3 (subequal in *L. ubouhu*).

Family Liljeborgiidae Stebbing, 1899

Regional diagnosis: Antenna 1 moderately short, less than one fourth length of body, reaching at least to distal end of peduncle article 4 of antenna 2, accessory flagellum present, 2+-articulate; antenna 2 longer than antenna 1; head normal, not globular, rostrum short, eyes present, usually well developed, buccal mass not exceptionally large; mandible, palp well-developed, molar poorly developed or vestigial; maxilliped, palp article 4 well-developed; coxa 1 not reduced, subequal to or slightly longer than following coxae; gnathopod 1 well-developed, subchelate; gnathopod 1 or 2 sexually dimorphic, distinctly larger than remaining gnathopod in male; gnathopod 1, ischium not elongate, less than twice as long as wide; pereopod 7 longer than pereopod 6; urosome segments 1-3 separate, segment 1 not elongate, length subequal to depth; uropod 1, peduncle without basofacial spine, outer ramus subequal to inner in length; uropod 3 biramous; telson cleft, lobes flat, laminar.

Florida genera: *Liljeborgia*, *Listriella*

Remarks: The family Liljeborgiidae contains five genera, two of which are well-established in composition. The first of these, *Liljeborgia*, is a highly speciose, widely distributed genus and the second, *Isipingus*, contains a single very distinctive species, *I. epistomata* (K.H. Barnard, 1932), from South Africa (K.H. Barnard, 1932, 1955). However, the taxonomic placement of species in the three remaining closely related genera, *Listriella*, *Idunella* and *Sextonia*, has been somewhat variable in the past, with different combinations of genera being regarded as valid by different authors at different times. Barnard (1959b) established the genus *Listriella* and synonymized *Sextonia* with *Idunella*. Karaman (1980) resurrected the genus *Sextonia*, but synonymized *Listriella* with *Idunella*. Barnard and Karaman (1991) recognized all three genera, but transferred many species formerly placed in the genus *Idunella* to the genus *Listriella*. Two liljeborgiid species from the east coast of the United States that were originally placed in the genus *Idunella* were transferred to *Listriella* by these authors, although they were later retained in *Idunella* by Bousfield (2001). These are *L. bowenae* (Karaman, 1979) from deep waters (128-151 m) off the coast of Maryland (Karaman, 1979; Lazo-Wasem, 1985a) and *L. smithi* (Lazo-Wasem, 1985) from the New Jersey coast (Lazo-Wasem, 1985b); neither of these species has been found in Florida waters to date. The widespread *L. barnardi* and the Atlantic coast species *L. clymenellae* were transferred from the genus *Listriella* to the genus *Idunella* by Karaman (1980), but returned to *Listriella* by Barnard and Karaman (1991). There are currently no species of *Sextonia* (mandibular molar triturative) or *Idunella* (mandibular palp article 1 short) *sensu* Barnard and Karaman (1991) found in Florida waters. Although the classification of Barnard and Karaman (1991) is followed herein, the family is in need of revisionary work to determine its actual generic composition, including possible new genera, and the appropriate distribution of species among the less well-established genera.

Liljeborgiids are commensal species, occurring in the tubes of polychaete worms (Mills, 1962; Wigley, 1966; Bousfield, 1973; Lazo-Wasem, 1985b) or the burrows of thalassinid shrimps (R.W. Heard, pers. comm.; pers. obs.). The hosts are not known for many species and little is known regarding host specificity.

KEY TO FLORIDA GENERA OF LILJEBORGIIDAE

1. < Antenna 1, accessory flagellum 8+-articulate; mandible, palp not geniculate between articles 1 and 2, article 3 short, rod-like, with several long, simple setae distally on ventral and often on dorsal margins; gnathopod 2, carpal lobe elongate, extending along posterior margin of propodus, reaching or nearly reaching palmar angle *Liljeborgia*

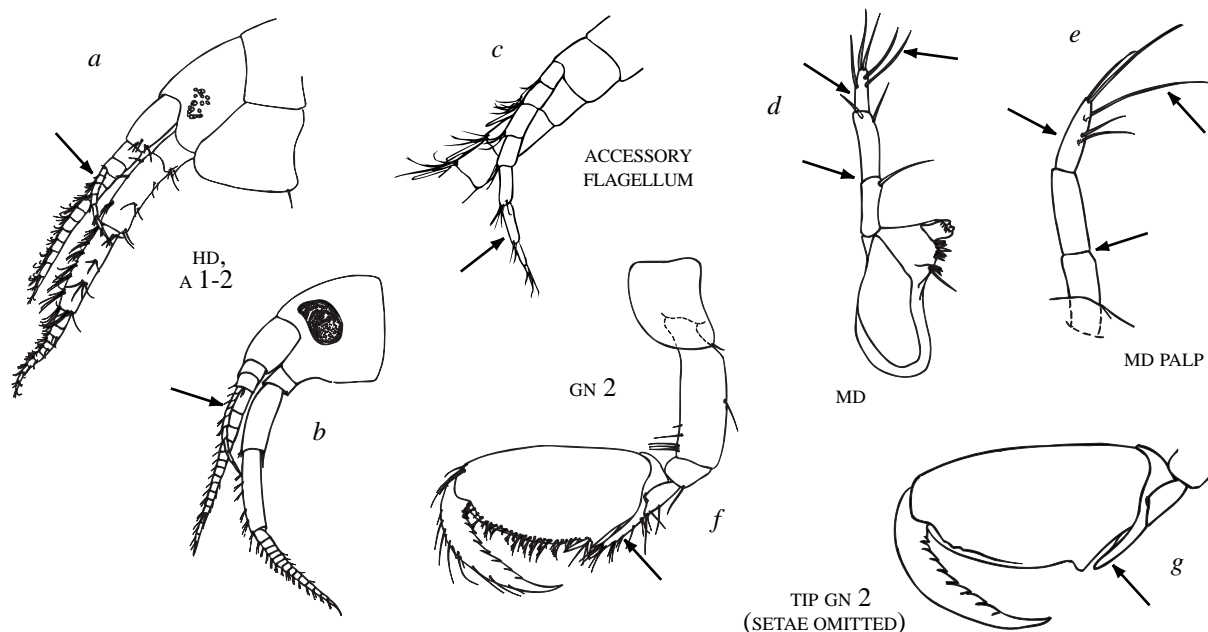


Figure 523.

- < Antenna 1, accessory flagellum 2-6-articulate; mandible, palp geniculate between articles 1 and 2, article 3 relatively long, weakly to moderately falcate, with row of setae on ventral margin increasing in length distally, dorsal margin without setae; gnathopod 2, carpal lobe short, not extending along posterior margin of propodus *Listriella*

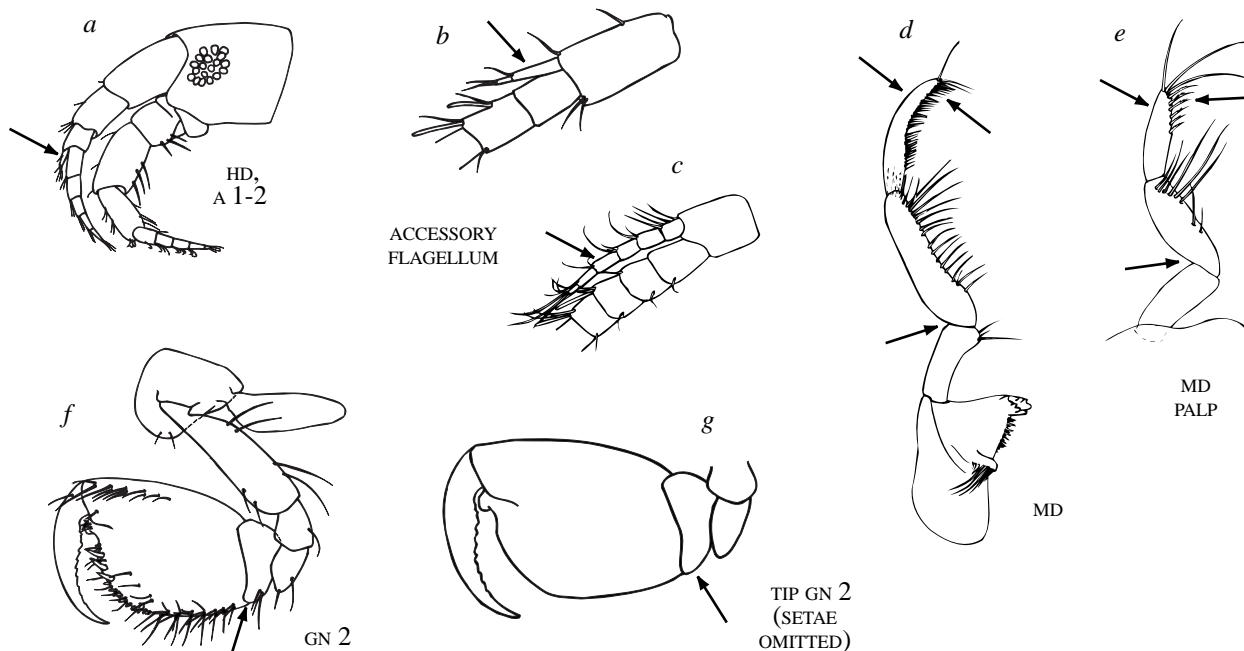


Figure 524.

Genus *Liljeborgia* Bate, 1862

Regional diagnosis: Antenna 1, accessory flagellum 8+-articulate; mandible, palp not geniculate between articles 1 and 2, article 3 short, rod-like, with several long, simple setae distally on ventral and often on dorsal margins; gnathopod 2, carpal lobe elongate, extending along posterior margin of propodus, reaching or nearly reaching palmar angle

Florida species: *Liljeborgia bousfieldi*; *Liljeborgia* sp. A

Remarks: The genus *Liljeborgia* is a large one, containing many closely similar species, and the original descriptions of some of those species are far from clear, particularly those in the older literature. Although recent authors (e.g. Udekem d'Acoz, 2008, 2009; Udekem d'Acoz and Vader, 2009) have begun some of the necessary revisionary work on the genus, species from the western Atlantic have not yet been considered and there are probably a number of undescribed species in the region.

Most species of *Liljeborgia* are epifaunal, either as nestlers in rubble or other suitable shallow-water habitats or living on soft deep-water sediments (Vader, 1995). However, several species have been reported to be hermit crab commensals, inhabiting the upper whorls of occupied shells behind the hermit crab itself (see Vader [1995] for a review). Previous records of these associations have been restricted to Pacific and Mediterranean taxa and none of the western Atlantic species are known to be commensal with hermit crabs. However, Vader (1995) mentions that *L. bousfieldi*, a western Atlantic species occurring in Florida, has the weakly subchelate or prehensile peraeopods 3-4 that are frequently found in external direct associates (i.e. those that cling directly to the host itself rather than to fouling growth on the exoskeleton) of large crustaceans (Vader, 1983; 1995). He hypothesizes that these grasping modifications are necessary to prevent the removal of the amphipods during grooming activities of the host. The liljeborgioid species that reside with hermit crabs do not have these modifications and presumably do not need them because they are inside the shell and are in no danger of being removed (Vader, 1983).

KEY TO FLORIDA SPECIES OF *LILJEBORGIA*

1. < Eye well-developed, dark, reniform; gnathopod 2, dactyl without elongate setae lining anterior margin; pereopods 3-4, propodus slightly expanded distally, with 3-4 spines at posterodistal angle longer than those on posterior margin; epimeron 3, posteroventral angle acute, without notch; urosome segments 1-2 without dorsal teeth; uropod 2, inner ramus with 5 marginal spines; uropod 3, outer ramus with marginal spines *Liljeborgia bousfieldi*

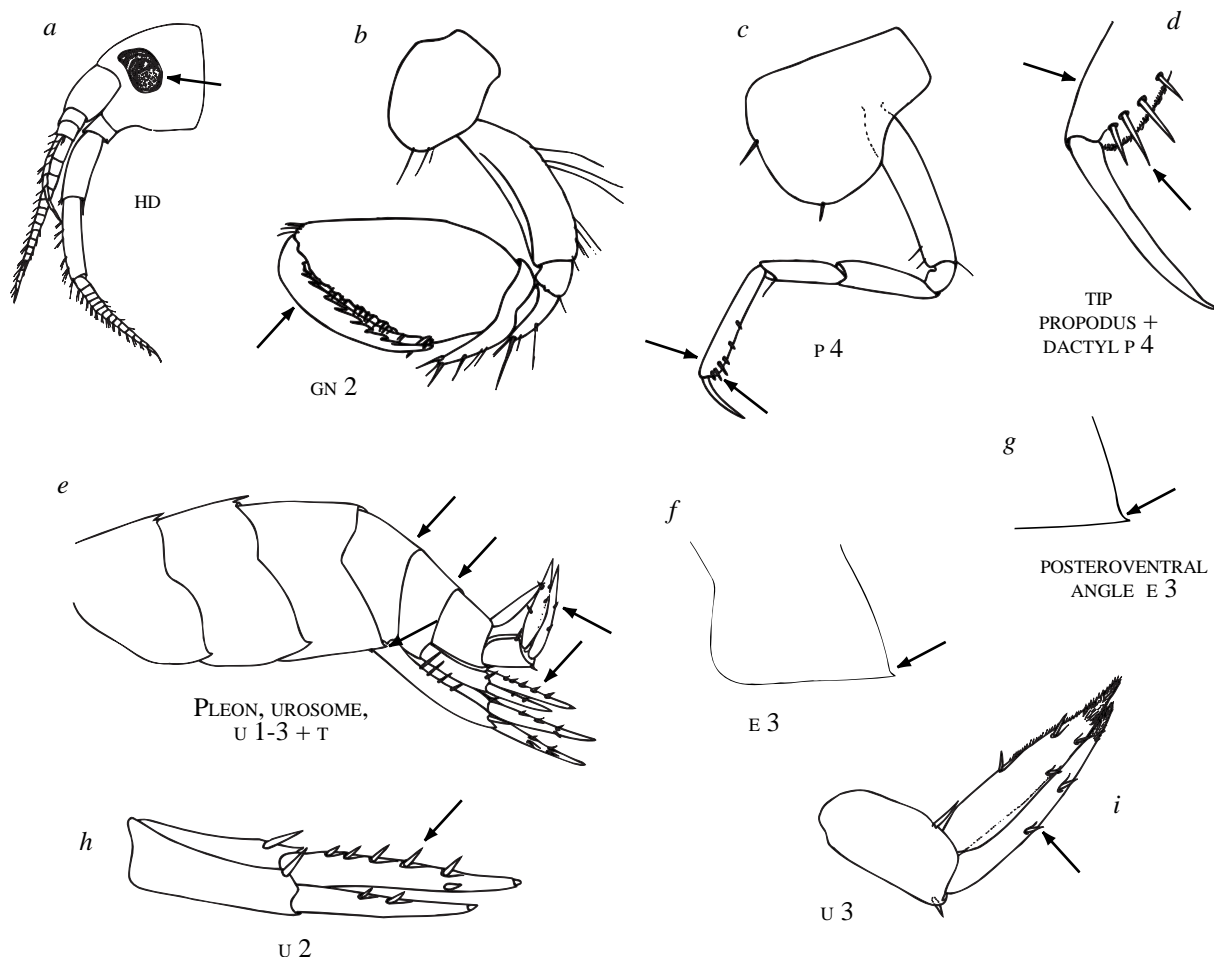


Figure 525.

< Eye poorly developed, pale, ommatidia loosely organized; gnathopod 2, dactyl with elongate setae lining anterior margin; pereopods 3-4, propodus not expanded distally, with 1-2 spines at posterodistal angle similar in length to those on posterior margin; epimeron 3, posteroventral angle with 2 teeth separated by a shallow u-shaped notch; urosome segments 1-2 each with a single posterodistal tooth; uropod 2, inner ramus with 3 marginal spines; uropod 3, outer ramus without marginal spines *Liljeborgia* sp. A

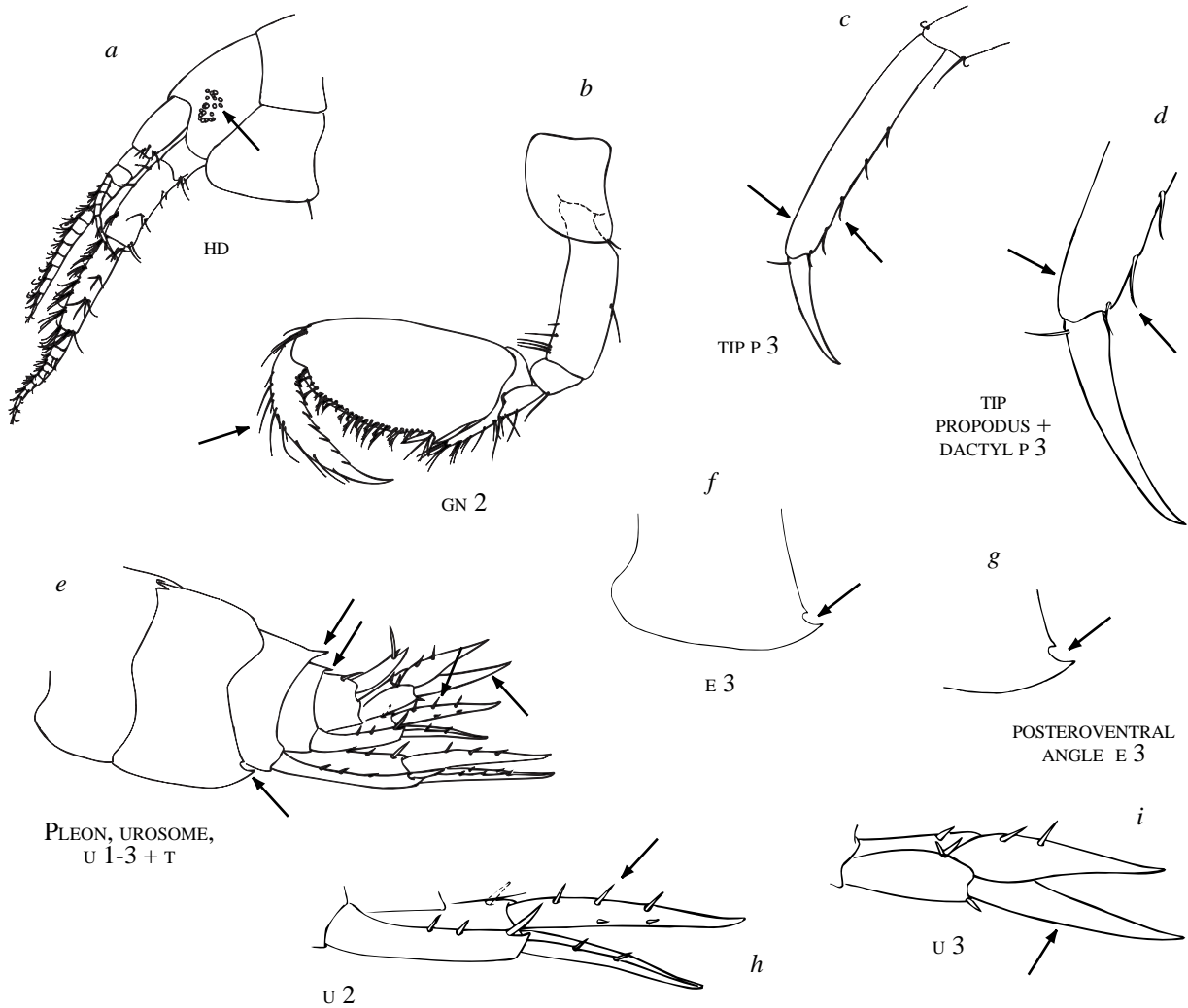


Figure 526.

***Liljeborgia bousfieldi* McKinney, 1979**
(Figure 525)

Liljeborgia bousfieldi McKinney, 1979, pp. 141-144, figs. 1-2.

Not *Liljeborgia bousfieldi*: Ledoyer, 1986b, pp. 694-696, fig. 267.

Regional diagnosis: Eye well-developed, dark, reniform; gnathopod 2, dactyl without elongate setae lining anterior margin; peraeopods 3-4, propodus slightly expanded distally, with 3-4 spines at posterodistal angle longer than those on posterior margin; epimeron 3, posteroventral angle acute, without notch; urosome segments 1-2 without dorsal teeth; uropod 2, inner ramus with 5 marginal spines; uropod 3, outer ramus with marginal spines.

Distribution: Biscayne Bay to the Florida Keys (Thomas, 1993), Cuba (Ortiz and Lalana, 1996; 1998), Caribbean Yucatan, Mexico (McKinney, 1979), Belize (Thomas, 1993).

Ecology: *Liljeborgia bousfieldi* occurs in algae-covered rubble and eroded coral in forereef and shallow backreef areas of coral reefs (McKinney, 1979; Thomas, 1993). Although any potential associates or hosts are unknown, Vader (1995) has suggested the possibility that it may be a direct associate of a large decapod based on the morphology of peraeopods 3-4 (see Remarks section for the genus *Liljeborgia*). It is found at depths of 0.5 to 3 m.

Remarks: *Liljeborgia bousfieldi* is distinguished from all other liljeborgiids in Florida waters except its congener, *Liljeborgia* sp. A, by the presence of an elongate carpal lobe on gnathopod 2. It is most easily separated from that species by the large, dark eye (eye small, loosely organized and pale in *Liljeborgia* sp. A), the distally expanded propodus of peraeopods 3-4 with enlarged spines on the posterodistal margin (propodus not expanded and slender setae only present on the posterodistal margin in *Liljeborgia* sp. A) and the lack of posterodorsal teeth on urosome segments 1-2 (teeth present on urosome segments 1-2 in *Liljeborgia* sp. A). *Liljeborgia bousfieldi* is a relatively small species, ranging in length from 3.5 to 5 mm.

See McKinney, 1979; Thomas, 1993; Ortiz and Lalana, 1996

***Liljeborgia* sp. A**
(Figure 526)

Liljeborgia sp.: Camp et al, 1977, p. 19.

Regional diagnosis: Eye poorly developed, pale, ommatidia loosely organized; gnathopod 2, dactyl with elongate setae lining anterior margin; pereopods 3-4, propodus not expanded distally, with 1-2 spines at posterodistal angle similar in length to those on posterior margin; epimeron 3, postero-ventral angle with 2 teeth separated by a shallow u-shaped notch; urosome segments 1-2 each with a single posterodistal tooth; uropod 2, inner ramus with 3 marginal spines; uropod 3, outer ramus without marginal spines.

Distribution: Georgetown, South Carolina to St. Johns River, Florida (SERTC, unpublished records); Hutchinson Island, Florida (Camp et al., 1977, as *Liljeborgia* sp.).

Ecology: This species is most common at relatively high salinities in medium to coarse sand mixed with shell hash, occasionally occurring in fine sand. It has been found at depths of 7 to 67 m (Camp et al., 1977, as *Liljeborgia* sp.; SERTC unpublished records).

Remarks: *Liljeborgia* sp. A is very similar to Brazilian material referred to *Liljeborgia dubia* (Haswell, 1880) by Wakabara, et al. (1988) and it is found in a similar habitat. It differs from this species mainly in the more loosely organized eye (eye compact in Brazilian *L. dubia*), having the flagellum of antenna 1 extending to the distal end of the peduncle of antenna 2 (not reaching the end of the peduncle in Brazilian *L. dubia*), the presence of 3 posterodorsal teeth on pleon segments 1-2 (5 teeth in Brazilian *L. dubia*), the relatively sparsely setose dactyl of gnathopod 2 (densely setose in Brazilian *L. dubia*) and the lack of setae on the posterior margin of the basis of gnathopod 2 (setae present in Brazilian *L. dubia*). However, records of *L. dubia* in the literature almost certainly refer to more than one species (Udekem d'Acoz, 2008) and Brazilian and Florida material differs from the original description of *L. dubia* from Tasmania in several respects. The most noticeable difference is in the size of the posterodorsal teeth of pleon segments 1-2; in Tasmanian *L. dubia* they are very large and subequal in size, whereas in western Atlantic material they are small and the median tooth is much larger than the lateral teeth. Other differences include the shape of the basis of pereopods 5-7 (subrectangular in Tasmanian *L. dubia*; subovate in western Atlantic material) and the apparent lack of long setae on the anterior margin of the dactyl of gnathopod 2, although this may be an illustration artifact as Stebbing's (1888) figure shows sparse setae (long setae present in western Atlantic material). All things considered, it seems prudent to refer to Florida material as *Liljeborgia* sp. A until further studies are done comparing western Atlantic material with Australian material.

Liljeborgia sp. A also resembles the northeastern Atlantic species *L. pallida* (Bate, 1857) (as illustrated by Lincoln, 1979) and may be the species referred to by that name in Camp (1998). It resembles *L. pallida* in the general shape of gnathopods 1-2, the presence of setae along the anterior margin of the dactyl of gnathopod 2 and the presence of teeth on the posterodorsal margin of pleon segments 1-2 and urosome segments 1-2. However, the eye in *Liljeborgia* sp. A is poorly developed (eye well-developed and dark in *L. pallida*), there are few setae on the posterior margin and several setae present on the anterodistal margin of the basis of gnathopod 2 (posterior margin densely setose and anterodistal margin lacking setae in *L. pallida*), the carpal lobe on gnathopod 2 does not quite reach the palmar angle (carpal lobe distinctly exceeds the palmar angle in *L. pallida*), the setae lining the anterior margin of the dactyl of gnathopod 2 are elongate (setae short in *L. pallida*), the notch in the posteroventral angle of epimeron 3 is defined by 2 distinct teeth (notch and single ventral tooth only present in *L. pallida*), marginal spines are absent on the outer ramus of uropod 3 (marginal spines present in *L. pallida*), there are 3 teeth on the posterodorsal margin of pleon segments 1-2 (1 tooth present in *L. pallida*) and the teeth on urosome 1-2 are larger in *Liljeborgia* sp. A. Overall, Florida material appears more similar to the Brazilian *L. dubia* than to *L. pallida*.

Liljeborgia sp. A is readily distinguished from other Florida liljeborgioid species by the combination of an elongate carpal lobe on gnathopod 2 and posterodorsal processes on pleon segments 1-2 and urosome segments 1-2. It is a relatively small species, ranging in length from 3 to 4 mm.

Genus *Listriella* Barnard, 1959

Regional diagnosis: Antenna 1, accessory flagellum 2-6-articulate; mandible, palp geniculate between articles 1 and 2, article 3 relatively long, weakly to moderately falcate, with row of setae on ventral margin increasing in length distally, dorsal margin without setae; gnathopod 2, carpal lobe short, not extending along posterior margin of propodus

Florida species: *L. bahia*, *L. barnardi*, *L. clymenellae*, *L. kensleyi*, *Listriella* sp. B, *Listriella* sp. C

Remarks: Many species of *Listriella* have distinctive pigmentation patterns and these patterns may ultimately prove to be species specific, at least in some cases. However, among Florida species, it appears that the patterns are somewhat (*L. clymenellae* and *L. bahia*) to highly (*L. cf barnardi*) variable within species, both in the placement of the pigment and in its intensity. *Listriella* cf *barnardi* actually appears to have several different pigmentation morphs (see Remarks section for that species for a discussion). These morphs need to be carefully compared morphologically over a wide range of locations to determine if they are really distinct species or just variations within a species. No morphological differences were found based on the material at hand that would warrant considering them to represent separate species and it is possible to find more than one pigmentation pattern present in the same population.

KEY TO FLORIDA SPECIES OF *LISTRIELLA*

1. < Coxa 1, anteroventral angle subacute; gnathopod 2 of both sexes, palm with large, subacute process at dactylar hinge; pereopods 5-7, dactyl short, stout, hooked; epimeron 3, posteroventral angle rounded; telson lobes with 3 apical spines, center spine longest 2

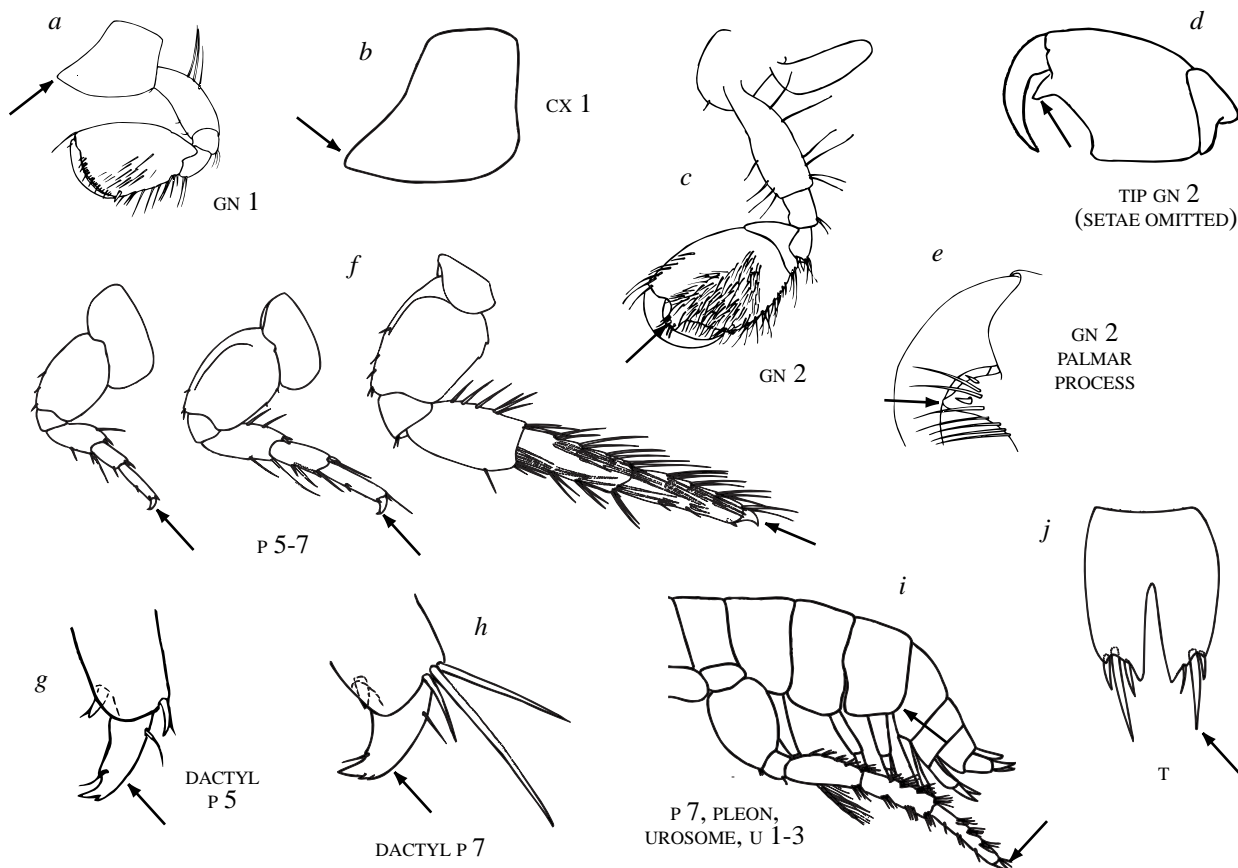


Figure 527.

< Coxa 1, anteroventral angle rounded; gnathopod 2 of both sexes, palm lacking process or with small, blunt process at dactylar hinge; peraeopods 5-7, dactyl long, slender, not hooked; epimeron 3, posteroventral angle with small tooth; telson lobes with 1-2 or 4-8 apical or subapical spines 3

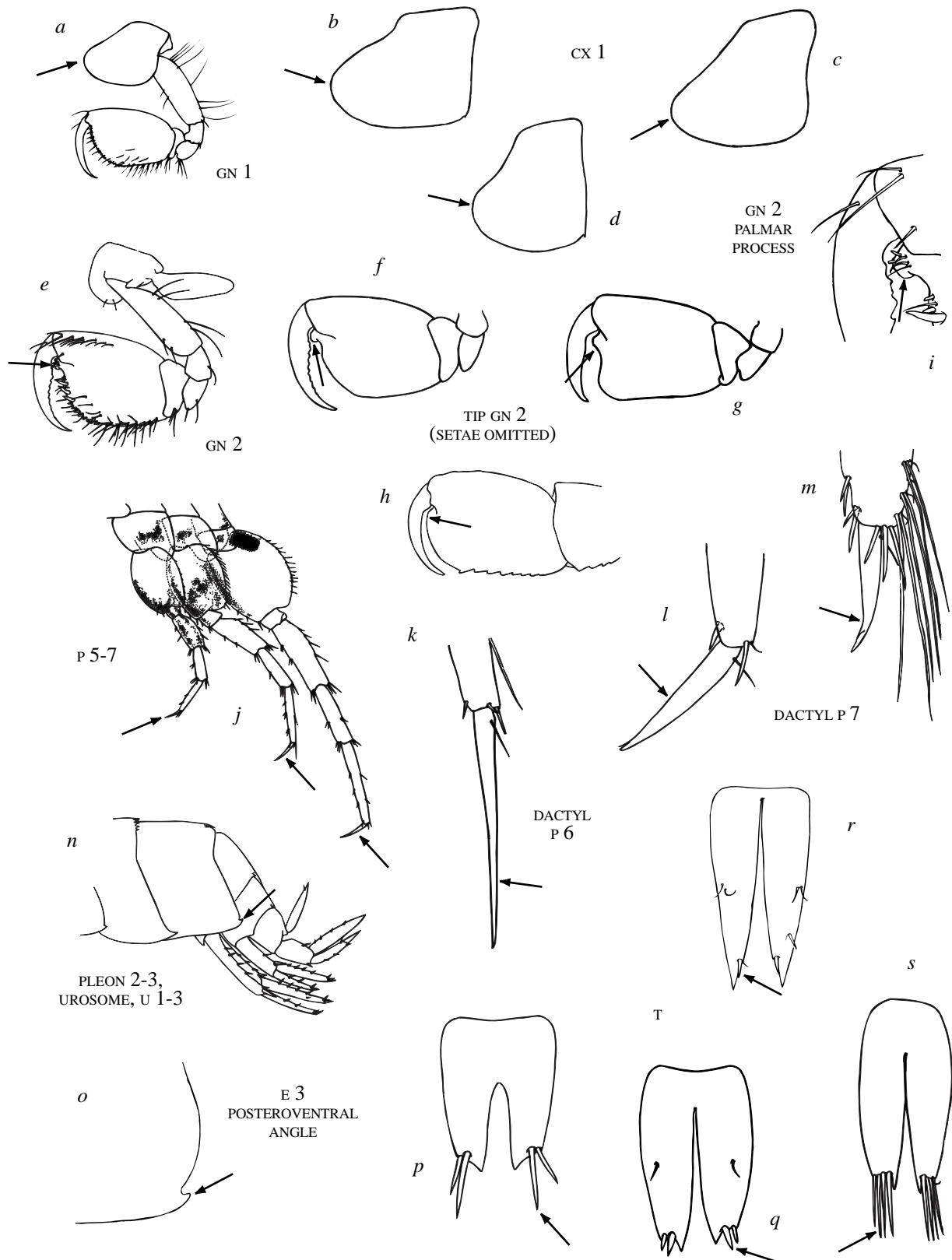


Figure 528.

2. < Head, ocular lobe subacute; maxilliped, inner plate with 4-5 apical and marginal setae; gnathopod 2, palm weakly concave *Listriella bahia*

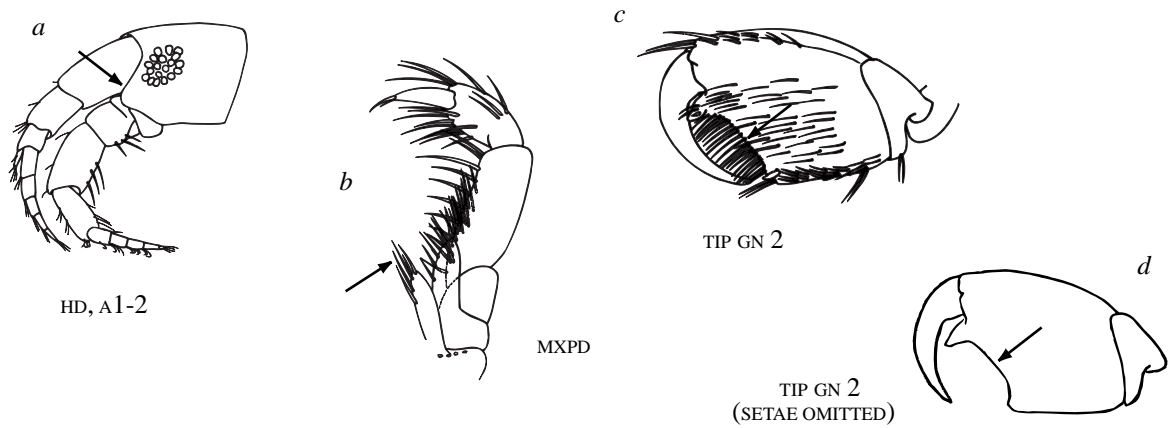


Figure 529.

- < Head, ocular lobe rounded; maxilliped, inner plate with 2 apical setae; gnathopod 2, palm straight to weakly convex *Listriella clymenellae*

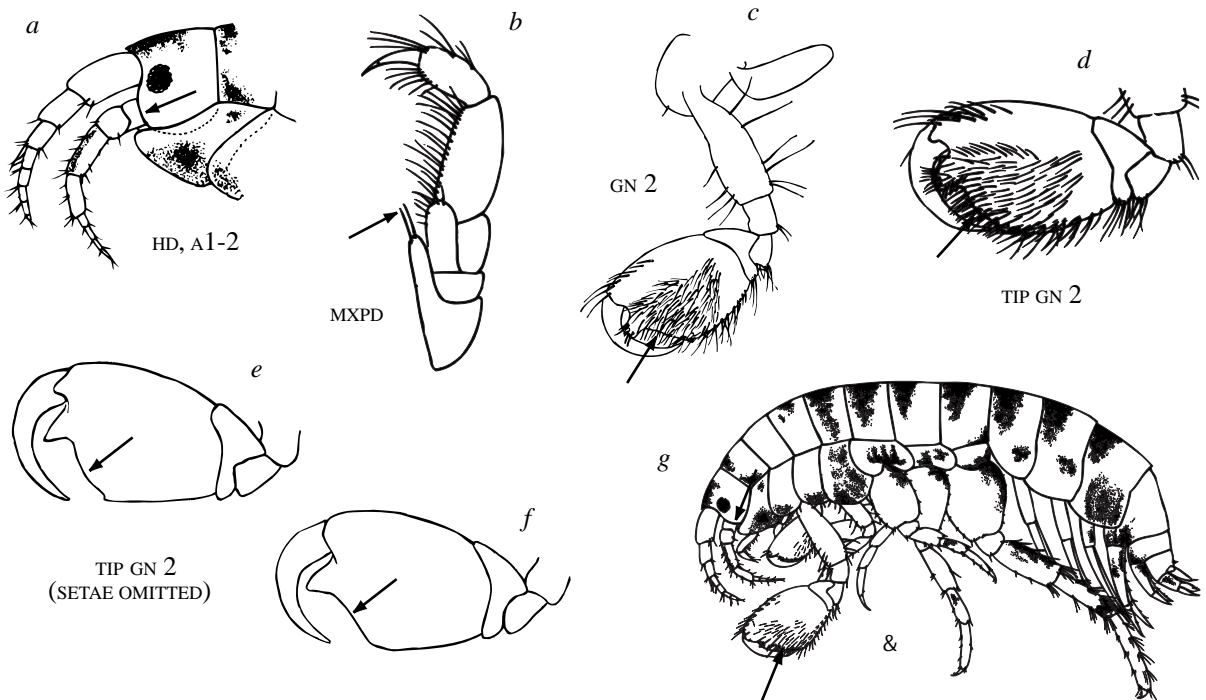


Figure 530.

3. < Antenna 1, accessory flagellum 5-6-articulate; mandible, molar without short apical spines, with 6-8 elongate apical setae and several short marginal setae, palp article 3 moderately falcate; peraeopods 6-7, posterior margin of propodus lined with elongate setae; telson lobes with 4-8 elongate apical spines; large species (8-14 mm) *Listriella* sp. C

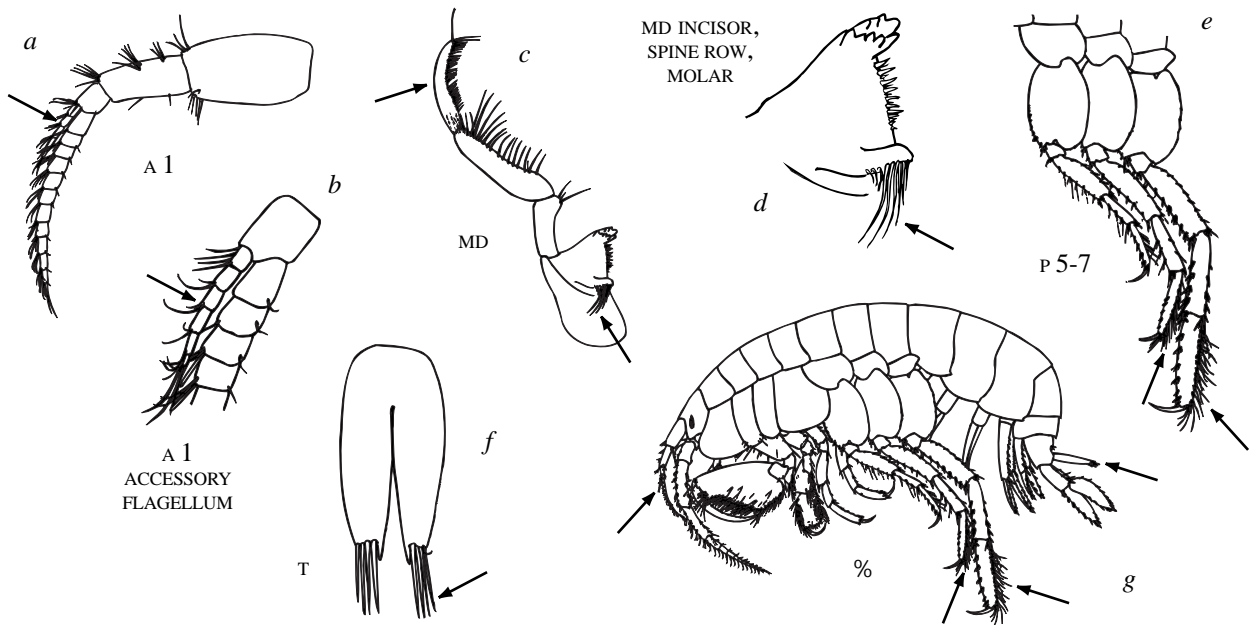


Figure 531.

- < Antenna 1, accessory flagellum 2-articulate; mandible, molar with 1-3 short apical spines, 0-2 elongate apical setae, palp article 3 weakly falcate; peraeopods 6-7, posterior margin of propodus not lined with elongate setae; telson lobes with 1-2 short or 1 short and 1 long apical or subapical spines; small species (2-6 mm) 4

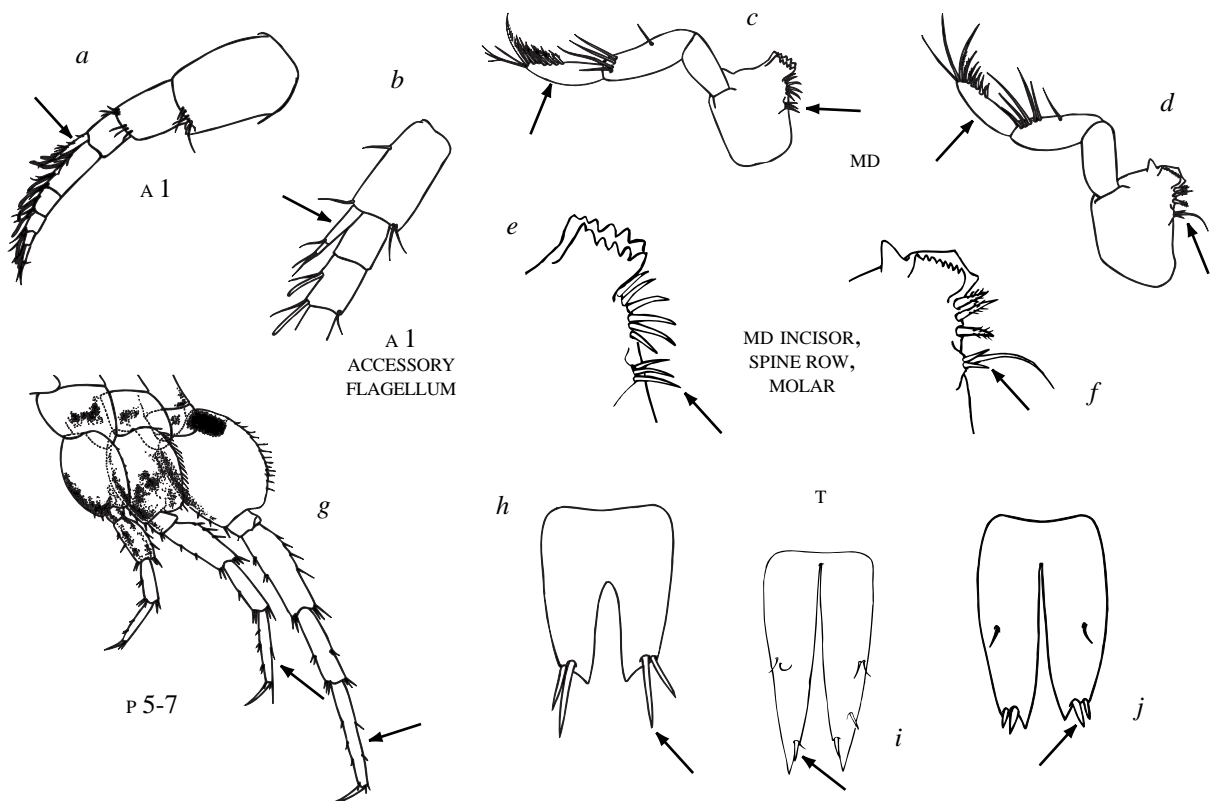


Figure 532.

4. < Antenna 1 slightly shorter than antenna 2, extending beyond distal end of antenna 2, peduncle article 5; mandible, right lacinia mobilis reduced to short, peg-like spine; dominant (largest) gnathopod (gnathopod 2) strongly sexually dimorphic, dactyl of male, posterior margin crenulate; uropod 3, peduncle with elongate distoventral spine, outer ramus 1-articulate in adults, rami of male short, stout, subequal to or slightly longer than peduncle; telson cleft no more than halfway to base, lobes with 2 unequal apical spines *Listriella* cf *barnardi*

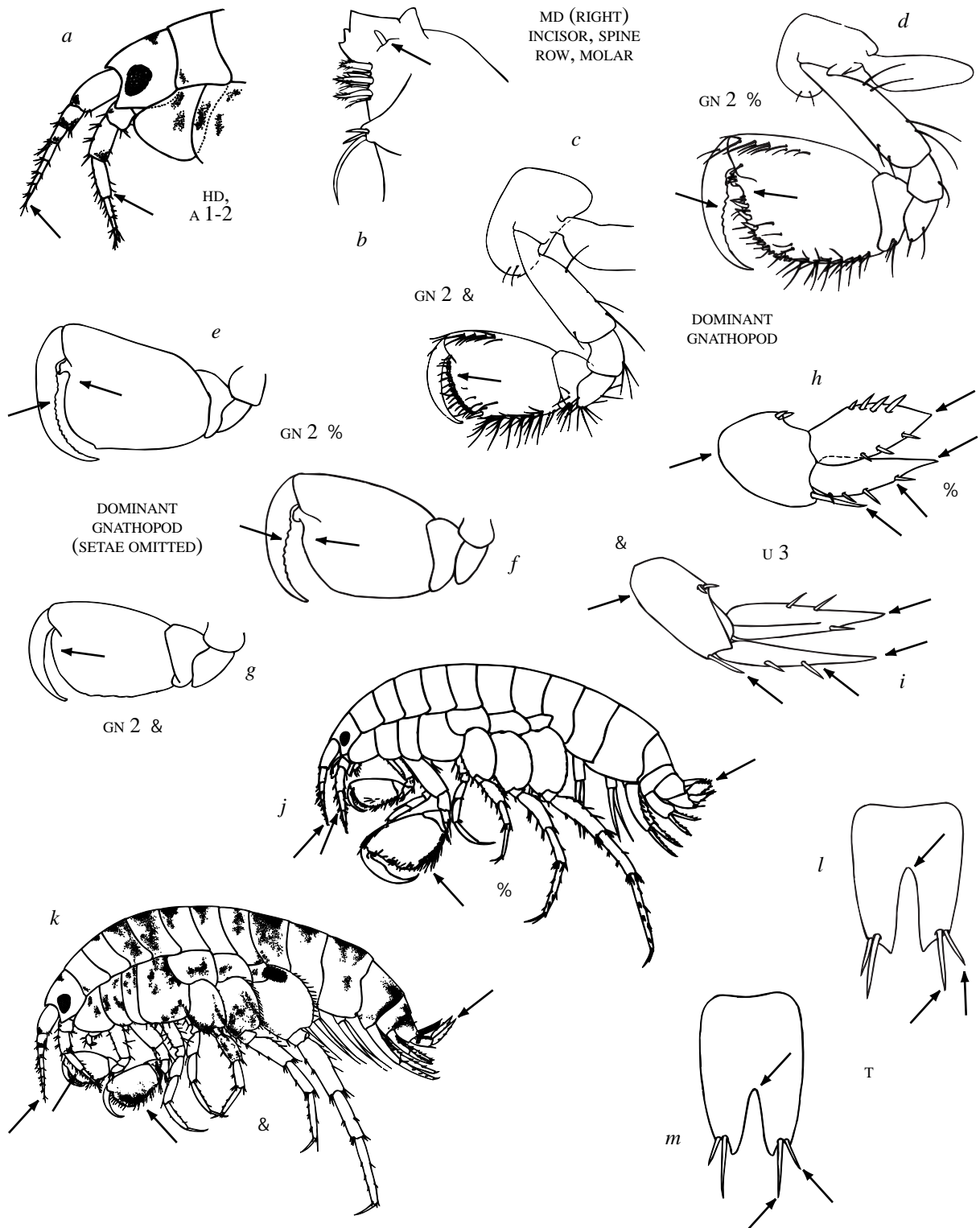


Figure 533.

< Antenna 1 distinctly shorter than antenna 2, not extending as far as distal end of antenna 2, peduncle article 5; mandible, right lacinia mobilis broad, distal margin serrate; dominant (largest) gnathopod (gnathopod 1 or 2) not strongly sexually dimorphic, dactyl of male, posterior margin castellate or entire; uropod 3, peduncle with short distoventral spine, outer ramus 2-articulate in adults, rami of male elongate, slender, much longer than peduncle; telson cleft at least three-fourths distance to base, lobes with 1 subapical spine or two subequal apical spines 5

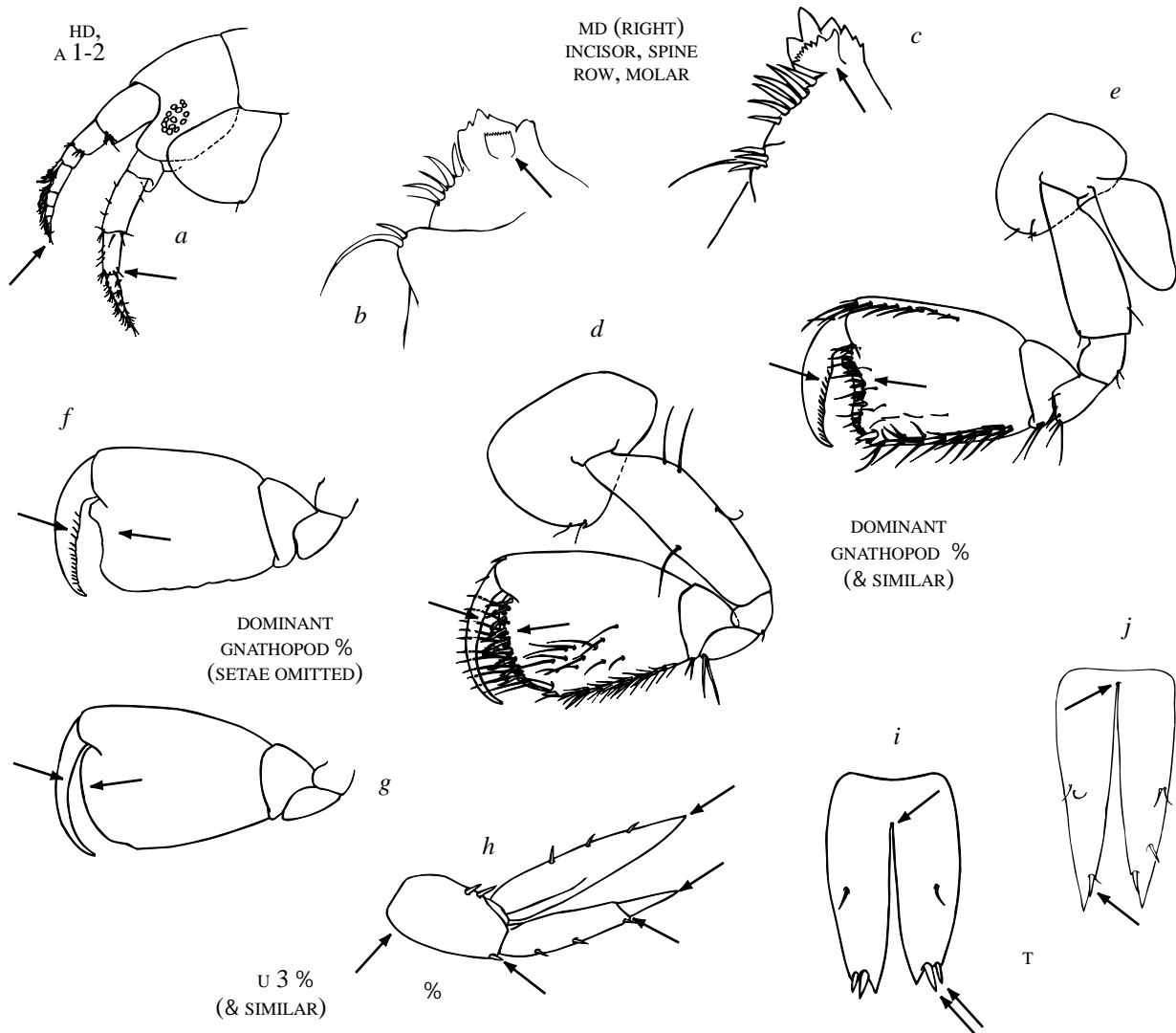


Figure 534.

5. < Mandible, molar with 1 short apical spine and 1 long apical seta, right lacinia mobilis subquadrate, distal margin minutely serrate; coxae 1-3, posteroventral angle entire or slightly notched, without small recurved tooth; gnathopods 1-2, palmar margin without row of compound setae, gnathopod 2 dominant, larger than gnathopod 1, palmar margin with broad, shallow median depression, with low process adjacent to dactylar hinge, dactyl, posterior margin castellate; peraeopods 5-7, dactyls relatively short, not attenuate; telson, lobes notched apically, with 2 short apical spines *Listriella kensleyi*

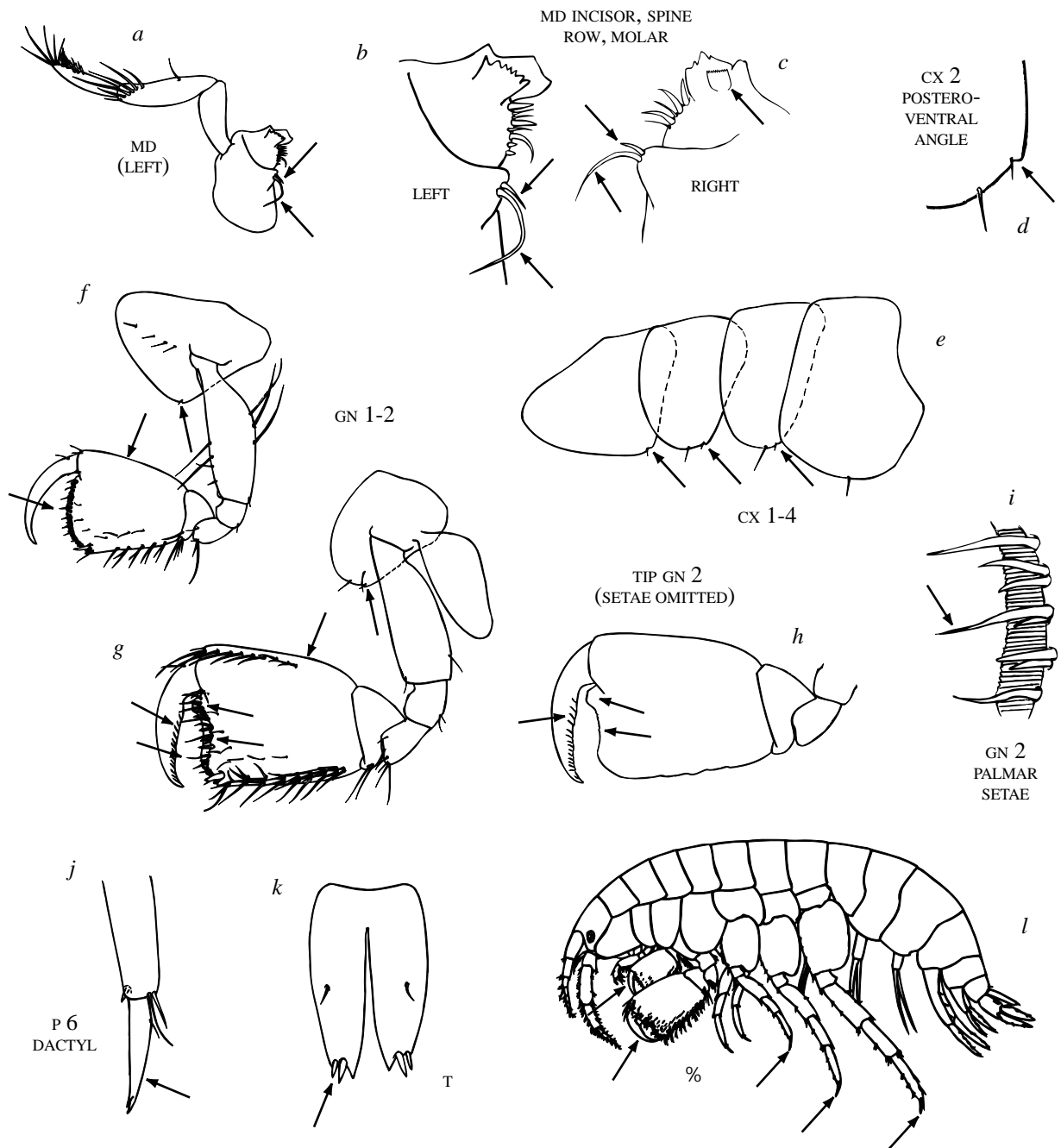


Figure 535.

< Mandible, molar with 3 short apical spines and 0-1 long apical setae, right lacinia mobilis expanded distally, distal margin broadly and minutely serrate; coxae 1-3, posteroventral angle notched, with small recurved tooth; gnathopods 1-2, palmar margin with row of short compound setae, gnathopod 1 dominant, larger than gnathopod 2, palmar margin weakly convex, without broad, shallow median depression, without process adjacent to dactylar hinge, dactyl, posterior margin entire; pereopods 5-7, dactyls elongate, attenuate; telson, lobes acute apically, with 1 large medial subapical spine *Listriella* sp. B

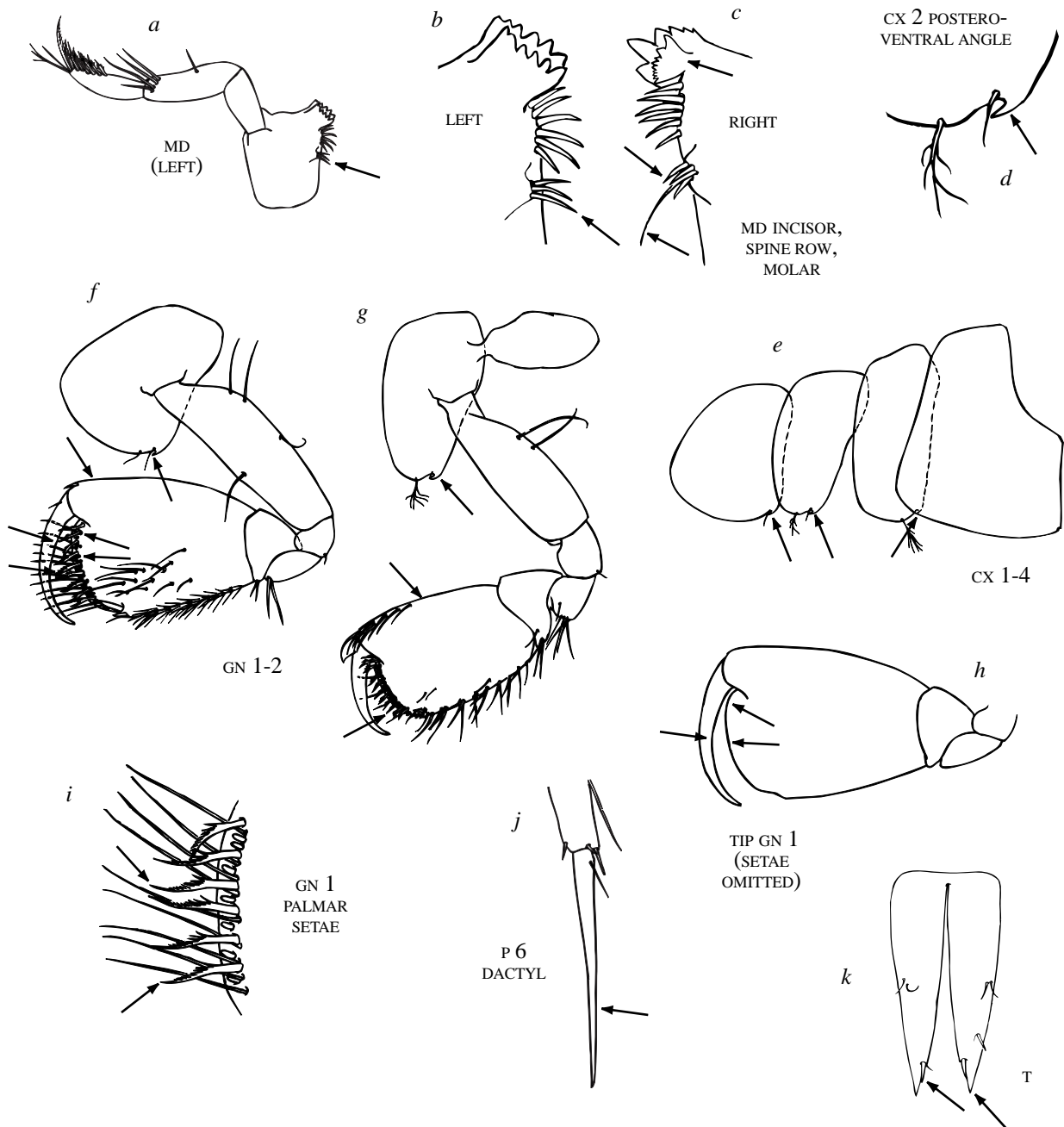


Figure 536.

***Listriella bahia* McKinney, 1979**
(Figure 529)

Listriella bahia McKinney, 1979, pp. 148-151, figs. 4-6.

Regional diagnosis: Antenna 1 distinctly shorter than antenna 2, not extending beyond distal end of antenna 2, peduncle article 5, accessory flagellum 2-articulate; head, ocular lobe subacute; mandible, molar with 1-2 short apical spines, 0-1 elongate apical setae, right lacinia mobilis reduced to short, peg-like spine, palp article 3 weakly falcate; maxilliped, inner plate with 4-5 apical and marginal setae; coxae 1-3, posteroventral angle entire, without small recurved tooth; coxa 1, anteroventral angle subacute; gnathopods 1-2, palmar margin without row of compound setae; gnathopod 2 dominant, larger than gnathopod 1, not strongly sexually dimorphic, palm weakly concave, with large, subacute process at dactylar hinge, dactyl, posterior margin entire; peraeopods 5-7, dactyl short, stout, hooked; peraeopod 6, posterior margin of carpus and propodus without elongate setae; peraeopod 7, posterior margin of carpus and propodus lined with clusters of elongate setae; epimeron 3, posteroventral angle rounded; uropod 3, peduncle with elongate distoventral spine, outer ramus 1-articulate in adults, rami of male short, stout, slightly longer than peduncle; telson cleft half to three-fourths distance to base, lobes notched apically, with 3 apical spines, center spine longest.

Distribution: Pensacola Bay, Florida; Matagorda Bay to Corpus Christi Bay, Texas (McKinney, 1977, 1979)

Ecology: This species occurs in moderately high salinity waters on muddy sand bottoms at depths of 1.5 to 11 m. Nothing is known of potential host species.

Remarks: *Listriella bahia* is very close to the east coast species *L. clymenellae*, apparently differing in only a few characters. These include the subacute ocular lobe (rounded in *L. clymenellae*), the presence of 4-5 setae on the inner plate of the maxilliped (2 setae in *L. clymenellae*) and the weakly concave palmar margin of gnathopod 2 (straight to weakly convex in *L. clymenellae*). However, the shape of the palm of gnathopod 2 appears to vary developmentally in *L. bahia*, and subadult and juvenile individuals have a straight or slightly convex palmar margin resembling that of *L. clymenellae*. Based on the literature (no material of *L. clymenellae* was available for comparison), several additional characters may prove to be useful and should be checked against specimens of *L. clymenellae*. For example, the eye is larger in *L. bahia* than in *L. clymenellae* and the setae on the posterior margin of the carpus and propodus of peraeopod 7, as well as the disoventral spine on the peduncle of uropod 3, appear to be longer in *L. bahia* than in *L. clymenellae*. In addition, *L. bahia* is a smaller species, ranging from 2 to 3.5 mm in length compared to 4 to 6 mm for *L. clymenellae*. The pigmentation pattern is unknown for *L. bahia* and, if there is one, it does not appear to be as resistant to preservatives as that of *L. clymenellae* (see Remarks section for latter species) because no pattern is evident in preserved material. It is possible that *L. bahia* may represent a smaller southern form of *L. clymenellae*, but additional material of both species needs to be closely examined before that can be determined. Although the host species is unknown for *L. bahia*, the host of *L. clymenellae*, the polychaete *Clymenella torquata*, does occur in the Gulf of Mexico.

There is little sexual dimorphism in *L. bahia*; however, the inner surface of the propodus and the palmar margin of gnathopod 2 appear to be less densely setose in females than in males and gnathopod 2 is slightly smaller.

The Florida record of this species is based upon a single subadult specimen from Pensacola Bay and the identification primarily depends upon the presence of a subacute ocular lobe. The palmar margin of gnathopod 2 is straight and, because of its small size and relatively poor condition, the specimen was not dissected to determine the number of setae on the inner plate of the maxilliped. Additional material is needed to confirm the presence of this species in Florida waters.

See McKinney, 1979.

***Listriella cf barnardi* Wigley, 1966
(Figure 533)**

Listriella barnardi Wigley, 1966, pp. 267-270, figs. 5-8.

Regional diagnosis: Antenna 1 slightly shorter than antenna 2, extending beyond distal end of antenna 2, peduncle article 5, accessory flagellum 2-articulate; head, ocular lobe subacute; mandible, molar with 2 short apical spines, 1 elongate apical seta, right lacinia mobilis reduced to short, peg-like spine, palp article 3 weakly falcate; maxilliped, inner plate with 3-4 apical and marginal setae; coxae 1-3, posteroventral angle entire or slightly notched, without small recurved tooth; coxa 1, anteroventral angle rounded; gnathopods 1-2, palmar margin without row of compound setae; gnathopod 2 dominant, larger than gnathopod 1, strongly sexually dimorphic; gnathopod 2 of male, palm sinuous to convex, with small, blunt process at dactylar hinge, dactyl, posterior margin crenulate; gnathopod 2 of female, palm weakly convex, lacking process at dactylar hinge; peraeopods 5-7, dactyls relatively short, slender, not attenuate or hooked; peraeopods 6-7, posterior margin of carpus and propodus not lined with elongate setae; epimeron 3, posteroventral angle with small tooth; uropod 3, peduncle with elongate distoventral spine, outer ramus 1-articulate in adults, rami of male short, stout, subequal to or slightly longer than peduncle; telson cleft no more than halfway to base, lobes notched apically, with 2 unequal apical spines.

Distribution: Cape Cod to the Florida Keys (Bousfield, 1973; Thomas, 1993), including Delaware Bay (Dickinson et al., 1980), North Carolina (Fox and Bynum, 1975) and the Indian River Lagoon (Nelson, 1995); Apalachee Bay, Florida (Lewis, 1984); Perdido Key, Florida (Rakocinski et al., 1993; 1996); North Texas coast (McKinney, 1977, 1979); Belize (Thomas, 1993).

Ecology: *Listriella barnardi* lives in the burrows of *Amphitrite ornata* (Leidy, 1855), *Ceratonereis* sp. and other marine polychaetes (Bousfield, 1973 and unpublished data) and has also been found on mud flats in the burrows of *Leptosynapta tenuis* (Ayres, 1851) (a sea cucumber) (Fox and Bynum, 1975). In addition, this species has been reported in algae and from sand/mud bottoms (Wigley, 1966; Dickinson et al, 1980; Nelson, 1995), and has also been found in *Thalassia* (Lewis, 1984) and *Zostera* (Wigley, 1966) grassbeds. *Listriella barnardi* occurs in medium to moderately high salinity waters and at depths ranging from the low intertidal to 22 m.

Remarks: Florida and Gulf of Mexico material of *L. cf barnardi* differs from *L. barnardi* of the northeastern United States in several features. The most obvious difference is in the setation of the posterior margin of the basis of peraeopods 6-7; *L. cf barnardi* lacks the densely setose margin found in northeast coast material of *L. barnardi*. In addition, *L. cf barnardi* is slightly smaller than *L. barnardi*, the dactyls of peraeopods 3-7 are slightly more elongate in *L. cf barnardi* than in *L. barnardi* and the telson of the male is somewhat more deeply cleft in the former morph. Finally, although the pigmentation pattern in both forms is quite variable, the dorsal head spot found in *L. barnardi* is usually represented by a pair of smaller spots in *L. cf barnardi*. However, the two are quite similar in all other respects and *L. cf barnardi* likely represents a smaller southern form of the New England species rather than a separate species.

Preserved specimens of *L. cf barnardi* from Florida exhibit several different pigmentation patterns, but differently pigmented specimens do not appear to be morphologically different. The most common of these patterns is the one illustrated by Bousfield (1973) and referred to herein as the “mottled” pattern. The head, peraeon, pleon, urosome, uropods, coxae and bases of peraeopods 5-7 have varying amounts of dark pigment, which also varies in intensity. The most consistently present pigment spots are the ones on the top of the head (double in Florida material, single in New England specimens) and the proximal spot on the basis of peraeopod 7. The second pattern is similar to the one illustrated by Wigley (1966), the “saddle-back” pattern. In this pattern, the body is generally less mottled and there is a vertical band extending across the top of peraeon segments 3-4 and extending down over coxae 3-4. The spot on the basis of peraeopod 7 is usually present as well. The third pattern, the “ring”, is the least common and has only been seen on males to date. Specimens with this

pattern have dark pigment encircling the body in a horizontal ring of spots that passes across antenna 1, peduncle 1, antenna 2, peduncle 3, the ventral margin of the head, down coxae 1-7, across pleon segment 1 and back up the other side. There is no other pigmentation present. In addition to specimens having these three patterns, there are also individuals that are completely unpigmented. At this point, it is unclear whether these patterns are correlated with habitat, host, gender or some other factor, or whether they merely represent individual variation. The different pigment morphs may eventually prove to represent different species, but, as mentioned above, there is currently no morphological evidence to support that possibility.

Listriella cf barnardi is sexually dimorphic, with differences between males and females occurring mainly in the morphology of gnathopod 2, coxae 1-3 and uropod 3. In the male, the propodus of gnathopod 2 is larger than that of the female and is distinctly larger than that of gnathopod 1. The palmar margin is somewhat sinuous to convex, bearing a low process adjacent to the dactylar hinge and several large spines proximal to the process. Gnathopod 2 of the female is subequal to or slightly larger than gnathopod 1 and the palmar margin is evenly convex, lacking processes or spines. In addition, coxae 1-3 of the female are deeper and slightly narrower than those of the male. Uropod 3 of the male has short, broad rami that are subequal to the peduncle in length whereas those of the female are slender and distinctly longer than the peduncle.

The morphology of gnathopod 2 and uropod 3 also changes developmentally in both males and females of *L. cf barnardi* and intermediate stages of development occur in subadults. In males, gnathopod 2 and uropod 3 change from the juvenile form resembling that of the female to the adult form over a series of molts. Appendages of subadult males may resemble those of females or be at a stage intermediate between that of the female and that of the adult male. In addition, the outer ramus of uropod 3 is 2-articulate in juveniles, subadults and sometimes in small adults, fusing to 1 article in larger adult females and males.

Listriella barnardi is a relatively small species, ranging from 3 to 5.5 mm in length and *Listriella cf barnardi* individuals tend to be at the lower end of that range (3-4 mm). Pigmentation is purple in live material, fading in preserved material, and the eye is scarlet (Wigley, 1966). The posterior margin of coxa 3 and anterior margin of coxa 4 in particular are covered by a purple blotch in fresh specimens (Thomas, 1993).

See Wigley, 1966; Bousfield, 1973; Thomas, 1993.

***Listriella clymenellae* Mills, 1962**
(Figure 530)

Listriella clymenellae Mills, 1962, pp. 159-162, figs. 1-2.

Regional diagnosis: Antenna 1 distinctly shorter than antenna 2, not extending beyond distal end of antenna 2, peduncle article 5, accessory flagellum 2-articulate; head, ocular lobe rounded; mandible, apical spination of molar unknown, condition of right lacinia mobilis unknown, palp article 3 weakly falcate; maxilliped, inner plate with 2 apical setae; coxae 1-3, posteroventral angle entire, without small recurved tooth; coxa 1, anteroventral angle subacute; gnathopods 1-2, palmar margin without row of compound setae; gnathopod 2 dominant, larger than gnathopod 1, not strongly sexually dimorphic, palm straight to weakly convex, with large, subacute process at dactylar hinge, dactyl, posterior margin entire; peraeopods 5-7, dactyl short, stout, hooked; peraeopod 6, posterior margin of carpus and propodus without clusters of elongate setae; peraeopod 7, posterior margin of carpus and propodus lined with clusters of moderately long setae; epimeron 3, posteroventral angle rounded; uropod 3, peduncle with moderately long distoventral spine, outer ramus 1-articulate in adults, rami of male short, stout, slightly longer than peduncle; telson cleft halfway to base, lobes notched apically, with 3 apical spines, center spine longest.

Distribution: Cape Cod, Massachusetts to northern Florida (Mills, 1962; Bousfield, 1973; Fox and Bynum, 1975; SERTC, unpublished records); Indian River Lagoon (Nelson, 1995).

Ecology: This species occurs on sand/mud bottoms (Fox and Bynum, 1975; Nelson, 1995) and sand flats (Mills, 1964) in the burrows of its host, the tube-dwelling polychaete, *Clymenella torquata* (Leidy, 1855). It is found from the low intertidal to a depth of 10 m.

Remarks: *Listriella clymenellae* is very similar to *L. bahia* from the Gulf of Mexico and these two species can be distinguished from all others in the region by the presence of a large, subacute palmar process adjacent to the dactylar hinge on gnathopod 2 in both sexes. They are distinguished from each other based on the shape of the ocular lobe (rounded in *L. clymenellae*; subacute in *L. bahia*), the shape of the palmar margin on gnathopod 2 (straight to weakly convex in *L. clymenellae*; weakly concave in *L. bahia*) and in the number of setae on the inner plate of the maxilliped (4-5 in *L. clymenellae*; 2 in *L. bahia*) (see Remarks section under *L. bahia* for a more complete comparison). *Listriella clymenellae* is larger than *L. bahia*, ranging from 4 to 6 mm in length. The above comparisons are based upon descriptions of *L. clymenellae* from the literature because no material of this species was available for study during the preparation of this guide.

The *L. clymenellae* material examined by Mills (1962) has a "saddle-back" pigmentation pattern similar to that observed in other species of *Listriella* (e.g. *L. barnardi*, *L. kensleyi*), with dark pigment extending in a vertical band across peraeon segments 4-5 and coxae 3-5. There are also dorsal pigment spots on the head, peraeon segments 5-7 and pleon segments 1-3, as well as lateral spots on coxa 1 and epimera 2-3. In addition, the propodus of gnathopods 1-2 is heavily pigmented and there is pigment at the base of uropods 1-2. This pigment appears to be more durable in preservative than that of other species, with specimens preserved in alcohol or formalin for up to 2 years showing no fading (Mills, 1962). However, a slightly different, somewhat more diffuse pattern is illustrated by Bousfield (1973) and it appears that the pattern may be variable for this species as it is for *L. barnardi* and *L. kensleyi*.

See Mills, 1962; Bousfield, 1973.

***Listriella kensleyi* Ortiz and Lalana, 1996**
(Figure 535)

Listriella kensleyi Ortiz and Lalana, 1996, pp. 95-99, figs. 39-59.

Listriella sp.: Fox and Bynum, 1975, p. 227.

Regional diagnosis: Antenna 1 distinctly shorter than antenna 2, not extending as far as distal end of antenna 2, peduncle article 5, accessory flagellum 2-articulate; head, ocular lobe narrowly rounded; mandible, molar with 1 short apical spine, 1 elongate apical seta, right lacinia mobilis subquadrate, distal margin minutely serrate, palp article 3 weakly falcate; maxilliped, inner plate with 3 apical and subapical setae; coxae 1-3, posteroventral angle entire or slightly notched, without small recurved tooth; coxa 1, anteroventral angle rounded; gnathopods 1-2, palmar margin without row of compound setae; gnathopod 2 dominant, larger than gnathopod 1, not strongly sexually dimorphic, palmar margin with broad, shallow median depression, with low process adjacent to dactylar hinge, dactyl, posterior margin castellate; peraeopods 5-7, dactyls relatively short, slender, not attenuate or hooked; peraeopods 6-7, posterior margin of carpus and propodus not lined with elongate setae; epimeron 3, posteroventral angle with small tooth; uropod 3, peduncle with short distoventral spine, outer ramus 2-articulate in adults, rami of male elongate, slender, much longer than peduncle; telson cleft at least three-fourths distance to base, lobes notched apically, with 2 short apical spines.

Distribution: North Carolina (Bousfield, unpublished data; Fox and Bynum, 1975, as *Listriella* sp.); Florida Keys; north coast of Cuba (Ortiz and Lalana, 1996, 1998; Ortiz et al., 2007); southeastern Gulf of Mexico off Cape Sable, Florida; Apalachee Bay, Florida.

Ecology: This species has been found in the tubes of the polychaete, *Amphitrite ornata* (Bousfield, unpublished data; Fox and Bynum, 1975) and in algae (Ortiz and Lalana, 1996; Ortiz et al., 2007). It occurs at relatively high salinities and at depths of 1.5 to 9.5 m.

Remarks: The morphology of gnathopod 2 in *L. kensleyi* (subrectangular, with a broad, shallow median depression in the palmar margin and a low process adjacent to the dactylar hinge) is the same for both males and females and is different from that of any other known species of *Listriella* in Florida waters. This species ranges in size from 3 to 6 mm.

Listriella kensleyi occurs with a “saddle-back” pigmentation pattern of dark pigment extending in a vertical band across peraeon segments 3-5 and coxae 3-5. There are also dorsal pigment spots on the head, peraeon segments 6-7 and pleon segments 1-3, as well as lateral spots on coxae 1-2. This pigmentation varies in intensity, at least in preserved material, and some specimens are unpigmented. See Ortiz and Lalana, 1996.

***Listriella* sp. B**
(Figure 536)

Regional diagnosis: Antenna 1 distinctly shorter than antenna 2, not extending as far as distal end of antenna 2, peduncle article 5, accessory flagellum 2-articulate; head, ocular lobe subacute; mandible, molar with 3 short apical spines, 0-1 elongate apical setae, right lacinia mobilis expanded distally, distal margin broadly and minutely serrate, palp article 3 weakly falcate; maxilliped, inner plate with 3 apical setae; coxae 1-3, posteroventral angle notched, with small recurved tooth; coxa 1, anteroventral angle rounded; gnathopods 1-2, palmar margin with row of short compound setae; gnathopod 1 dominant, larger than gnathopod 2, not strongly sexually dimorphic, palmar margin weakly convex, without broad, shallow median depression, without process adjacent to dactylar hinge, dactyl, posterior margin entire; gnathopod 2, palm lacking process at dactylar hinge; pereopods 5-7, dactyl elongate, attenuate, not hooked; pereopods 6-7, posterior margin of carpus and propodus not lined with elongate setae; epimeron 3, posteroventral angle with small tooth; uropod 3, peduncle with short distoventral spine, outer ramus 2-articulate in adults, rami of male elongate, slender, much longer than peduncle; telson cleft at least three-fourths distance to base, lobes acute apically, with 1 large, medial subapical spine.

Distribution: Lower Florida Keys, between Sugarloaf Key and Key West.

Ecology: Specific habitats or potential host species are unknown for *Listriella* sp. B. It occurs at depths of 1 to 16 m.

Remarks: This species is close to *L. carinata* McKinney, 1979 and may be the species referred to as *L. carinata* in Camp (1998). It resembles *L. carinata* in the poorly developed eye with loosely organized ommatidia; mandibular palp article 3 with compound marginal setae; coxae 1-3 with a small posteroventral notch and a small tooth; gnathopod 1 larger than gnathopod 2; gnathopods 1-2, palmar margin with compound setae, dactyls very slender; slender pereopods with elongate dactyls; serrate posterior margins on the bases of pereopods 5-7; and in the presence of small posterodistal teeth on pleon 1-3 and urosome 1-2 (these teeth may be difficult to see). It differs from *L. carinata* in having the molar of the mandible with 3 apical setae (2 apical setae in *L. carinata*); the right lacinia mobilis large, expanded distally, distal margin serrate (lacinia small, subquadrate, distal margin crenulate in *L. carinata*); the posteroventral tooth on coxa 1-3 recurved (tooth not recurved in *L. carinata*); gnathopod 1, palmar margin transverse (margin oblique in *L. carinata*); the posterior margin of epimeron 3 straight (margin strongly convex in *L. carinata*); the spines on the uropod peduncles and rami are relatively stouter than in *L. carinata*; uropod 3, peduncle stout (elongate in *L. carinata*), outer ramus 2-articulate (1-articulate in *L. carinata*); telson cleft nearly to base, lobes acute, with a single distinctly subapical spine (telson cleft three-fourths of the distance to the base and notched telson lobes with 2 slightly subapical spines in *Listriella carinata*).

Listriella sp. B differs from all other known Florida species of the genus except *Listriella* sp. C by having gnathopod 1 larger than gnathopod 2 and by the presence of a row of compound setae on the palmar margins of gnathopods 1 and 2. It is otherwise very different from *Listriella* sp. C, however, and is easily distinguished from that species by its much smaller size (2-3 mm in *Listriella* sp. B; 8-14 mm in *Listriella* sp. C); the mandibular molar lacking elongate apical setae (elongate apical setae present in *Listriella* sp. C); the short compound setae on the palm of gnathopods 1-2 (elongate compound setae in *Listriella* sp. C); the elongate dactyl and the lack of elongate setae lining the posterior margin of the propodus of pereopods 6-7 (dactyl relatively short and elongate setae present on the posterior margin of the propodus of pereopods 6-7 in *Listriella* sp. C); the slender rami of uropod 3 (rami broad in *Listriella* sp. C) and the acute telson lobes with a single relatively short subapical spine (telson lobes subtruncate, with 4-8 elongate apical spines in *Listriella* sp. C). In addition, *Listriella* sp. B seems to be a somewhat fragile species and pereopods 5-7 in particular often have the distal articles broken off. *Listriella* sp. C, on the other hand, seems to be much less easily damaged.

***Listriella* sp. C**
(Figure 531)

Idunella sp.: Bousfield, 1973, p. 71.

Idunella sp.: Fox and Bynum, 1975, p. 227.

Regional diagnosis: Antenna 1 distinctly shorter than antenna 2, not extending as far as distal end of antenna 2, peduncle article 5, accessory flagellum 5-6-articulate; head, ocular lobe subacute; mandible, molar without short apical spines, with 6-8 elongate apical setae and several short marginal setae, right lacinia mobilis expanded distally, distal margin broadly and minutely serrate, palp article 3 moderately falcate; maxilliped, inner plate with 9-10 apical and marginal setae, 3 stout apical spines; coxae 1-3, posteroventral angle weakly notched, without small recurved tooth; coxa 1, anteroventral angle rounded; gnathopods 1-2, palmar margin with row of elongate compound setae; gnathopod 1 dominant, larger than gnathopod 2, strongly sexually dimorphic; gnathopod 1 of male, palmar margin concave, with bilobed process adjacent to dactylar hinge, dactyl, posterior margin entire; gnathopod 1 of female, palmar margin convex, with large u-shaped notch adjacent to weakly bilobed process at dactylar hinge; gnathopod 2, palm convex, lacking process at dactylar hinge; pereopods 5-7, dactyl relatively long, slender, not hooked; pereopods 6-7, posterior margin of carpus not lined with elongate setae, posterior margin of propodus lined with elongate setae; epimeron 3, posteroventral angle with small tooth; uropod 3, peduncle with 2-3 short distoventral spines, outer ramus 2-articulate in adults, rami of male elongate, broad, much longer than peduncle; telson cleft at least three-fourths distance to base, lobes subtruncate apically, with 4-8 long apical spines.

Distribution: South of Chesapeake Bay (Bousfield, 1973, as *Idunella* species), including North Carolina (Bousfield, unpublished data; Fox and Bynum, 1975, as *Idunella* sp.); Tybee Island, Georgia; Matanzas Inlet, Florida.

Ecology: *Listriella* sp. C occurs in the burrows of the polychaete *Amphitrite ornata* and the mud shrimp *Upogebia affinis* (Say, 1818), and occasionally is found in the plankton (Bousfield unpublished data; Fox and Bynum, 1975, as *Idunella* sp.). It has also been found in the burrows of *Callichirus major* (Say, 1818) at Matanzas Inlet, Florida and Tybee Island, Georgia. Although no specific depth range is known for this species, the specimens from Matanzas Inlet and Tybee Island were collected with a yabby pump in shallow water and the depth was probably 1 m or less.

Remarks: *Listriella* sp. C, at 8-14 mm in length, is by far the largest liljeborgiid found to date in Florida waters. It is similar to *L. smithi* (Lazo-Wasem, 1985) from New Jersey, differing in having the molar of the mandible with an apical tuft of elongate setae (4 apical spines in *L. smithi*); gnathopod 1 of the female, palm with a notch adjacent to a low process near the dactylar hinge (palm evenly convex, without notch or process in *L. smithi*); pereopod 7 much stronger than pereopod 6 (slightly stronger in *L. smithi*); and the telson lobes of female with 4-8 apical spines (4 apical spines in *L. smithi*). It is not very close to any of the other Florida species of *Listriella*, although it does resemble *Listriella* sp. B in having gnathopod 1 larger than gnathopod 2 and having compound setae on the palmar margin of gnathopods 1 and 2 (see Remarks section for *Listriella* sp. B for a comparison of the two species).

Gnathopod 1 is sexually dimorphic in this species; that of the male has a bilobed palmar process adjacent to the dactylar hinge (one lobe apically acute and the second truncate or rounded) and a concave palmar margin, and that of the female has a weakly bilobed process adjacent to the dactylar hinge with a u-shaped notch just proximal to it. The remainder of the palm is convex. The palm of gnathopod 1 gradually changes from the female morphology in juveniles to that of the adult male over several molts and is sinuous in subadult males.

Family Neomegamphopidae Myers, 1981

Regional diagnosis: Antenna 2 subequal to antenna 1 in length; eyes round, lateral, without 4 paired peripheral facets, not closely approximated or fused dorsally; head not globular, rostrum small, straight, ocular lobe narrowly rounded or subacute, inferior antennal sinus deeply recessed for insertion of antenna 2, buccal mass not exceptionally large relative to size of head; mandible with well-developed molar and palp, palp article 3 clavate; maxilliped, palp article 4 normally developed, not vestigial or absent; coxae 1-2 not reduced, subequal in depth to following coxae; coxae 1-4 shallow, extending only slightly beyond proximal end of basis; gnathopod 1 well-developed, subchelate or carpochelate, subequal to or larger than gnathopod 2; gnathopod 2, article 3 not elongate, less than twice as long as wide; pereopod 7 subequal to or slightly longer than pereopod 6; urosome segments 1-3 separate, segment 1 not elongate, depth subequal to length; uropod 3 biramous; telson entire.

Florida genera: *Konatopus*, *Neomegamphopus*, *Varohios*

Remarks: Neomegamphopids are small coral rubble and seagrass-inhabiting species characterized by an elongate ocular lobe with a deeply recessed inferior antennal sinus, a very slender, weakly subchelate gnathopod 2 (both gnathopods 1 and 2 in the female) and a large, complexly subchelate gnathopod 1 in the adult male. There are currently six genera placed in the family: *Konatopus*, *Maragopsis*, *Neomegamphopus*, *Pseudomegamphopus*, *Riwomegamphopus* and *Varohios* (Myers and Lowry, 2003). Of these, only *Neomegamphopus* and *Konatopus* have previously been reported to occur in the Atlantic.

KEY TO FLORIDA GENERA OF NEOMEGAMPHOPIDAE

1. < Coxa 1 of adult male subquadrate, width subequal to or slightly less than depth; gnathopod 1 of adult male chelate, 6-articulate (carpus and propodus fused, partially fused in subadult), carpal lobe not produced, dactyl with large, elongate tooth on the posteroproximal margin; uropod 1, peduncle, distoventral spur elongate, subequal to peduncle in length, slightly shorter than outer ramus *Varohios*

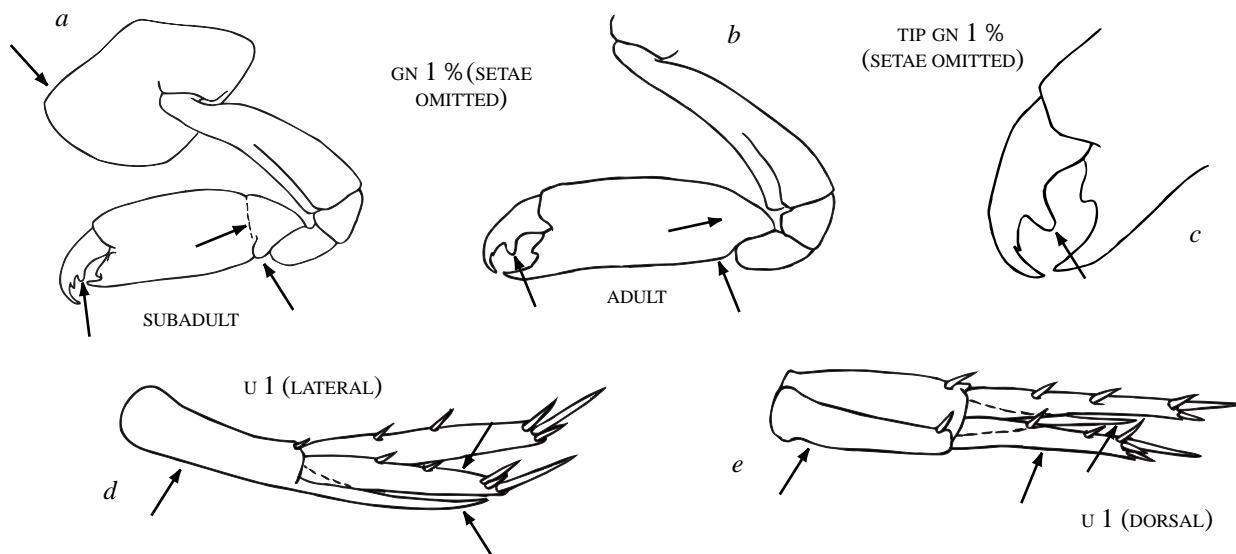


Figure 537.

- < Coxa 1 of adult male subrectangular or subovate, width greater than depth; gnathopod 1 of adult male carpochele, 7-articulate (carpus and propodus unfused), carpal lobe produced, dactyl without large, elongate tooth on posteroproximal margin; uropod 1, peduncle, distoventral spur short, less than half length of peduncle, less than or subequal to half length of outer ramus 2

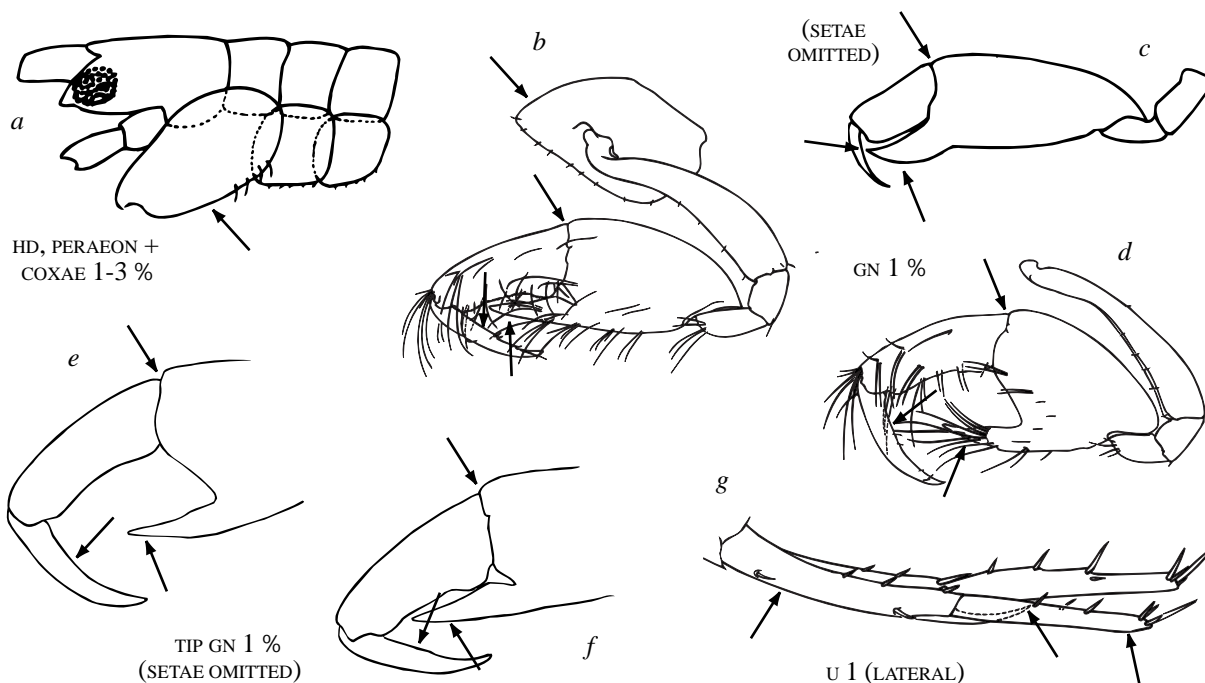


Figure 538.

2. < Antenna 1, accessory flagellum shorter than article 1 of primary flagellum*; eye large, nearly filling ocular lobe; gnathopod 1 of adult male, coxa immense, subovate, at least twice as wide as deep, carpus with no gape present between insertion of propodus and base of carpal lobe; telson, tip subacute* *Konatopus*

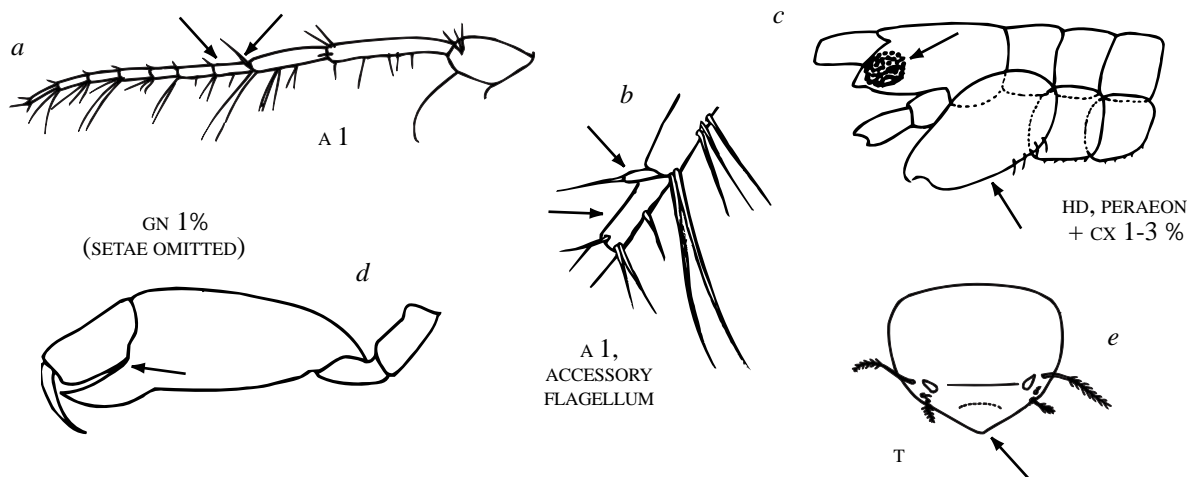


Figure 539.

- < Antenna 1, accessory flagellum subequal to or longer than article 1 of primary flagellum; eye small, filling approximately two thirds of ocular lobe; gnathopod 1 of adult male, coxa moderately large, subrectangular, approximately 1.5 times as wide as deep, carpus with gape present between insertion of propodus and base of carpal lobe; telson, tip truncate *Neomegamphopus*

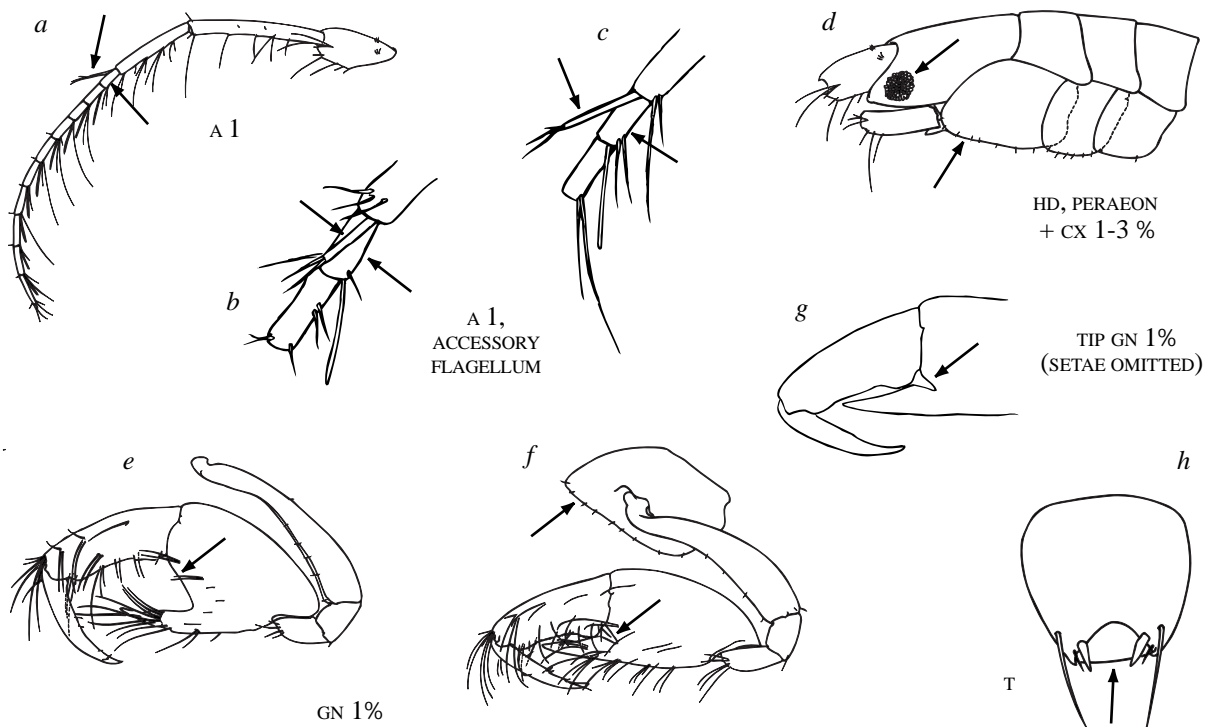


Figure 540.

* Unknown for *Konatopus* sp. A from Florida.

Genus *Konatopus* Barnard, 1970

Regional diagnosis: Antenna 1, accessory flagellum shorter than article 1 of primary flagellum; eye large, nearly filling ocular lobe; coxa 1 of adult male immense, subovate, at least twice as wide as deep, gnathopod 1 of adult male carpocheate, 7-articulate, carpus with carpal lobe produced, no gape present between insertion of propodus and base of carpal lobe, dactyl without large, elongate tooth on posteroproximal margin; uropod 1, peduncle, distoventral spur short, less than half length of peduncle, less than or subequal to half length of outer ramus; telson, tip subacute.

Florida species: *Konatopus* sp. A

Remarks: *Konatopus* is a small genus, containing only four known species worldwide: *K. paao* Barnard, 1970 from Hawaii (Barnard, 1970); *K. storeyae* Myers, 2002 from Thailand (Myers, 2002); *K. latipalma* Ledoyer, 1979 from Madagascar (Ledoyer, 1979, 1982); and *K. tulearensis* Ledoyer, 1982, also from Madagascar (Ledoyer, 1982). It is morphologically very close to *Neomegamphopus* and Myers (2004) discusses this similarity, concluding that until further studies are carried out on members of the two genera, it is best to continue to regard them both as valid.

Konatopus sp. A (Figure 539)

Konatopus sp. 1: Thomas 1993, pp. 29, 32, fig. 31a-b.

Regional diagnosis: That of the genus.

Distribution: Florida Keys, Looe Key Reef (Thomas, 1993).

Ecology: Found in the forereef, under ledges and in coral rubble at depths of up to 10 m (Thomas, 1993).

Remarks: No material of *Konatopus* sp. A was encountered during the preparation of this guide and the morphology of the female is unknown. For this reason, two of the characters used in the key are included there based on their condition in other members of the genus that do not occur in Florida. These include the length of the accessory flagellum on antenna 1 and the shape of the telson. However, none of these characters are mentioned or illustrated by Thomas (1993) and it is possible that the morphologies stated in the key are incorrect for *Konatopus* sp. A.

An additional potentially useful character for distinguishing males of *Konatopus* sp. A from those of members of the other two genera of neomegamphopids found in Florida waters is the stoutness of the basis of gnathopod 1 in the adult male. In two of the four known species of *Konatopus* (*K. paao* and *K. storeyi*), the basis of the male gnathopod 1 is extremely stout and is only slightly longer than broad. This differs from the condition of the basis in members of both *Neomegamphopus* and *Varohios*, which have an elongate, slender basis on gnathopod 1 in the male. However, the remaining two species of *Konatopus* (*K. latipalma* and *K. tulearensis*) have a slender basis on gnathopod 1 and the basis is undescribed for *Konatopus* sp. A from Florida. If the basis of gnathopod 1 in the male of *Konatopus* sp. A proves to be stout, it will be a very useful diagnostic character serving to distinguish males of that species from those of other local neomegamphopid species.

See Thomas, 1993 (as *Konatopus* sp. 1).

Genus *Neomegamphopus* Shoemaker, 1942

Regional diagnosis: Antenna 1, accessory flagellum subequal to or longer than article 1 of primary flagellum; eye small, filling approximately two thirds of ocular lobe; coxa 1 of adult male subrectangular, moderately large, approximately 1.5 times as wide as deep; gnathopod 1 of adult male carpocheate, 7-articulate, carpus with carpal lobe produced, gape present between insertion of propodus and base of carpal lobe, dactyl without large, elongate tooth on posteroproximal margin; uropod 1, peduncle, distoventral spur short, less than half length of peduncle, less than or subequal to half length of outer ramus; telson, tip truncate.

Florida species: *N. hiatus*, *N. kalanii*

Remarks: A third species of *Neomegamphopus*, *N. roosevelti* Shoemaker, 1942, was reported to occur in Florida waters by several authors (Myers, 1968; Lewis, 1987; Camp, 1998); however, this species is restricted to the eastern Pacific, between Baja California and Panama (Barnard and Thomas, 1987) and Florida material previously reported as *N. roosevelti* is presumed to represent either *N. hiatus* or *N. kalanii*.

KEY TO FLORIDA SPECIES OF *NEOMEGAMPHOPUS*

1. < Antenna 1, accessory flagellum longer than article 1 of primary flagellum; gnathopod 1 of adult male, carpus, gape between insertion of propodus and base of carpal lobe wide, depth subequal to length of carpal lobe, propodus lacking low, rounded posteroproximal tooth; gnathopod 2 of male, carpus, anterior margin with 1-2 elongate setae in distal half
..... *Neomegamphopus hiatus*

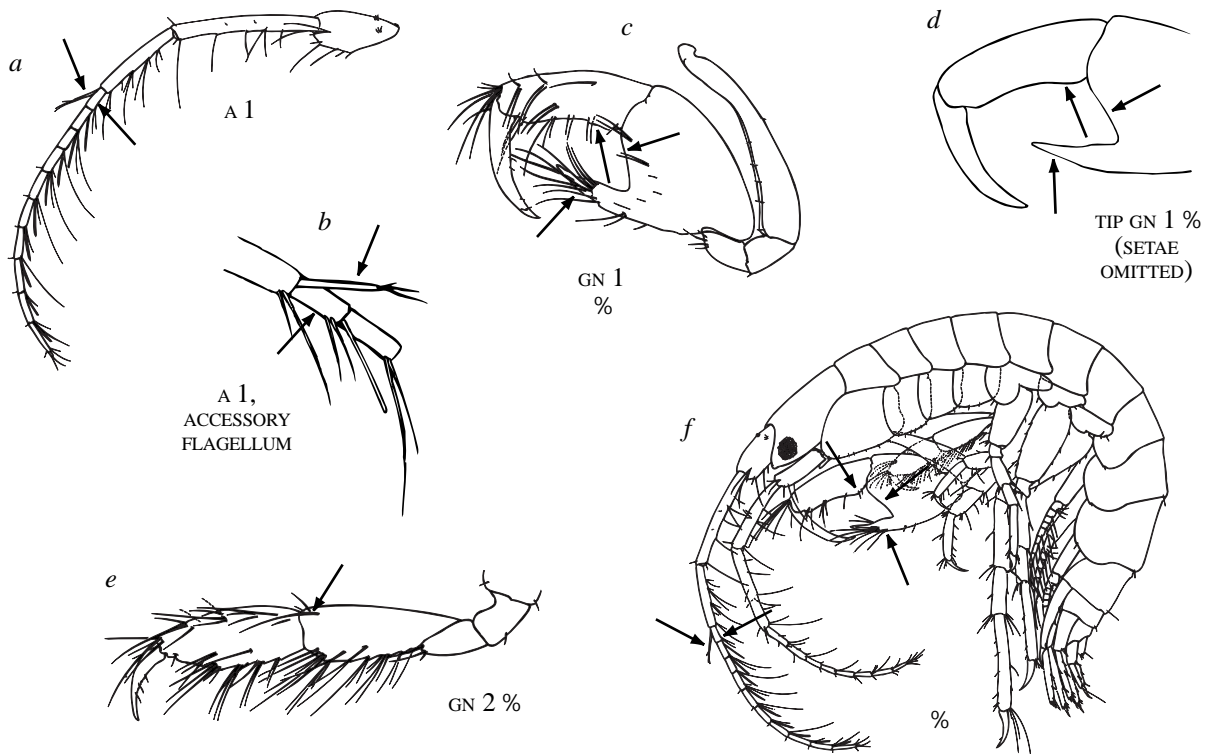


Figure 541.

< Antenna 1, accessory flagellum subequal to article 1 of primary flagellum in length;
 gnathopod 1 of adult male, carpus, gape between insertion of propodus and base of carpal
 lobe narrow, depth less than length of carpal lobe, propodus with low, rounded
 posteroproximal tooth; gnathopod 2 of male, carpus, anterior margin with 5 elongate setae in
 distal half*Neomegamphopus kalanii*

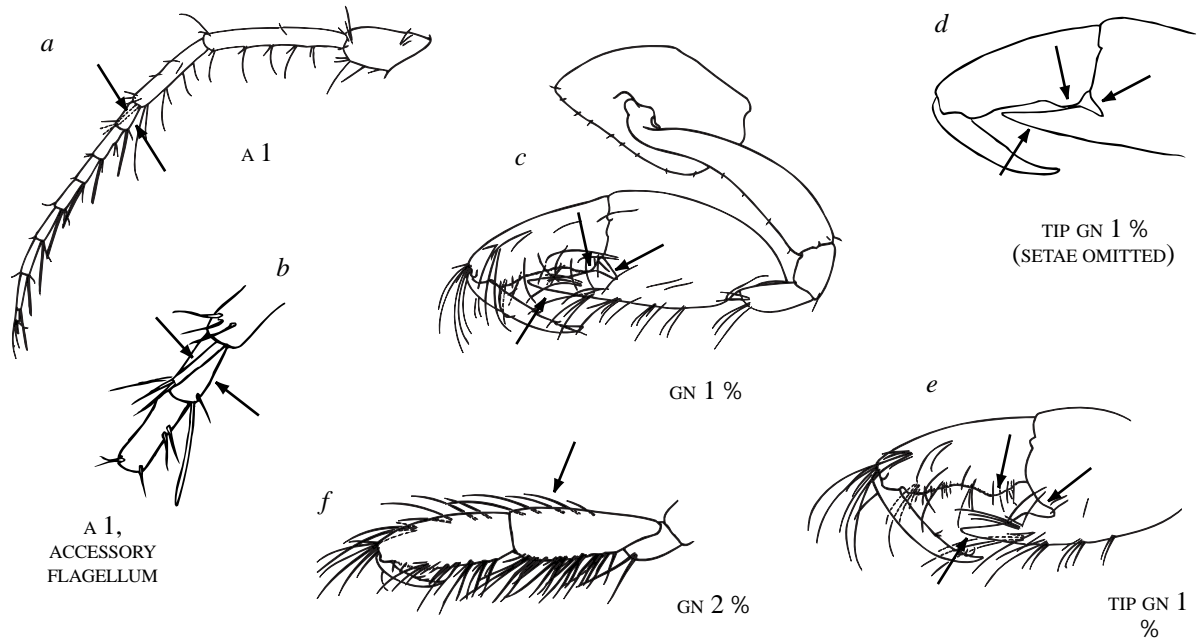


Figure 542.

***Neomegamphopus hiatus* Barnard and Thomas, 1987**
(Figure 541)

Neomegamphopus sp. A: Stoner and Lewis, 1985, pp. 32, 34, 38.

?*Neomegamphopus roosevelti*: Lewis, 1987, p. 223.

Neomegamphopus hiatus Barnard and Thomas, 1987, pp. 152-156, figs. 1-3.

Regional diagnosis: Antenna 1, accessory flagellum longer than article 1 of primary flagellum; gnathopod 1 of adult male, carpus, gape between insertion of propodus and base of carpal lobe wide, depth subequal to length of carpal lobe, propodus lacking low, rounded posteroproximal tooth; gnathopod 2 of adult male, carpus, anterior margin with 1-2 elongate setae in distal half.

Distribution: Jacksonville, Florida to Los Roques, Venezuela (Stoner and Lewis, 1985, as *Neomegamphopus* sp. A; Barnard and Thomas, 1987); Apalachee Bay, Florida; St. Joe Bay, Florida (Munguia, 2004; Munguia et al., 2007).

Ecology: *Neomegamphopus hiatus* is found on coral rubble or sandy bottoms, frequently in the presence of seagrasses (*Thalassia*, *Syringodium*) or calcareous algae (*Halimeda*) (Stoner and Lewis, 1985, as *Neomegamphopus* sp. A; Barnard and Thomas, 1987). It has also been reported to be an associate of pen shells (*Atrina rigida*) living in grassbeds (Munguia, 2004; Munguia et al., 2007). *Neomegamphopus hiatus* is found in relatively high salinity waters at depths of 1 to 49 m.

Remarks: The morphology of gnathopod 1 in the male of *N. hiatus* changes developmentally and the gape between the carpal lobe and the insertion of the propodus is smaller in subadult males than in adults. In small subadults it can even be entirely absent. In these specimens, gnathopod 1 closely resembles that of adult male *Konatopus* sp. A. However, the posterior margin of the carpus is straight rather than indented as shown for *Konatopus* sp. A by Thomas (1993, as *Konatopus* sp. 1). The subadult males of *N. hiatus* are also similar to adult males of *N. kalanii* (see Remarks section for the latter species for a comparison of the two).

In addition to the size of the gape in the carpus of gnathopod 1, adult males of *N. hiatus* can be distinguished from those of *N. kalanii* by the number of elongate setae lining the distal half of the anterior margin of the carpus of gnathopod 2 (1-2 setae in *N. hiatus*; 5 setae in *N. kalanii*). When 1 seta is present in *N. hiatus*, it is usually located anterodistally; the second seta, if present, is located at the midpoint of the anterior margin (the specimen illustrated in the key has a single elongate anterodistal seta). The 5 anterior carpal setae in *N. kalanii* are evenly spread along the distal half of the anterior margin.

An additional potentially useful diagnostic character for *N. hiatus* is the presence of two lateral facial spines on the peduncle of uropod 1. The presence or absence of these spines may even prove to be a useful generic character. *Varohios* does not have them; however, the situation is less clear for *Konatopus* and *Neomegamphopus*. *Konatopus paa* appears to have one lateral facial spine on the peduncle of uropod 1 (Barnard, 1970) and *K. storeyi* has none (Myers, 2002), but the condition is unknown for other species of the genus. Similarly, *N. hiatus* and *N. heardi* have two facial spines on the peduncle of uropod 1 (Barnard and Thomas, 1987), but their presence or absence has not been reported for other species of *Neomegamphopus*.

Neomegamphopus material from Apalachee Bay, Florida, reported by Lewis (1987) as *N. roosevelti* (an eastern Pacific species), seems more likely to actually represent *N. hiatus*. Additional material of this species from Apalachee Bay has been seen by the author and *N. kalanii* is currently known only from the type locality off the Florida east coast (Ft. Pierce).

Neomegamphopus hiatus is a small species, ranging from 2 to 3.5 mm in length.

See Barnard and Thomas, 1987.

***Neomegamphopus kalanii* Barnard and Thomas, 1987**
(Figure 542)

Neomegamphopus kalanii Barnard and Thomas, 1987, pp. 156-157, fig. 6, lower.

Regional diagnosis: Antenna 1, accessory flagellum subequal to article 1 of primary flagellum in length; gnathopod 1 of adult male, carpus, gape between insertion of propodus and base of carpal lobe narrow, depth less than length of carpal lobe, propodus with low, rounded posteroproximal tooth; gnathopod 2 of adult male, carpus, anterior margin with 5 elongate setae in distal half.

Distribution: East coast of Florida (Barnard and Thomas, 1987)

Ecology: Unknown. The type material examined by Barnard and Thomas (1987) came from recolonization trays off Fort Pierce, Florida, but no mention was made of either the habitat in which the trays were placed or the substrate contained in the trays themselves. *Neomegamphopus kalanii* occurs at depths of 33 to 124 m.

Remarks: Adult males of *N. kalanii* appear very similar to subadult males of *N. hiatus* in which the gape in the carpus of the first gnathopod has not yet fully developed. However, in *N. kalanii* the posterior margin of the propodus is beaded or minutely serrate (entire in *N. hiatus*) and the carpus of gnathopod 2 has 5 elongate setae along the distal half of the anterior margin (1-2 setae in *N. hiatus*). Although the female was not described by Barnard and Thomas (1987), it is possible that the latter character would also serve to distinguish females of *N. kalanii* from those of *N. hiatus*. Unfortunately, no material of *N. kalanii* of either sex was encountered during the preparation of this guide, so this remains unconfirmed.

As is true for other neomegamphopid species, *N. kalanii* is quite small, with adults ranging from 2 to 3 mm in length.

See Barnard and Thomas, 1987.

Genus *Varohios* Barnard, 1979

Regional diagnosis: Antenna 1, accessory flagellum shorter than article 1 of primary flagellum; eye large, nearly filling ocular lobe; coxa 1 of adult male subquadrate, width subequal to or slightly less than depth; gnathopod 1 of adult male chelate, 6-articulate (carpus and propodus fused), carpal lobe not produced, no gape present between insertion of propodus and base of carpal lobe; dactyl with large, elongate tooth on the posteroproximal margin; uropod 1, peduncle, distoventral spur elongate, subequal to peduncle in length, slightly shorter than outer ramus; telson, tip truncate.

Florida species: *Varohios* sp. A

Remarks: Three previously described species are known from the genus *Varohios*: *V. chelatus* (Walker, 1904) from India, *V. topianus* Barnard, 1979 from the Galapagos Islands and *V. pseudochelatus* (Ledoyer, 1982) from Madagascar. This genus has not previously reported from Atlantic.

Several hypotheses have been advanced regarding the unusual, 6-articulate morphology of the adult male gnathopod 1 in *Varohios*. Walker (1904) illustrates the male gnathopod 1 of *Lembos chelatus* (= *Varohios chelatus*) with 7 articles, but mentions in the text that the carpus is almost coalescent with the base of the propodus. Likewise, Ledoyer (1982) states that the carpus in *Pseudomegamphopus pseudochelatus* (= *Varohios pseudochelatus*) is very reduced in subadult males and nearly indistinguishable in adults, and he illustrates gnathopod 1 of an adult and a subadult male showing the difference. However, Barnard (1979), in his description of the genus *Varohios*, indicates that either the carpus or the dactyl of gnathopod 1 is absent or fused with adjacent articles in the male, whereas Barnard and Thomas (1987) and Barnard and Karaman (1991) state that the merus and carpus are fused. In material of *Varohios* sp. A from South Florida, subadult males have the carpus of gnathopod 1 partially fused with the propodus and in adult males the two articles are completely fused, supporting the hypothesis that it is the carpus that is fused with the propodus rather than the fusion of the dactyl and propodus or the merus and carpus.

Varohios sp. A (Figure 537)

Regional diagnosis: That of the genus.

Distribution: Biscayne Bay and Florida Bay, Florida.

Ecology: This species occurs on shallow, silty, sandy mud or muddy sand bottoms, occasionally with some shell hash mixed in. Soft corals and *Thalassia* or other seagrasses are often present. It is found at relatively high salinities and at depths of 2 to 4 m.

Remarks: *Varohios* sp. A can be readily distinguished from all other regional neomegamphopids by the extremely elongate distoventral spur on the peduncle of uropod 1. This is true for juveniles as well as for males and females at all stages of development. In addition, the color of recently preserved material is a dark purplish brown, even in alcohol. This latter character is very useful for the initial rough sorting of material, although the uropod should always be checked because there are occasional specimens that lack color. *Varohios* sp. A is a small species, with adults ranging from 2 to 3 mm in length.

Varohios sp. A is very similar to *V. topianus* from the Galapagos Islands in both morphology and coloration. However, the anterior margin of the basis of gnathopod 1 in the adult male of *Varohios* sp. A lacks the dense, elongate setae that are present in *V. topianus* and the dactyl appears to have a somewhat smaller, less curved tooth on the posterior margin in the former species. In addition, there are fewer marginal spines present on the peduncle and rami of uropod 1 in *Varohios* sp. A than in *V. topianus* and the apical spines on the rami are longer in the former species.

Family Ochlesidae Stebbing, 1910

Regional diagnosis: Antenna 1 longer than peduncle of antenna 2, not geniculate between peduncle articles 1 and 2, peduncle article 1 not greatly enlarged, not overhanging articles 2-3, accessory flagellum absent; ocular lobe produced anteriorly, distally acute, not bearing eye; eye without distinct single or paired peripheral facets; buccal mass large, strongly produced ventrally as a subconical bundle; maxilliped, palp reduced, 1-articulate or absent; coxa 1 reduced, not hidden by following coxae; coxae 1-3 not becoming shorter posteriorly; coxae 2-3 approximately twice as long as coxae 1 and 4; coxae 2-4 without small medial process on posterior margin; gnathopod 1 simple, 7-articulate; gnathopod 2 simple, article 3 not elongate, less than twice as long as wide, propodus and dactyl together not mitten-shaped; peraeopod 5 not doubly geniculate at article 4; peraeopods 5-6 not geniculate at article 5; urosome segments 1-3 separate; uropod 1, rami subequal in length; uropod 2 present; uropod 3 not vestigial, biramous; telson separate, not partially fused to urosome segment 3.

Florida genera: *Curidia*

Remarks: Ochlesids are tiny, strongly laterally compressed, cryptic amphipods that are usually found in tropical or subtropical waters, although there are several cold temperate and subantarctic species as well (Coleman and Lowry, 2006). Very little is known of their biology, but the large conical mouthpart bundle is suggestive of a parasitic lifestyle (Thomas, 1993). Although there are several Pacific genera in the family, the genus *Curidia* is the only one reported from the Atlantic to date. The ochlesids were considered to be a subfamily of the Acanthonotozomatidae by Watling and Thurston (1989) and of the Iphimediidae by Barnard and Karaman (1991) and Lowry and Myers (2003); however, subsequent authors have generally continued to recognize the Ochlesidae as a valid family (Thomas, 1993; Coleman and Lowry, 2006; Souza-Filho and Serejo, 2008; Coleman, 2009) and it is treated as such herein.

Genus *Curidia* Thomas, 1983

Regional diagnosis: That of the family.

Florida species: *C. debrogania*

Remarks: Of the five known species of *Curidia* worldwide, two (*C. debrogania* and the Brazilian species *C. wakabarae* Souza-Filho and Serejo, 2008) occur in the Atlantic basin. Souza-Filho and Serejo (2008) present a taxonomic key to all five species and also include a comparative table of selected morphological characters.

***Curidia debrogania* Thomas, 1983**
(Volume 1, Figure 45)

Curidia debrogania Thomas, 1983, pp. 127-132, figs. 1-3.

Regional diagnosis: That of the family.

Distribution: Biscayne Bay, Florida; Florida Keys; Carrie Bow Cay, Belize (Thomas, 1983, 1993); southeastern Gulf of Mexico off Cape Sable, Florida.

Ecology: This species is found among macroalgae on hard substrates in the high current areas of coral reefs and hard bottom habitats, including those subjected to wave surge (Thomas, 1983, 1993). It occurs at depths of 2 to 20 m (Thomas, 1993).

Remarks: *Curidia debrogania* is a very distinctive species unlike any other currently known from Florida waters. The extreme lateral compression of the body and the small size, combined with the posterodistal processes on the peduncle of antenna 1, the large acute ocular lobe, the large subconical mouthpart bundle and the shortened first and fourth coxal plates relative to the second and third make this species instantly recognizable. The color in life is also quite distinctive. The body is mottled with white, brown and light tan, and antenna 2, the dorsal margins of the peraeon segments and the peraeopods are banded with purple or maroon. (Thomas, 1983, 1993). Adult size ranges from 1-2 mm.

See Thomas, 1983, 1993; Souza-Filho and Serejo, 2008 (key).

Family Phliantidae Stebbing, 1899

Regional diagnosis: Body dorsoventrally depressed, segments strongly carinate; anterior coxae splayed laterally; gnathopod 2, article 3 elongate, at least twice as long as wide; urosome segments 1-3 separate; uropod 3 vestigial, rami lacking.

Florida genera: *Pariphinotus*

Remarks: The Phliantidae is a relatively small family containing seven genera, only one of which (*Pariphinotus*) is found in the Caribbean and western Atlantic. *Pariphinotus* also occurs in the tropical and subtropical eastern Pacific. The remaining six genera are Pacific or Mediterranean in distribution and some are also found in cold water at low latitudes. Members of this family are unusual in that they are strongly dorsoventrally depressed and tank-like or turtle-like in appearance, often with strongly splayed coxal plates. They generally occur in algae on hard substrates or in coral rubble, although they are also occasionally found on sand bottoms.

Genus *Pariphinotus* Kunkel, 1910

Regional diagnosis: That of the family.

Florida species: *P. seclusus*, *P. seticoxus*

Remarks: The genus *Pariphinotus* was originally established by Kunkel (1910) for *P. tuckeri* from Bermuda. Later, Shoemaker (1933b) erected the genus *Heterophlias* to contain *H. seclusus* from the Dry Tortugas, Florida. The characters used to distinguish the two genera included the lack of a third uropod, mandibular molar and inner lobes on the lower lip in *Pariphinotus* (Kunkel, 1910) vs the presence of a third uropod (although lacking rami), a conical mandibular molar and inner lobes on the lower lip in *Heterophlias* (Shoemaker, 1933b). However, as pointed out by Lazo-Wasem et al. (1989), who re-examined the type material of *P. tuckeri*, as well as new material of that species from Bermuda, *P. tuckeri* actually possesses a third uropod without rami, a conical mandibular molar and inner lobes on the lower lip. This effectively removed any distinction between the two genera and Lazo-Wasem et al (1989) synonymized the two, recognizing *Pariphinotus* as the senior synonym.

KEY TO FLORIDA SPECIES OF *PARIPHINOTUS*

1. < Rostrum, anterior margin emarginate, with a shallow v-shaped notch; peraeon segments 1-7, mid-dorsal carina forming strongly elevated ridge; peraeon segment 1, mid-dorsal carina with narrow, v-shaped central notch; coxae 1-5, ventral margins lined with minute setae not extending beyond border of coxa; coxa 4 subrectangular, width greater than depth, posteroventral lobe narrow; peraeopods 5-6, basis, posterior lobe reduced, weakly (P5) or very weakly (P6) expanded posteriorly; pleon segment 1, posterior marginal shelf subtriangular in dorsal view in both sexes, lateral margins converging posteriorly, with weak anterior notch *Pariphinotus seclusus*

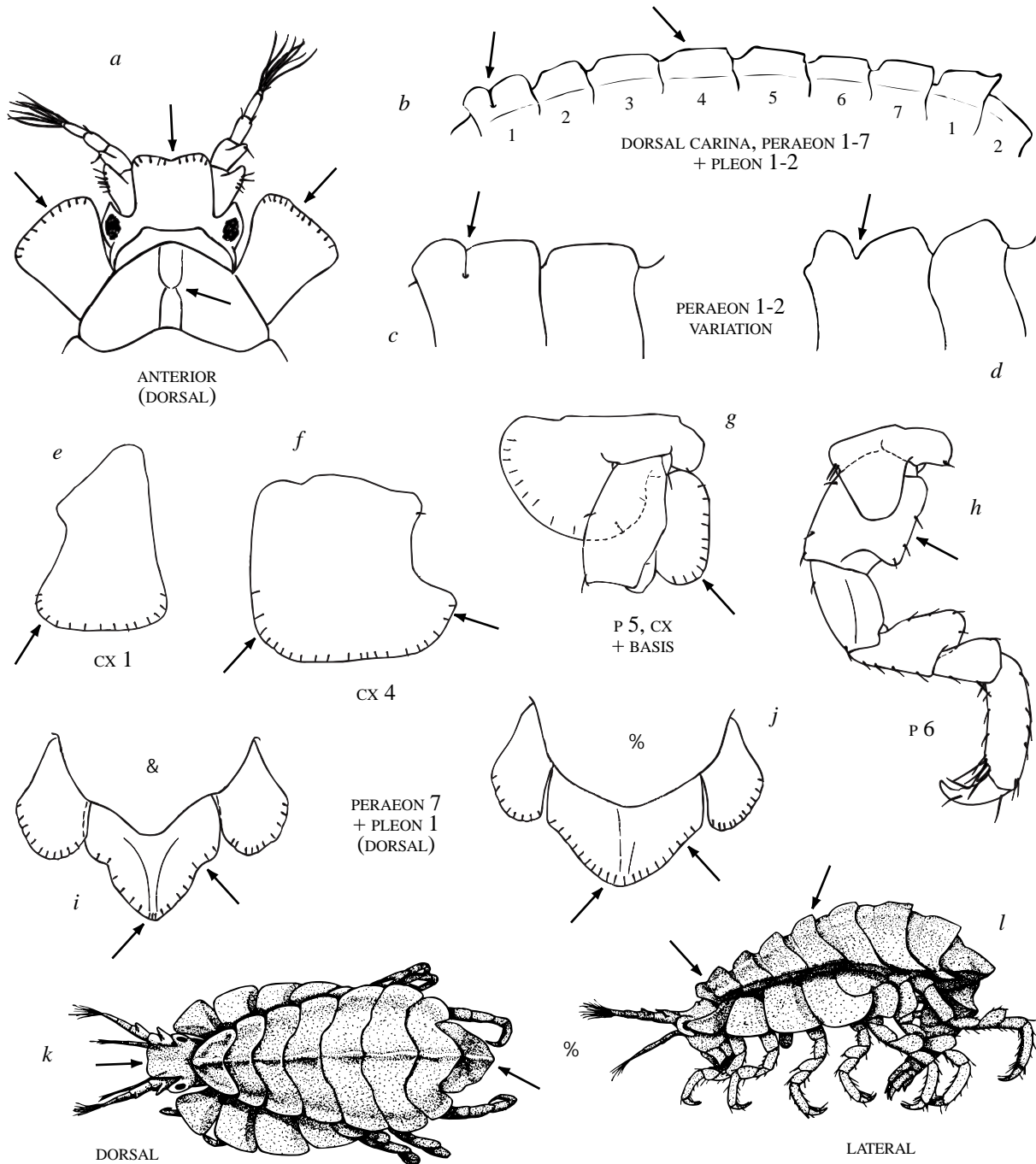


Figure 543.

< Rostrum, anterior margin weakly convex; peraeon segments 1-7, mid-dorsal carina forming weak, low ridge; peraeon segment 1, mid-dorsal carina with broad, saddle-shaped central notch; coxae 1-5, ventral margins lined with minute setae extending beyond border of coxa; coxa 4 subquadrate, width subequal to depth, posteroventral lobe broad; peraeopods 5-6, basis, posterior lobe well-developed, broadly expanded posteriorly; pleon segment 1, posterior marginal shelf subquadrate in dorsal view, lateral margins parallel, without anterior notch, posterior margin nearly straight with small median process in female, weakly convex in male *Pariphinotus seticoxus*

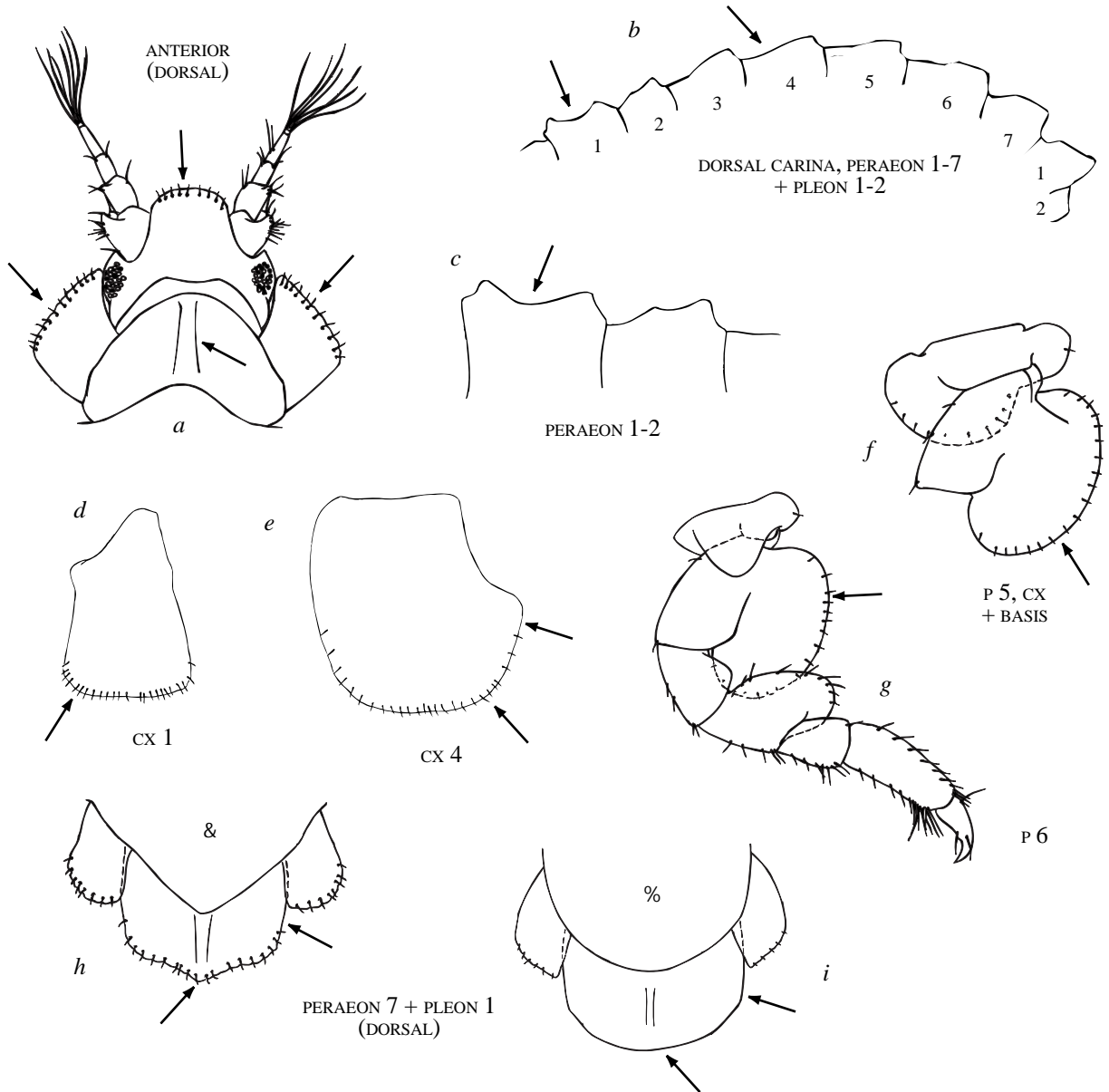


Figure 544.

***Pariphinotus seclusus* (Shoemaker, 1933)**
(Figure 543)

Heterophlias seclusus Shoemaker, 1933b, pp. 250-252, figs. 4-5.

Pariphinotus seclusus: Lazo-Wasem, Baldinger and Gable, 1989, p. 4.

Regional diagnosis: Rostrum, anterior margin emarginate, with shallow v-shaped notch; peraeon segments 1-7, distal margins strongly splayed laterally above insertion of coxal plates, mid-dorsal carina forming strongly elevated ridge; peraeon segment 1, mid-dorsal carina with narrow, v-shaped central notch; coxae 1-5, ventral margins lined with minute setae not extending beyond border of coxa; coxa 4 subrectangular, width greater than depth, posteroventral lobe narrow; peraeopods 5-6, basis, posterior lobe reduced, weakly (P5) or very weakly (P6) expanded posteriorly; pleon segment 1, posterior marginal shelf subtriangular in dorsal view in both sexes, lateral margins converging posteriorly, with weak anterior notch.

Distribution: Beaufort, North Carolina (Nelson, 1978; 1979); Florida Bay; Florida Keys (Thomas, 1993); Dry Tortugas, Florida (Shoemaker, 1933b); Cuba (Ortiz, 1978; Ortiz and Lalana, 1989); Apalachee Bay, Florida (Lewis, 1987); Port Isabel, Texas (McKinney, 1977); Yucatan, Mexico (McKinney, 1977; Oliva-Rivera and Jiménez-Cueto, 1992; Oliva-Rivera, 2003); Belize (Thomas, 1993); Swan Cay, Panama; northeastern Venezuela (Martín and Díaz, 2003); Sandy Bay, Tobago; Brazil (Wakabara and Pereira Leite, 1977; Wakabara et al., 1991).

Ecology: *Pariphinotus seclusus* is found in coral rubble, often with benthic foraminiferans (*Homotrema*) (Thomas, 1993), in “live” rock, in limestone pieces on sandy bottoms (Lazo-Wasem et al., 1989), in *Thalassia* grassbeds (Lazo-Wasem et al., 1989) and, occasionally, in silty or muddy sand and among soft corals. It has also been reported as an epibiont of the queen conch, *Strombus gigas*, and as an associate of the algal species *Lobophora variegata* and *Acanthophora* sp. (Oliva-Rivera, 2003) and *Laurencia poitei* (Lewis, 1987). This species occurs from the intertidal zone to a depth of 59 m.

Remarks: *Pariphinotus seclusus* is most easily separated from its congener in Florida waters by the minute marginal setae on the coxal plates not extending beyond the border of the coxa and by the subtriangular (in dorsal view) pleon segment 1 with small anterolateral notches. In *P. seticoxus*, the marginal setae on the coxal plates extend beyond the border of the coxa and pleon segment 1 is subquadrate in dorsal view, with a small medial point (in females) or a convex posterior margin (in males), without anterolateral notches. In addition, the mid-dorsal and dorsolateral carinae are much more pronounced in *P. seclusus* than in *P. seticoxus* and the notch in the dorsal carina of peraeon segment 1 is v-shaped, although the width of the notch is somewhat variable. In *P. seticoxus*, the dorsal notch of peraeon segment 1 is broad and saddle-shaped. Although not illustrated by Shoemaker (1933b) and mentioned by Ortiz (1976) as diagnostic for *P. seticoxus*, the apical spines on the tips of the rami of uropods 1-2 are present in *P. seclusus* as well; however, they are not as well-developed as those of the former species.

Pariphinotus seclusus is superficially very similar to *P. seticoxus* and both species are distinct from any other known amphipod species found in the Caribbean and northwestern Atlantic. For this reason, they may easily be confused with one another and many distribution records for *P. seclusus* need to be reexamined, especially those from prior to 1976 and those from algal or grassbed habitats.

Pariphinotus seclusus is bright crimson red to dull brown in live and freshly preserved specimens (Thomas, 1993). Adult body length ranges from 2.5 to 5.5 mm.

See Shoemaker, 1933b (as *Heterophlias seclusus*); Wakabara and Pereira Leite, 1977 (as *Heterophlias seclusus*); Thomas, 1993.

***Pariphinotus seticoxus* (Ortiz, 1976)**

(Figure 544)

Heterophlias seticoxa Ortiz, 1976, pp. 33-34, figs. 1-3.

Pariphinotus seticoxae: Lazo-Wasem, Baldinger and Gable, 1989, p. 4.

Pariphinotus seticoxus: Barnard and Karaman, 1991, p. 587.

Regional diagnosis: Rostrum, anterior margin weakly convex; peraeon segments 1-7, distal margins weakly splayed laterally above insertion of coxal plates, mid-dorsal carina forming weak, low ridge; peraeon segment 1, mid-dorsal carina with broad, saddle-shaped central notch; coxae 1-5, ventral margins lined with minute setae extending beyond border of coxa; coxa 4 subquadrate, width subequal to depth, posteroventral lobe broad; peraeopods 5-6, basis, posterior lobe well-developed, broadly expanded posteriorly; pleon segment 1, posterior marginal shelf subquadrate in dorsal view, lateral margins parallel, without anterior notch, posterior margin nearly straight with small median process in female, weakly convex in male.

Distribution: Biscayne Bay; Florida Keys (LeCroy et al., 2009); Cuba (Ortiz, 1976, 1978; Ortiz and Lalana, 1996; Varela et al., 2003); Crystal River, Florida; St. Marks, Apalachee Bay, Florida (LeCroy et al., 2009).

Ecology: *Pariphinotus seticoxus* occurs in algae, grassbeds, and occasionally on pilings or other hard substrates with epiphytic algal growth.

Remarks: This species has not previously been reported from outside of Cuban waters; however it is possible that some records of *P. seclusus* in the literature may actually refer to *P. seticoxus*. This is especially true of records from algae or grassbed habitats because that appears to be the preferred habitat for *P. seticoxus*, whereas *P. seclusus* is usually found in coral rubble (Thomas, 1993). However, *P. seclusus* has also specifically been reported as an algal associate (Wakabara & Pereira Leite, 1977; Nelson, 1978; Lewis, 1987; Oliva-Rivera, 2003; pers. obs.) and the material referred to in some of these studies, particularly the earlier ones, will have to be reexamined to determine for certain which species are represented.

Juveniles of *P. seticoxus* have a somewhat more elevated mid-dorsal carina than adults, but the notch in the dorsal margin of coxa 1 is still saddle-shaped rather than v-shaped as in *P. seclusus*. Other differences between the two species are discussed in the Remarks section for the latter species.

Pariphinotus seticoxus is a deep orange color in life (Ortiz, 1976) and adults range in size from 2.5 to 5.5 mm.

See Ortiz, 1976 (as *Heterophlias seticoxa*).

Family Phoxocephalidae Sars, 1895

Regional diagnosis: Antenna 1 well-developed, reaching well beyond peduncle article 4 of antenna 2; antenna 2 subequal to or longer than antenna 1; head not globular, rostrum elongate, hood-like or laminar, eyes (if present) without 4 paired peripheral facets, buccal mass not exceptionally large relative to size of head; mandible, palp and molar process present; maxilliped, palp article 4 well-developed; coxae 1-2 not reduced, subequal to or slightly shorter than following coxae in length; gnathopod 1 well-developed, subchelate; gnathopod 2, article 3 not elongate, less than twice as long as wide; pereopod 7 much shorter than pereopod 6; urosome segments 1-3 separate, segment 1 not elongate, depth greater than length; uropod 3 biramous; telson cleft.

Florida genera: *Eobrolgus*, *Harpinia*, *Metharpinia*, *Rhepoxynius*

Remarks: The Phoxocephalidae is a very large family containing mostly infaunal, soft-bottom species that are common components of the benthos in both shallow coastal waters and the deep sea. They are frequently present in large numbers and provide an important food source for many invertebrate and fish species (Jarrett and Bousfield, 1994a). Phoxocephalids are known to be both micropredators and detritivores, ingesting nematodes, harpacticopid copepods, polychaetes, bivalves, ostracods and other small invertebrates as well as diatoms, detritus and sand grains (Oliver et al., 1982; Oakden, 1984). Mating usually takes place in the water column and males are frequently modified in ways that assist them in the detection of free-swimming mates (e.g., large eyes, an increased number of sensory structures on the antennae, a long flagellum on antenna 2, copulatory spines on the posterior pereopods, well-developed pleopods for swimming). Adult males are assumed to be non-feeding and may even have reduced mouthparts (Slattery, 1985; Jarrett and Bousfield, 1994a).

Prior to the revision of the American species of *Paraphoxus* by Barnard (1979b), the known Florida nearshore species of phoxocephalids had been placed in that genus or one of several others and many older references to these species in Florida waters and elsewhere include them in the genera *Paraphoxus*, *Pontharpinia* or *Trichophoxus*. However, Barnard (1979b) modified the definition of the genus *Metharpinia* to include three of the *Paraphoxus* sensu lato species (one from Florida) and established the new genera *Eobrolgus* (one Florida species), *Eyakia*, *Foxiphalus*, *Grandiphoxus* and *Rhepoxynius* (two Florida species) to contain a number of others. Subsequent authors have published additional revisionary works on North American phoxocephalids, including Barnard (1980), Barnard and Barnard (1981; 1982a, b) and Jarrett and Bousfield (1994a, b); however, the taxonomic position of the Florida species in the family has remained the same.

KEY TO FLORIDA GENERA OF PHOXOCEPHALIDAE

1. < Rostrum unconstricted at base, broad, hood-like; maxilliped, palp article 2, lateral margin without setae; peraeopods 3-4, propodus without row of elongate, slender spines on flexor margin; peraeopods 5-6, merus and carpus slender to slightly expanded, moderately spinose, peraeopod 6 much longer than 5 2

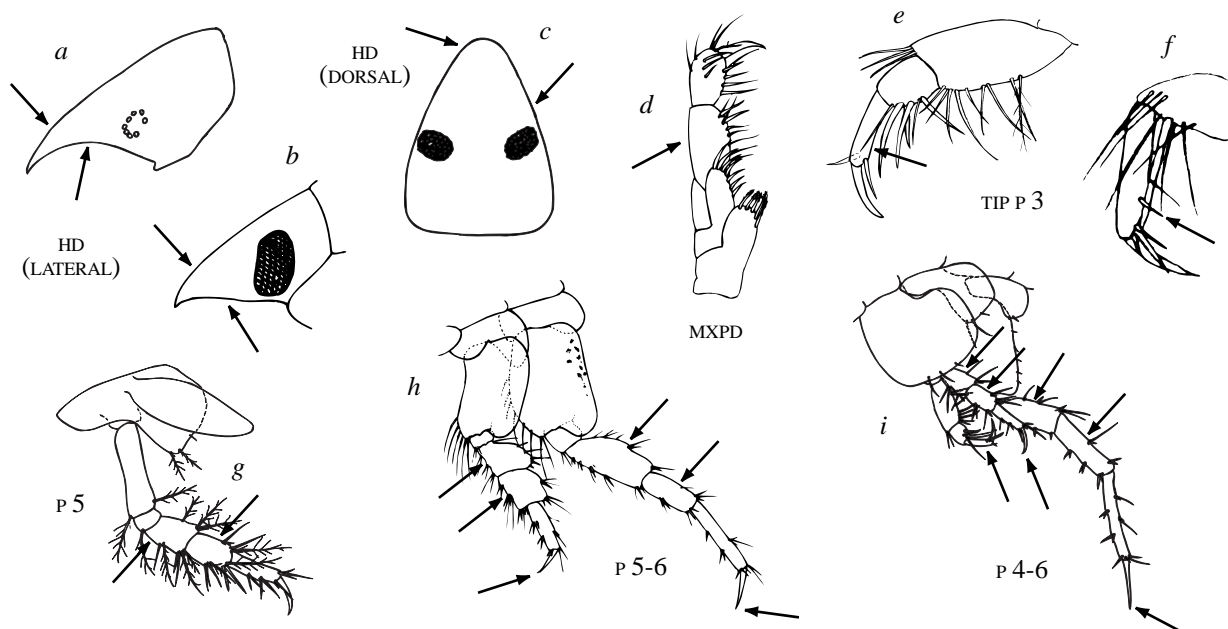


Figure 545.

- < Rostrum constricted at base, narrow, laminar; maxilliped, palp article 2, lateral margin setose; peraeopods 3-4, propodus with row of elongate, slender spines on flexor margin; peraeopods 5-6, merus and carpus broadly expanded, strongly spinose, peraeopod 6 slightly longer than 5 3

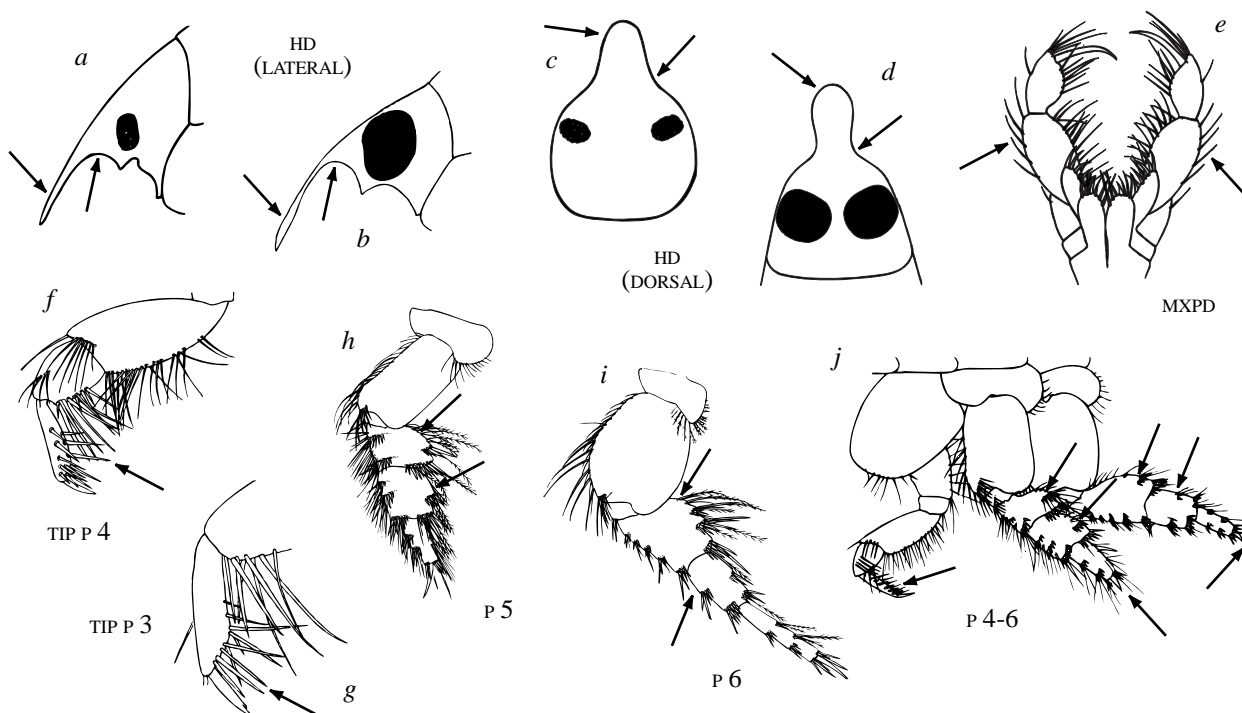


Figure 546.

2. < Antenna 2, peduncle article 1 not ensiform, flagellum of male elongate; eye well-developed, usually dark; gnathopods 1-2, carpus elongate, distinctly longer than merus, propodus subrectangular; peraeopod 5, basis broad, expanded posteriorly; peraeopods 5-7, dactyl short; peraeopod 7 basis, anterodistal margin not expanded, not lined with dense setal row; telson subrectangular, longer than wide *Eobrolgus*

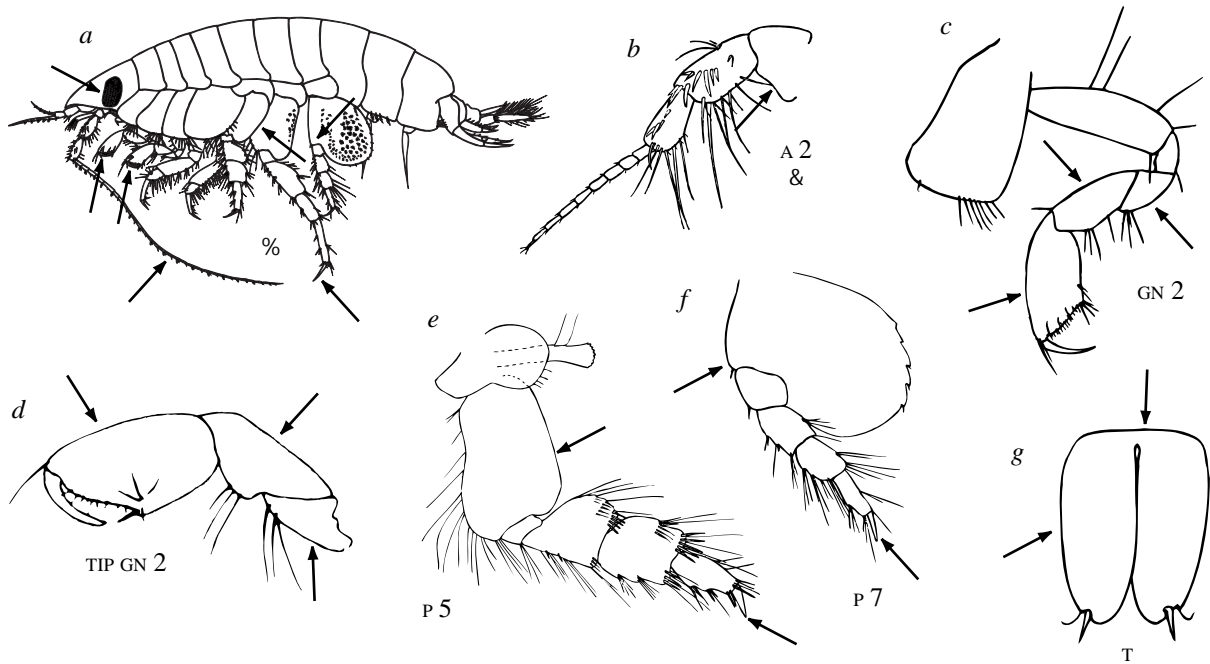


Figure 547.

- < Antenna 2, peduncle article 1 ensiform, flagellum of male short; eye very poorly developed or absent; gnathopods 1-2, carpus short, subequal to merus in length, propodus subovate; peraeopod 5, basis narrow, unexpanded; peraeopods 5-7, dactyl elongate; peraeopod 7 basis, anterodistal margin expanded, lined with dense setal row; telson subtriangular, width at base subequal to or greater than length *Harpinia*

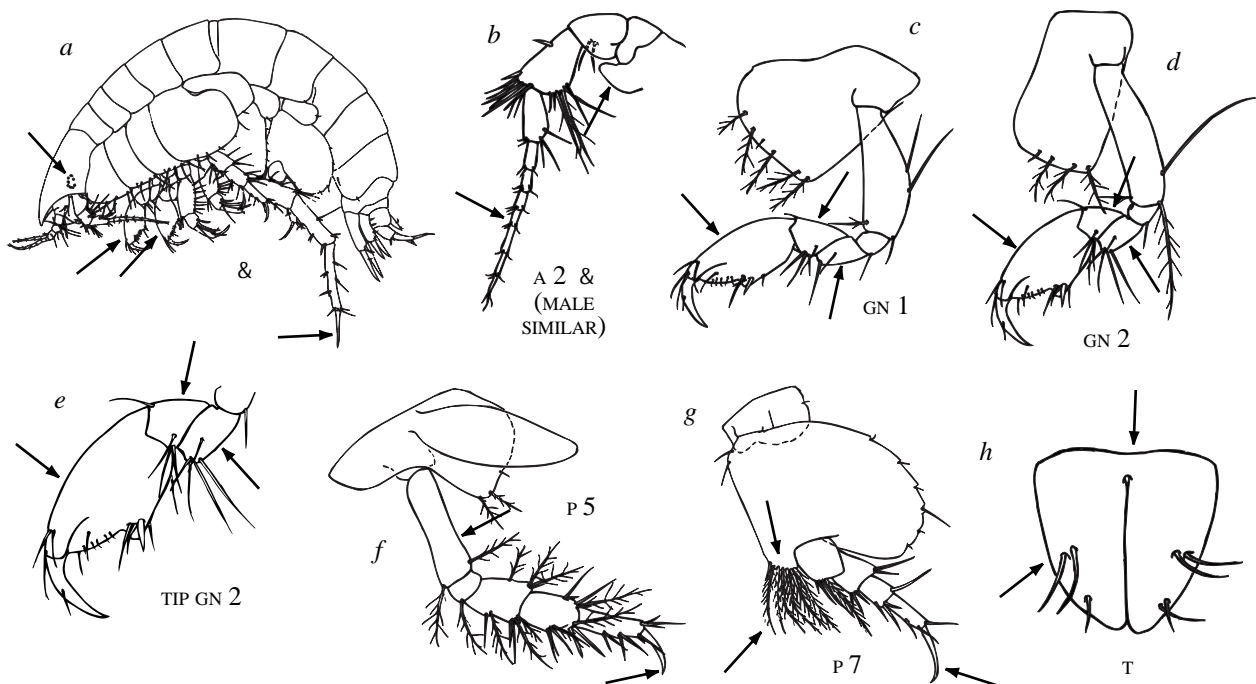


Figure 548.

3. < Antenna 2, peduncle article 1 not ensiform; rostrum slightly broadened and spatulate distally, lateral margins weakly concave; peraeopod 6, propodus much longer than carpus; epimeron 2, posterior margin with row of 2-6 setae; uropods 1-2, rami with subapical spines, apical nails lacking *Metharpinia*

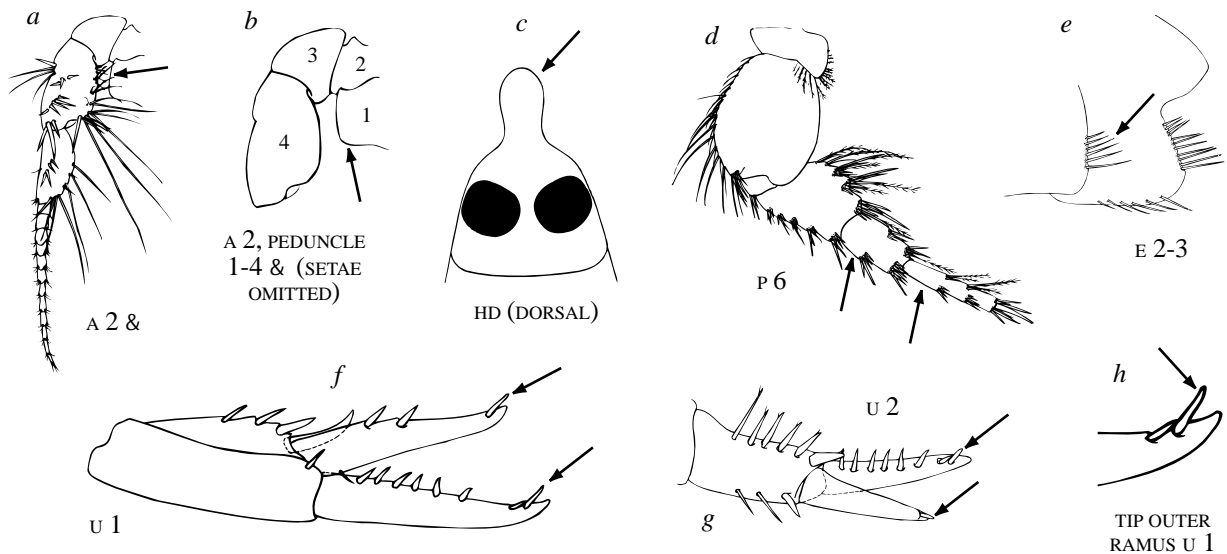


Figure 549.

- < Antenna 2, peduncle article 1 weakly ensiform; rostrum broadly rounded or slightly narrowing distally, lateral margins subparallel; peraeopod 6, propodus subequal to or slightly longer than carpus; epimeron 2, posterior margin without setae; uropods 1-2, rami without subapical spines, apical nails present *Rhepoxynius*

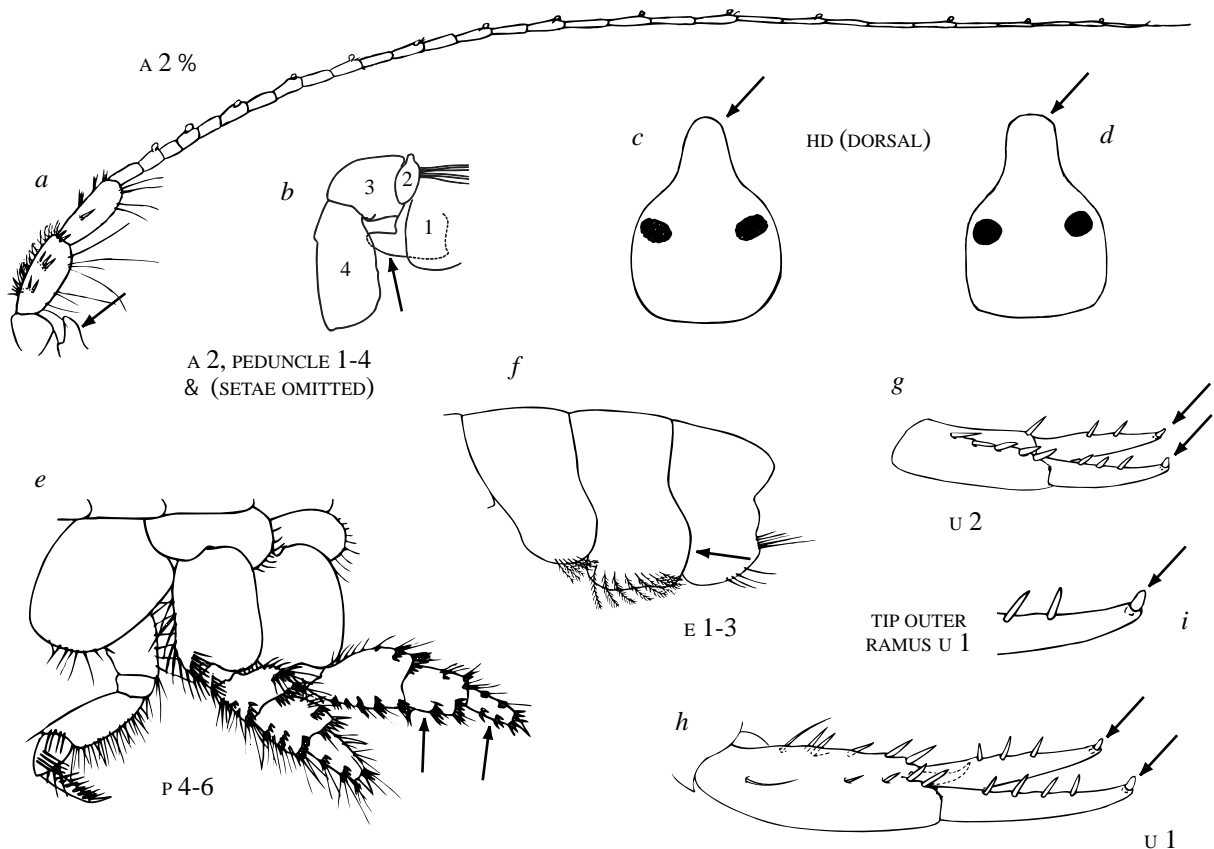


Figure 550.

Genus *Eobrolgus* Barnard, 1979

Regional diagnosis: Antenna 2, peduncle article 1 not ensiform, flagellum of male elongate; rostrum unconstricted at base, broad, hood-like; eye well-developed, usually dark; maxilliped, palp article 2, lateral margin without setae; gnathopods 1-2, carpus elongate, distinctly longer than merus, propodus subrectangular; peraeopods 3-4, propodus without row of elongate, slender spines on flexor margin; peraeopod 5, basis broad, expanded posteriorly; peraeopods 5-6, merus and carpus slender to slightly expanded, moderately spinose; peraeopod 6 much longer than 5, propodus longer than carpus; peraeopods 5-7, dactyl short; peraeopod 7 basis, anterodistal margin not expanded, not lined with dense setal row; epimeron 2, posterior margin without setae; uropods 1-2, rami without subapical spines, apical nails present; telson subrectangular, longer than wide.

Florida species: *Eobrolgus spinosus*

Remarks: *Eobrolgus* is a small genus, comprising only 3 known species. Two of these are found in American waters, *E. spinosus* in the western Atlantic and Gulf of Mexico and *E. chumashi* Barnard and Barnard, 1981 from southern California (Barnard and Barnard, 1982b; Jarrett and Bousfield, 1994b). A third species, *E. pontarpioides* (Gurjanova, 1953), from the Kurile Islands, northwestern Pacific, has also been tentatively placed in this genus (Barnard and Barnard, 1981; Jarrett and Bousfield, 1994b).

***Eobrolgus spinosus* (Holmes, 1905)**
(Figure 547)

Paraphoxus spinosus Holmes, 1905, p. 477-478, text fig.; Bousfield, 1973, p. 125, pl. XXXIV, fig. 1.

Not *Paraphoxus spinosus*: Barnard, 1960, pp. 243-249, pls. 29-31 (= *Eobrolgus chumashi* Barnard and Barnard, 1981).

Eobrolgus spinosus: Barnard, 1979b, pp. 376-378.

Regional diagnosis: That of the genus.

Distribution: Cape Cod, Massachusetts to Sebastian Inlet, Florida (Bousfield, 1973; Charvat et al., 1990); Biscayne Bay; Florida Bay; Florida Keys; Charlotte Harbor, Florida (Florida Department of Environmental Protection unpublished records; Tampa Bay to Apalachee Bay, Florida (Lewis, 1984, as *Paraphoxus spinosus*; pers. obs.); Términos Lagoon, Mexico (Ledoyer, 1986a); Cuba (Ortiz, 1978; Ortiz and Lalana, 1998); Venezuela (Díaz and Martín, 2001; Martín et al., 2002; Martín and Díaz, 2003); Friday Harbor, Washington (Barnard and Barnard, 1981; introduced); Newport Bay, California (Barnard and Barnard, 1981; introduced).

Ecology: *Eobrolgus spinosus* usually occurs on fine sand bottoms in bays and estuaries (Bousfield, 1973) and also subtidally on open sandy beaches (Charvat et al., 1990). This species has also been reported from *Thalassia* beds (Lewis, 1984; Ledoyer, 1986a) (presumably in sand patches), in the plankton (Fox and Bynum, 1975; Martín and Díaz, 2003) and associated with polychaete worm reefs (Martín and Díaz, 2003). It occurs at depths ranging from 0.5 to 20 m at moderate to high salinities.

Remarks: *Eobrolgus spinosus* is one of only two Florida phoxocephalids to have a broad hood-like rostrum. The other species is *Harpinia* sp. A, which differs from *E. spinosus* in many respects. The most readily discernable characters that serve to distinguish the two species are the shape of the basis of peraeopod 5 (broad in *E. spinosus*; narrow in *Harpinia* sp. A), the condition of the eyes (present and pigmented in *E. spinosus*; weak and unpigmented or absent in *Harpinia* sp. A) and the setation of the anterodistal margin of the basis of peraeopod 7 (unexpanded, without long plumose setae in *E. spinosus*; expanded, with a row of long plumose setae in *Harpinia* sp. A). Males are pelagic and differ from females in having an elongate flagellum and more setose peduncular articles on antenna 2, larger eyes, more powerful pleopod peduncles, a more slender urosome and more setose rami on uropod 3. Adult size in this species ranges from 2.5 to 4.5 mm.

Eobrolgus spinosus is often speckled with pink pigmentation dorsally, becoming heavier posteriorly and on the urosome, telson and uropod 3. The bases of the posterior peraeopods are also often flecked with pink. Not surprisingly, this color pattern is much stronger in material that has been stained with rose bengal, but it is often visible in unstained material as well. Although it is not stated in the text, figure 89 in Thomas (1993; from Bousfield, 1973) represents *E. spinosus* and the speckled pattern can be seen on the bases of peraeopods 6 and 7 in that illustration.

See Kunkel, 1918 (as *Paraphoxus spinosus*); Bousfield, 1973 (as *Paraphoxus spinosus*); Barnard, 1979b; Barnard and Barnard, 1981, 1982b.

Genus *Harpinia* Boeck, 1876

Regional diagnosis: Antenna 2, peduncle article 1 ensiform, flagellum of male short; rostrum unconstricted at base, broad, hood-like; eye very poorly developed or absent; maxilliped, palp article 2, lateral margin without setae; gnathopods 1-2, carpus short, subequal to merus in length, propodus subovate; peraeopods 3-4, propodus without row of elongate, slender spines on flexor margin; peraeopod 5, basis narrow, unexpanded; peraeopods 5-6, merus and carpus slender to slightly expanded, moderately spinose; peraeopod 6 much longer than 5, propodus longer than carpus; peraeopods 5-7, dactyl elongate; peraeopod 7 basis, anterodistal margin expanded, lined with dense setal row; epimeron 2, posterior margin without setae; uropods 1-2, rami without subapical spines or apical nails; telson subtriangular, width at base subequal to or greater than length.

Florida species: *Harpinia* sp. A

Remarks: The Florida material examined and assigned to the genus *Harpinia* herein clearly belongs to the subfamily Harpiniinae based on the slender, unexpanded basis of peraeopod 5 (see key in Barnard and Karaman, 1991). Although eyes are sometimes present in the Florida specimens, they are very weak and are composed of only a few scattered, unpigmented ommatidia, unlike those of other genera of harpiniines with eyes (*Basuto*, *Cocoharpinia*, *Coxophoxus*, *Heterophoxus*, *Proharpinia*, and *Torridoharpinia*). In these genera, the eyes are more well-developed and often strongly pigmented. And in contrast to members of the genera *Paralibrotus* and *Pseudharpinia*, none of the rami on uropods 1-2 are continuously spinose to the apex in Florida specimens. *Feriharpinia* is poorly known, but has widely spread setae on peduncle article 2 of antenna 1, whereas the present material has only distal setae on that article.

The remaining two genera in the subfamily Harpiniinae, *Harpinia* and *Harpiniopsis*, are very similar and difficult to distinguish in the absence of adult males. In the former genus, males have an elongate flagellum on antenna 2 and both antennae 1 and 2 bear enlarged setal brushes. In the latter genus, the flagellum of antenna 2 is short in the male (similar to that of the female in length) and both antennae lack the setal brushes found in *Harpinia*. Unfortunately, the available Florida material included only females; however, it agrees well with the diagnosis of the genus *Harpinia* in Barnard and Karaman (1991) and, following the protocol established by Barnard (1960), it is provisionally placed in *Harpinia* pending the availability of males.

Harpinia sp. A (Figure 548)

Regional diagnosis: That of the genus.

Distribution: Biscayne Bay, Florida; Lower Florida Keys

Ecology: *Harpinia* sp. A occurs on bottoms of silty, sandy mud mixed with shell hash that support *Thalassia* beds and soft corals. It has been found at depths of 1.5 to 3 m.

Remarks: *Harpinia* sp. A appears to be a somewhat uncommon species that is most similar to *Eobrolgus spinosus* among the other known Florida phoxocephalid taxa (see the Remarks section for *E. spinosus* for a comparison of the two). It is a small species, with adult female size ranging from 1.5 to 2 mm in length. Males are unknown for this species.

Genus *Metharpinia* Schellenberg, 1931

Regional diagnosis: Antenna 2, peduncle article 1 not ensiform, flagellum of male elongate; rostrum constricted at base, narrow, laminar, slightly broadened and spatulate distally, lateral margins weakly concave; eye well-developed, usually dark; maxilliped, palp article 2, lateral margin setose; gnathopods 1-2, carpus elongate, distinctly longer than merus, propodus subtriangular, widest distally; peraeopods 3-4, propodus with row of elongate, slender spines on flexor margin; peraeopod 5, basis broad, expanded posteriorly; peraeopods 5-6, merus and carpus broadly expanded, strongly spinose; peraeopod 6 slightly longer than 5, propodus much longer than carpus; peraeopods 5-7, dactyl short to moderately long; peraeopod 7 basis, anterodistal margin not expanded, not lined with dense setal row; epimeron 2, posterior margin with row of 2-6 setae; uropods 1-2, rami with subapical spines, apical nails lacking; telson subrectangular, longer than wide.

Florida species: *Metharpinia floridana*

Remarks: *Metharpinia* is a relatively small genus, restricted to American waters and containing nine known species. The genus was established by Schellenberg (1931), later revised by Barnard and Drummond (1976) and Barnard (1979; 1980) and it is the type genus of the subfamily Metharpiniinae, established by Jarrett and Bousfield (1994a). This subfamily also includes the genus *Rhepoxynius*, as well as several other genera that are not represented in regional waters. Although several species of *Metharpinia* have been recently described from Argentina (Alonso de Pina, 2001; 2003a, b), *M. floridana* remains the only species in the genus that has been reported from the Gulf of Mexico and the east coast of the United States.

***Metharpinia floridana* (Shoemaker, 1933)**
(Figure 549)

Pontharpinia floridana Shoemaker, 1933a, pp. 5-8, figs. 3-4.

Not *Paraphoxus floridanus*: Barnard, 1960, pp. 226-230, pl. 21 (= *Metharpinia oripacifica* Barnard, 1980).

Trichophoxus floridanus: Bousfield, 1973, p. 126.

Metharpinia floridana: Barnard, 1979b, pp. 368-369; Barnard 1980, pp. 124-128, fig. 5.

Regional diagnosis: That of the genus.

Distribution: North Carolina to Cuba (Shoemaker, 1933a, 1948, as *Pontharpinia floridana*; Fox and Bynum, 1975, as *Trichophoxus floridanus*; Ortiz, 1978, as *Paraphoxus floridanus*; Barnard, 1980; Charvat et al., 1990); central and northwest Florida (Fox and Bynum, 1975, as *Trichophoxus floridanus*); Perdido Key, Florida (Rakocinski et al., 1993, 1996); Camaronera Lagoon, Veracruz, Mexico (Cházaro-Olvera et al., 2002); Campeche Bank, northeastern Yucatan Peninsula (Ortiz, 1979, as *Paraphoxus floridanus*); Venezuela (Díaz and Martín, 2001; Martín and Díaz, 2003, 2007).

Ecology: *Metharpinia floridana* occurs subtidally on open sand beaches (Charvat et al., 1990; Rakocinski et al., 1993, 1996), on the carbonate sand bottoms of lagoon, forereef and rubble zones in reef habitats (Thomas, 1993) and also in the plankton (Fox and Bynum, 1975, as *Trichophoxus floridanus*). It is found at moderate to high salinities and at depths of 0-60 m.

Remarks: This is probably the most common phoxocephalid species occurring in shallow Florida waters. Adults are readily distinguished by the narrow, distally spatulate rostrum, but juveniles can be more difficult to recognize. The most reliable way to separate very small juveniles of *M. floridana* from those of *Eobrolgus spinosus* and *Rhepoxynius* species is by the presence of subapical spines on the rami of uropods 1-2. These spines are evident even in tiny individuals of *M. floridanus* whereas *Rhepoxynius* and *Eobrolgus* specimens lack them.

Males of *M. floridana* differ from females in the presence of calceoli on the flagellum of antenna 1, a more strongly setose peduncle and an elongate flagellum with calceoli on antenna 2, larger eyes and more densely setose rami on uropod 3. It is a fairly large species, with adult sizes ranging from 4.5 to 8 mm.

See Shoemaker, 1933a (as *Pontharpinia floridana*); Barnard, 1979b, 1980; Thomas, 1993.

Genus *Rhepoxynius* Barnard, 1979

Regional diagnosis: Antenna 2, peduncle article 1 weakly ensiform; rostrum constricted at base, narrow, laminar, broadly rounded or slightly narrowing distally, lateral margins subparallel; eye well-developed, usually dark; maxilliped, palp article 2, lateral margin setose; gnathopods 1-2, carpus elongate, distinctly longer than merus, propodus subrectangular or subtriangular; peraeopods 3-4, propodus with row of elongate, slender spines on flexor margin; peraeopod 5, basis broad, expanded posteriorly; peraeopods 5-6, merus and carpus broadly expanded, strongly spinose; peraeopod 6 slightly longer than 5, propodus subequal to or slightly longer than carpus; peraeopods 5-7, dactyl short; peraeopod 7 basis, anterodistal margin not expanded, not lined with dense setal row; epimeron 2, posterior margin without setae; uropods 1-2, rami without subapical spines, apical nails present; telson subrectangular, longer than wide.

Florida species: *Rhepoxynius epistomus*, *Rhepoxynius hudsoni*, *Rhepoxynius* sp. A

Remarks: Members of this genus are very similar in morphology and regional distribution records of the Florida species established prior to Barnard and Barnard's (1982a) revision of the American species of *Rhepoxynius* will need to be verified to determine whether they refer to *R. epistomus*, *R. hudsoni*, or, possibly, *Rhepoxynius* sp. A.

KEY TO FLORIDA SPECIES OF *RHEPOXYNIUS*

1. < Gnathopods 1-2, propodus subrectangular, palm nearly transverse, process at palmar angle weak; epimeron 2 with posterior pair of ventral setae not vertically aligned; epimeron 3 with 1 or more setae on posteroventral surface; uropod 1, peduncle without displaced distomedial spine *Rhepoxynius hudsoni*

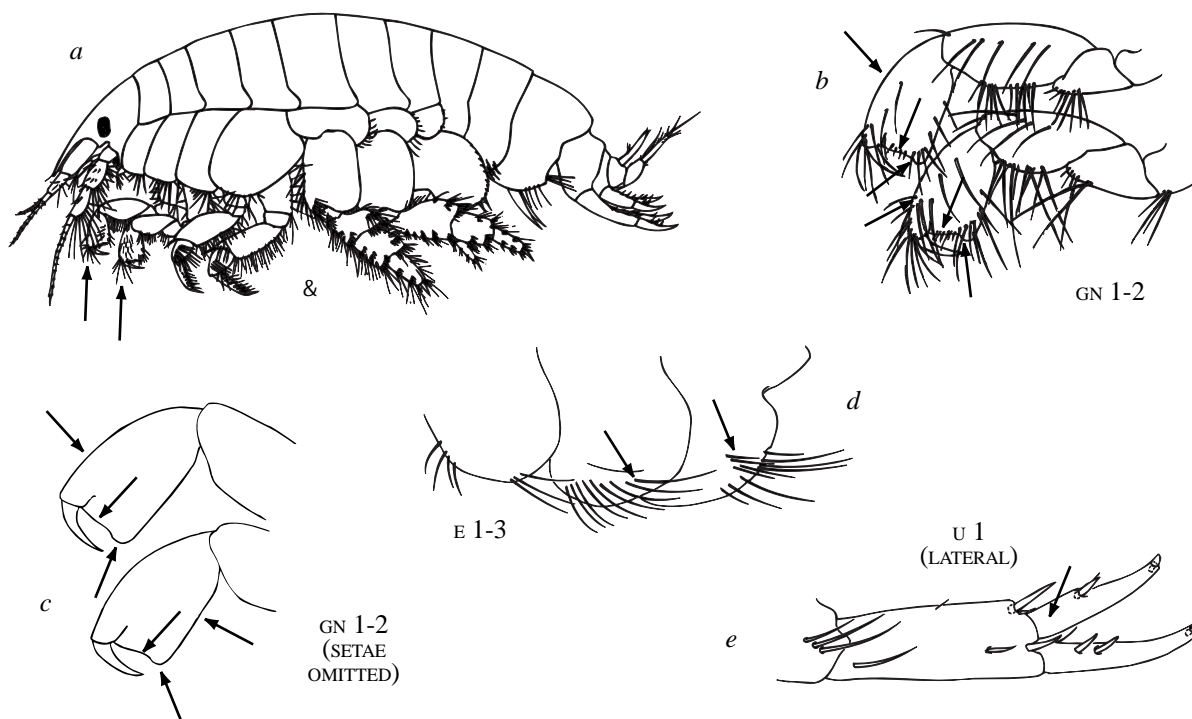


Figure 551.

< Gnathopods 1-2 subtriangular, palm oblique, process at palmar angle well-developed;
 epimeron 2 with posterior pair of ventral setae vertically aligned; epimeron 3 without setae
 on posteroventral surface; uropod 1, peduncle with displaced distomedial spine 2

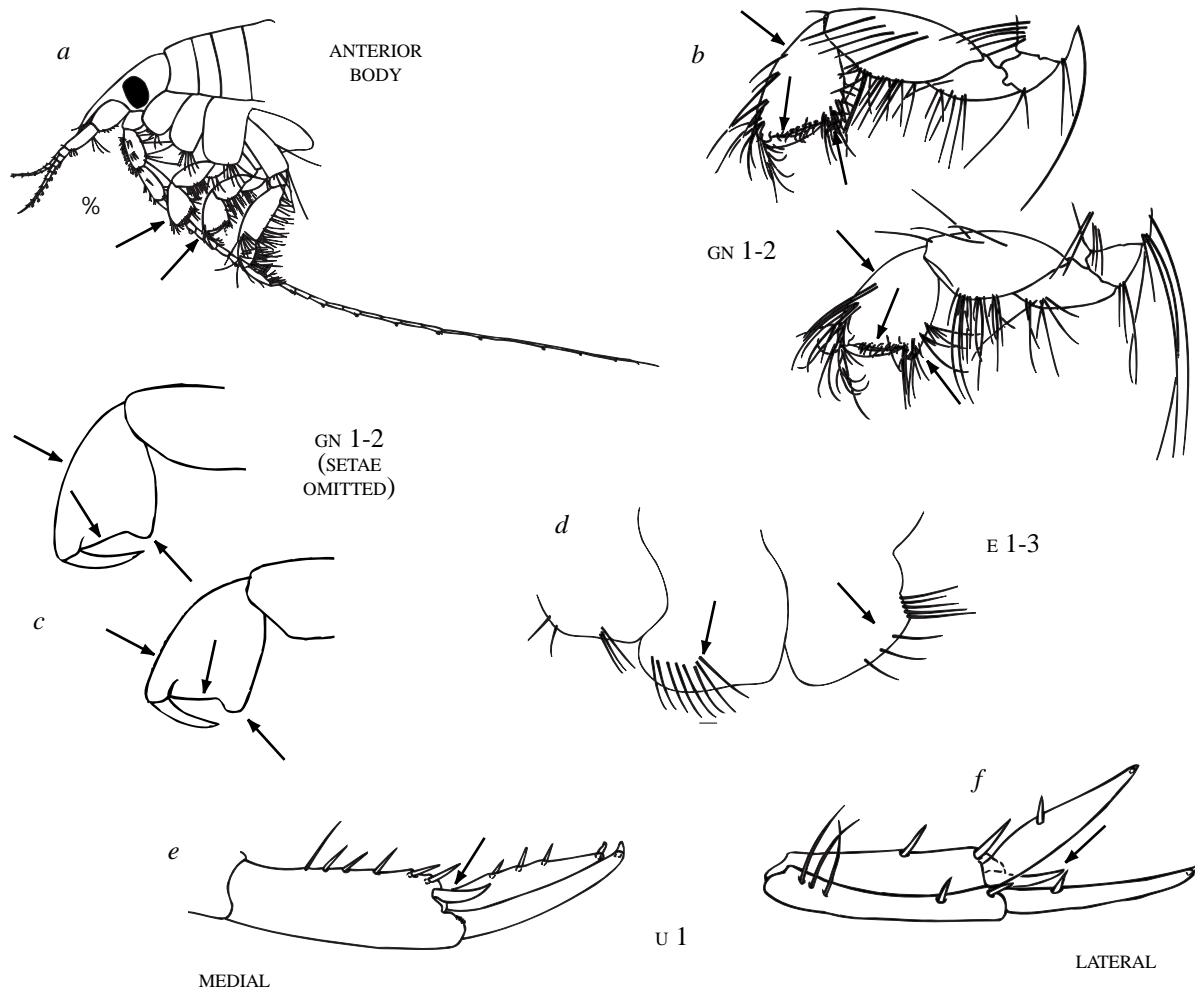


Figure 552.

2. < Eye of adult male subrectangular; epistome with large cusp on anterior surface; peraeopod 5, propodus relatively slender, more than twice as long as wide; uropod 1, rami with 2-4 spines evenly distributed along dorsal margin *Rhepoxynius epistomus*

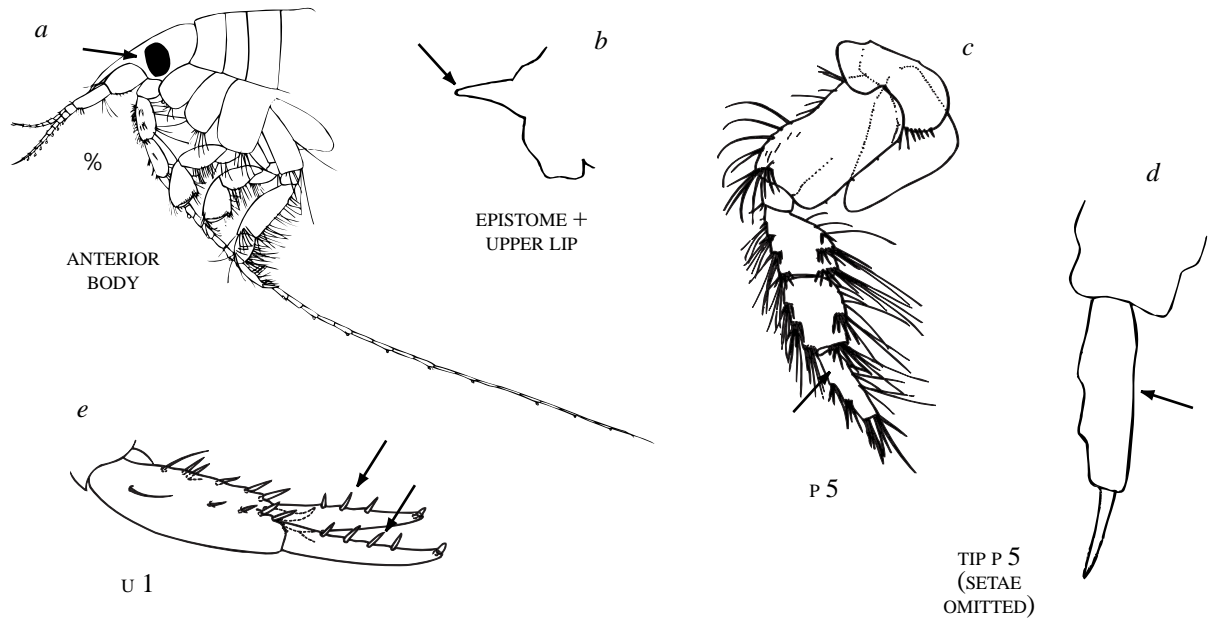


Figure 553.

- < Eye of adult male subcircular; epistome with small cusp on anterior surface; peraeopod 5, propodus relatively stout, less than twice as long as wide; uropod 1, rami with 1-2 spines located proximally on dorsal margin *Rhepoxynius* sp. A

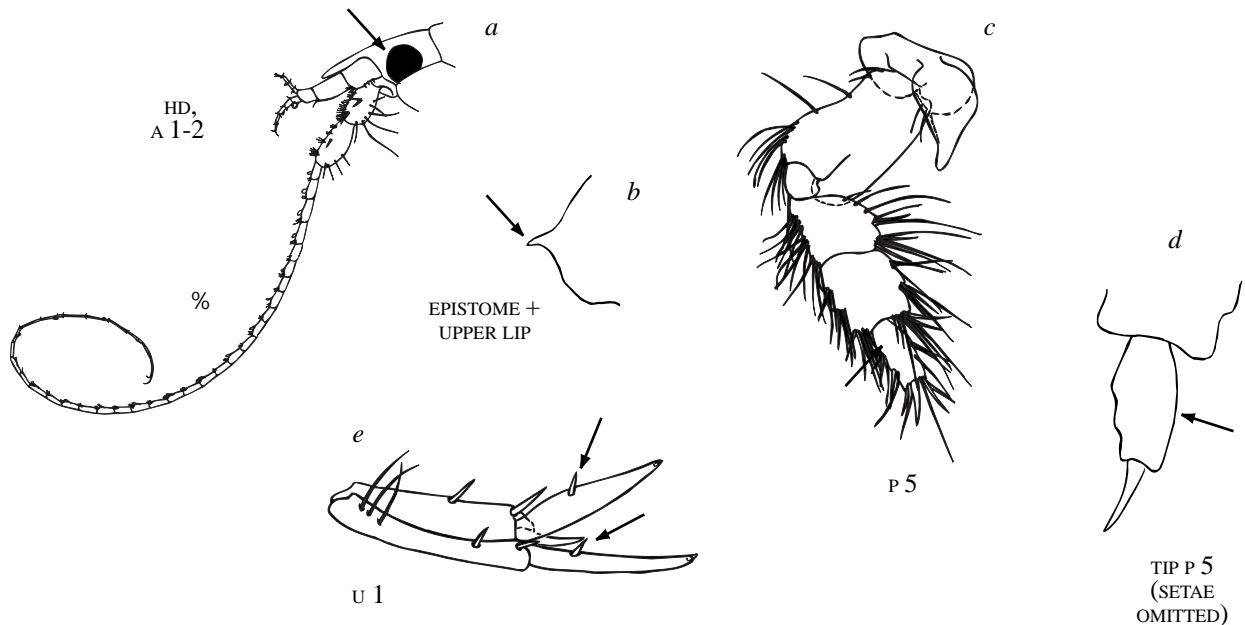


Figure 554.

***Rhepoxynius epistomus* (Shoemaker, 1938)**
(Figure 553)

Pontharpinia epistoma Shoemaker, 1938, pp. 326-329, fig. 1a-s (part).

Not *Trichophoxus epistomus*: Bousfield, 1973, p. 126, pl. XXXIV, fig. 2 (= *Rhepoxynius hudsoni* Barnard and Barnard, 1982).

Rhepoxynius epistomus: Barnard and Barnard, 1982a, pp. 5-8, fig. 2 (part).

Regional diagnosis: Eye of adult male subrectangular; epistome with large cusp on anterior surface; gnathopods 1-2 subtriangular, palm oblique, process at palmar angle well-developed; peraeopod 5, propodus relatively slender, more than twice as long as wide; epimeron 2 with posterior pair of ventral setae vertically aligned; epimeron 3 without setae on posteroventral surface; uropod 1, peduncle with displaced distomedial spine; rami with 2-4 spines evenly distributed along dorsal margin.

Distribution: Rhode Island to South Carolina (Shoemaker, 1938, as *Pontharpinia epistoma*, in part; Fox and Bynum, 1975, as *Trichophoxus epistomus*; Barnard and Barnard, 1982a; Southeastern Regional Taxonomic Center unpublished records); Volusia County, Florida (Ecological Associates, Inc. unpublished records); Sebastian Inlet, Florida (Charvat, et al., 1990); Cuba (Ortiz, 1978, as *Paraphoxus epistomus*; Ortiz and Lalana, 1998).

Ecology: *Rhepoxynius epistomus* occurs along exposed sand beaches at relatively high salinities (Charvat et al., 1990) and has also been reported from seagrass beds (Nelson, 1995) and occasionally in the plankton (Fox and Bynum, 1975, as *Trichophoxus epistomus*). It is found at depths of 0 to 3 m.

Remarks: *R. epistomus* is relatively easy to distinguish from its congener, *R. hudsoni* by the presence of a displaced distomedial spine on the peduncle of uropod 1 (lacking in *R. hudsoni*). This spine is evident even in small juveniles. The two species are similar in size, with adult *R. epistomus* ranging from 4 to 7 mm in length compared to 4 to 8 mm for *R. hudsoni*. *Rhepoxynius* sp. A is somewhat smaller (2-3 mm), but is otherwise very similar to *R. epistomus* (see Remarks section for *Rhepoxynius* sp. A for more specific comments on differences between these two species.) Males are similar to females, differing mainly in the larger eyes and the more setose peduncle and elongate, calceolate flagellum of antenna 2.

As mentioned in the Remarks section for the genus, some early records of *R. epistomus* may actually represent *R. hudsoni* and need to be verified to determine their validity.

See Shoemaker, 1938 (as *Pontharpinia epistoma*); Barnard and Barnard, 1982a

***Rhepoxynius hudsoni* Barnard and Barnard, 1982**
(Figure 551)

Pontharpinia epistoma Shoemaker, 1938, pp. 326-329, fig. 1t, u (part).

Trichophoxus epistomus: Bousfield, 1973, p. 126, pl. XXXIV, fig. 2.

Rhepoxynius hudsoni Barnard and Barnard, 1982a, pp. 12-16, fig. 3 (part).

Regional diagnosis: Eye of adult male subrectangular; epistome with large cusp on anterior surface; gnathopods 1-2, propodus subrectangular, palm nearly transverse, process at palmar angle weak; peraeopod 5, propodus relatively stout, less than twice as long as wide; epimeron 2 with posterior pair of ventral setae not vertically aligned; epimeron 3 with 1 or more setae on posteroventral surface; uropod 1, peduncle without displaced distomedial spine, rami with 1-2 spines located proximally on dorsal margin.

Distribution: Maine to South Carolina (Shoemaker, 1938, as *Pontharpinia epistoma*, in part; Bousfield, 1973, as *Trichophoxus epistomus*; Barnard and Barnard, 1982a; SERTC unpublished records); Florida (Camp, 1998).

Ecology: This species occurs on fine to medium sand bottoms at depths of 0 to 161 m (Bousfield, 1973; as *Trichophoxus epistomus*; Barnard and Barnard, 1982a)

Remarks: No Florida material referable to *R. hudsoni* was seen during the preparation of this guide; however, it is included because was reported from Florida waters by Camp (1998) and also because one of the two species reported as *Trichophoxus* sp. and ?*Trichophoxus* sp. by Camp et al. (1977) may prove to be this species. At 4 to 8 mm, *R. hudsoni* is larger than *Rhepoxynius* sp. A (2-3 mm), but similar in size to *R. epistomus* (4-7 mm); it can be distinguished from both of these species by the lack of a displaced distomedial spine on the peduncle of uropod 1 (spine present in *R. epistomus* and *R. sp. A*). Adult males have larger eyes, as well as a more setose peduncle and an elongate, calceolate flagellum on antenna 2, but are otherwise similar to females.

See Bousfield, 1973 (as *Trichophoxus epistomus*); Barnard and Barnard, 1982a;

***Rhepoxynius* sp. A**
(Figure 554)

Regional diagnosis: Eye of adult male subovate; epistome with small cusp on anterior surface; gnathopods 1-2 subtriangular, palm oblique, process at palmar angle well-developed; peraeopod 5, propodus relatively stout, less than twice as wide as long; epimeron 2 with posterior pair of ventral setae vertically aligned; epimeron 3 without setae on posteroventral surface; uropod 1, peduncle with displaced distomedial spine, rami with 1-2 spines located proximally on dorsal margin.

Distribution: Southeastern Gulf of Mexico between Cape Sable and Cape Romano, Florida; Charlotte Harbor, Florida (Florida Department of Environmental Protection unpublished records); Sarasota Bay, Florida; Tampa Bay, Florida.

Ecology: *Rhepoxynius* sp. A occurs in fine sand, sometimes mixed with a small amount of silt and shell hash. It has been found at depths of 2 to 9 m and at moderate to high salinities.

Remarks: *Rhepoxynius* sp. A differs from *R. epistomus* from the east coast of the United States in the smaller cusp on the anterior surface of the epistome, the proximal placement of the marginal spines on the rami of uropod 1 and the lack of marginal spines on the inner ramus of uropod 2 in many, but not all, individuals. However, *Rhepoxynius* sp. A specimens are somewhat smaller (2-3 mm) than the *R. epistomus* material figured by Shoemaker (1938) (6 mm) and Barnard and Barnard (1982a) (4 mm) and some of these differences may be related to size. Shoemaker (1938) mentions that not all of the material he examined from New England waters had as large a cusp on the epistome as the specimen he figured and it is not impossible that *Rhepoxynius* sp. A may prove to be a small, more southern form of *R. epistomus*.

As is true of other species in the genus, males of *Rhepoxynius* sp. A are similar to females except for a larger eye and a more setose peduncle and elongate, calceolate flagellum on antenna 2.

Family Platyischnopidae Barnard and Drummond, 1979

Regional diagnosis: Head elongate, much longer than deep, forming a cylindrical “snout”; body laterally compressed, segments not carinate; coxae not splayed; gnathopods 1-2 chelate, article 3 elongate, at least twice as long as wide, subequal to article 4 in length; pereopod 7 and pleon segments 1-3 dorsally smooth, without strong teeth or processes; urosome segments 1-3 separate; uropod 3, inner ramus short, scale-like, outer ramus elongate, 2-articulate.

Florida genera: *Eudevenopus*

Remarks: Platyischnopid amphipods are quite active, swimming and burrowing into the sediment very rapidly (Thomas, 1993). They are benthic predators (Thomas, 1993), feeding on copepods (Thomas and Barnard, 1983) and possibly other small benthic invertebrates.

Genus *Eudevenopus* Thomas and Barnard, 1983

Regional diagnosis: That of the family.

Florida species: *E. honduranus*

Remarks: There is a second genus of platyischnopid occurring in Caribbean waters that is very similar to *Eudevenopus* in morphology. Although members of this genus, *Tiburonella* Thomas and Barnard, 1983, have not been found in Florida to date, it is possible that they occur there, especially in the Florida Keys. *Tiburonella* specimens may be most easily distinguished from those belonging to the genus *Eudevenopus* by the tapering posterior lobe of coxa 4 (posterior lobe of coxa 4 broad and subquadrate in *Eudevenopus*).

Eudevenopus honduranus Thomas and Barnard, 1983 (Volume 1, Figure 21)

Eudevenopus honduranus Thomas and Barnard, 1983, pp. 12-19, figs. 3-6.

Regional diagnosis: That of the family.

Distribution: Atlantic: South Carolina to Brazil (Thomas and Barnard, 1983; Charvat et al., 1990; Thomas, 1993; Nelson, 1995; Wakabara and Serejo, 1998), including the Gulf of Mexico (Rakocinski et al., 1993, 1996); Pacific: Costa Rica to Ecuador (possibly to Chile) (Thomas and Barnard, 1983).

Ecology: *Eudevenopus honduranus* is an infaunal species, generally occurring on open sand bottoms at depths of 1 to 40 m (Thomas and Barnard, 1983; Thomas, 1993). It has also been reported from grassbed habitats in the Indian River Lagoon along the Florida east coast (Nelson, 1995), probably inhabiting sand patches within or between the beds.

Remarks: *Eudevenopus honduranus* is easily recognizable by the elongate, conical head shape, the ventrally directed antennal peduncles, the chelate gnathopods and the shape of uropod 3, with its elongate, 2-articulate outer ramus and short, scale-like inner ramus. Males are similar to females except for the slightly larger eyes, the long aesthetascs on the posterior margin of the first flagellar article of antenna 1, and the dorsally setose peduncle articles and very elongate flagellum of antenna 2. These differences develop gradually over several molts and small subadult males resemble females except for the slightly longer and stouter flagellum of antenna 2. Body size ranges from 3 to 4 mm.

See Thomas and Barnard, 1983; Thomas, 1993.

Family Pleustidae Buchholz, 1874

Regional diagnosis: Antenna 1 well-developed, longer than antenna 2; antenna 2 not extremely short, greater than half the length of antenna 1; head not globular; rostrum small, straight; eyes present, lateral, well-developed; buccal mass not exceptionally large relative to size of head; mandible, palp present, molar present; maxilla 1, palp present, well-developed; maxilliped, palp article 4 well-developed, falcate; coxae 1-2 not reduced, subequal to or slightly shorter than following coxae; coxae 1-4 deep, extending well beyond proximal end of basis of corresponding pereopods; coxa 4, posterior margin excavate proximally; coxa 5, anterior lobe much shorter than coxa 4, subequal to coxae 6-7 in depth; gnathopod 1 well-developed, subchelate; gnathopod 2 subchelate, not sexually dimorphic, ischium not elongate, less than twice as long as wide, carpal lobe slightly produced, not reaching palmar angle; pereopod 7 subequal to pereopod 6 in length; urosome segments 1-3 separate; urosome 1 not elongate, length subequal to depth, approximately twice as long as segment 2; uropod 3 biramous, rami much longer than peduncle; telson entire.

Florida genera: *Incisocalliope*

Remarks: A second genus of pleustid, *Gracilipleustes*, is a cold water representative of the family, occurring along the east coast of the United States north of Chesapeake Bay at depths greater than 5 m (usually much greater, especially in the more southern parts of its range) (Bousfield, 1973; Watling, 1979; Dickinson, et al., 1980; as *Stenopleustes*). Although one member of the genus, *Gracilipleustes gracilis* (Holmes, 1905), has been reported from Florida by Camp (1998; as *Stenopleustes gracilis*), there have been no further reports in the literature and it seems unlikely that this species occurs in shallow (< 10 m) Florida waters. For this reason, it is not included herein. However, members of this genus are easily distinguished from those of *Incisocalliope* by the serrate posteroventral margin of epimeron 3 (entire and produced into a small posteroventral hook in *Incisocalliope*).

Many species of pleustids are very colorful or strongly patterned and some mimic gastropod molluscs or other invertebrates (Holmes, 1905; Crane, 1969; Field, 1974; Carter and Behrens, 1980; Bousfield, 1982b; 1985; Bousfield and Hendrycks, 1994a, b; 1995). Others are commensal species, living as obligate symbionts of spiny lobsters (Shoemaker, 1952), king crabs (Cadien and Martin, 1999; Hendrycks and Bousfield, 2004) or sea urchins (Vader, 1978; Bousfield and Hendrycks, 1995). Still others live in association with cnidarians, polychaetes, tunicates (Bousfield and Hendrycks, 1995) or pycnogonids (Chevreux, 1927) or are found on mud, sand, gravel or algae-covered substrates (Bousfield and Hendrycks, 1994a, b; 1995; Hendrycks and Bousfield, 2004). Body size varies greatly within the family, ranging from about 2 to 28 mm, with the more northern species generally being the largest.

Genus *Incisocalliope* Barnard, 1959

Regional diagnosis: That of the family.

Florida species: *I. aestuarius*

Remarks: The only known northwestern Atlantic representative of the genus *Incisocalliope*, *Incisocalliope aestuarius* (Watling and Maurer, 1973), is an inshore species that is reported to be present in large numbers as far south as Sapelo Island, Georgia (Watling and Maurer, 1973). It has also been reported from Florida by Camp (1998) and, although there are no other published Florida records, it seems likely that this species occurs in the shallow estuarine habitats of northeastern Florida.

Incisocalliope aestuarius (Watling and Maurer, 1973) (Volume 1, Figure 80)

Parapleustes sp.: Watling and Maurer, 1972, pp. 255, 257-258, tabs. 2, 4, 6

Parapleustes aestuarius Watling and Maurer, 1973, pp. 1-6, figs. 1-4.

Incisocalliope aestuarius: Bousfield and Hendrycks, 1995, pp. 95-96, 104-105, fig. 29.

Regional diagnosis: That of the family.

Distribution: Delaware Bay, Delaware to Sapelo Island, Georgia (Watling and Maurer, 1973; Fox and Bynum, 1975); Florida (Camp, 1998); Western Scheldt estuary, The Netherlands (introduced) (Faasse and van Moorsel, 2003).

Ecology: This is an estuarine species, usually found among hydroids, bryozoans and other fouling growth attached to hard substrates such as oysters, pilings or buoys (Watling and Maurer, 1973; Bousfield and Hendrycks, 1995; Faasse and van Moorsel, 2003). It has also been reported from the plankton at Fort Caswell, North Carolina (Fox and Bynum, 1975).

Remarks: *Incisocalliope aestuarius* is a relatively small species (3-6 mm) and its coloration is a heavily speckled pattern of dark gray and white flecks on a translucent background with a yellowish cast, blending with the hydroids and bryozoans in which it usually occurs. The eye in live material is a pale pinkish purple.

At first glance, *I. aestuarius* individuals may resemble the females of some species of *Stenothoe*, from which it may be distinguished by the unreduced coxa 1 (reduced in *Stenothoe*); the small, posteroproximally excavate coxa 4 (larger and not excavate in *Stenothoe*); the posteriorly expanded basis on pereopod 5 (basis unexpanded in *Stenothoe*) and the biramous uropod 3 (uniramous in *Stenothoe*).

See Watling and Maurer, 1973; Bousfield and Hendrycks, 1995

Family Podoceridae Leach, 1814

Regional diagnosis: Antenna 2 distinctly longer than antenna 1; head not globular; buccal mass not exceptionally large relative to size of head; mandible with molar and palp present, well-developed; eyes without 4 paired peripheral facets; coxae 1-2 not reduced, not hidden by coxa 3, slightly shorter than or subequal to following coxae in depth; gnathopod 1 well-developed, subchelate; gnathopod 2, article 3 not elongate, less than twice as long as wide; urosome segments 1-3 separate; urosome segment 1 elongate, much longer than deep, more than twice as long as segment 2; uropod 3 vestigial, lacking rami.

Florida genera: *Podocerus*

Remarks: The family Podoceridae is currently represented by eight genera worldwide (Myers and Lowry, 2003; Kilgallen, 2009), of which only one, *Podocerus*, occurs in Florida waters. This total does not include the six dulichiid genera, which are usually found in cold and/or deep water and have not been reported from Florida. The dulichiids have frequently been included within the Podoceridae in the past (Bousfield, 1973; Lincoln, 1979; Laubitz, 1983; Barnard and Karaman, 1991; Ruffo, 1993; Bellan-Santini, 1999), often as a separate subfamily. Conversely, several authors have included the podocerid genera, including *Podocerus*, within the Dulichiidae Dana, 1849 (Barnard and Clark, 1985; Myers, 1985; Thomas and Barnard, 1992b), apparently based on Bowman and Able (1982). These authors rejected Stebbing's (1906) replacement of the name Dulichiidae with Podoceridae (see discussion on page 3 of Bowman and Abele, 1982) and supported the use of Dulichiidae to represent the family. However, Podoceridae Leach, 1814 is actually the older name and should have been selected in preference to Dulichiidae. This question is now moot, however, because recent phylogenetic analyses by Myers and Lowry (2003) have supported the validity of both families, each comprising a subset of the original, larger family.

Genus *Podocerus* Leach, 1814

Regional diagnosis: That of the family.

Florida species: *P. brasiliensis*, *P. chelonophilus*, *P. fissipes*, *P. kleidus*

Remarks: *Podocerus* species are frequently found in fouling communities on hard substrates, clinging to algae, barnacles, sponges, hydroids, gorgonians and other fouling growth in relatively high energy habitats. Members of this genus may be superficially similar to those of *Pariphinotus* (Phliantidae), especially ovigerous females, which tend to be broader and more dorsoventrally depressed than males and non-ovigerous females. However, upon closer examination, they are readily distinguished by having a very short subtriangular rostrum (rostrum long, broad and distally truncate in *Pariphinotus*), antenna 2 much longer than antenna 1 (subequal to or shorter than antenna 1 in *Pariphinotus*), subchelate gnathopods 1-2 (gnathopods simple in *Pariphinotus*), a subquadrate ischium on gnathopod 2 (elongate in *Pariphinotus*) and an apically spinose telson (telson lacking apical spines in *Pariphinotus*).

Several additional species of *Podocerus* have been described from Bermuda (Baldinger and Gable, 1994) and from Guana Island in the British Virgin Islands (Baldinger and Gable, 2002). It is possible, given the fouling lifestyle of members of this genus, that some of these species may eventually be found in Florida as well, although there are no reports of their presence to date.

KEY TO FLORIDA SPECIES OF *PODOCERUS*

1. < Mandible, palp articles 2-3 stout, no more than twice as long as wide; peraeon segments 6-7 and pleon segments 1-2 without posterodorsal processes; coxa 1, ventral margin entire, not notched (may be slightly concave), anteroventral angle narrowly rounded or subacute; gnathopod 2 of female, merus strongly produced posterodistally, extending well beyond posterior margin of carpus 2

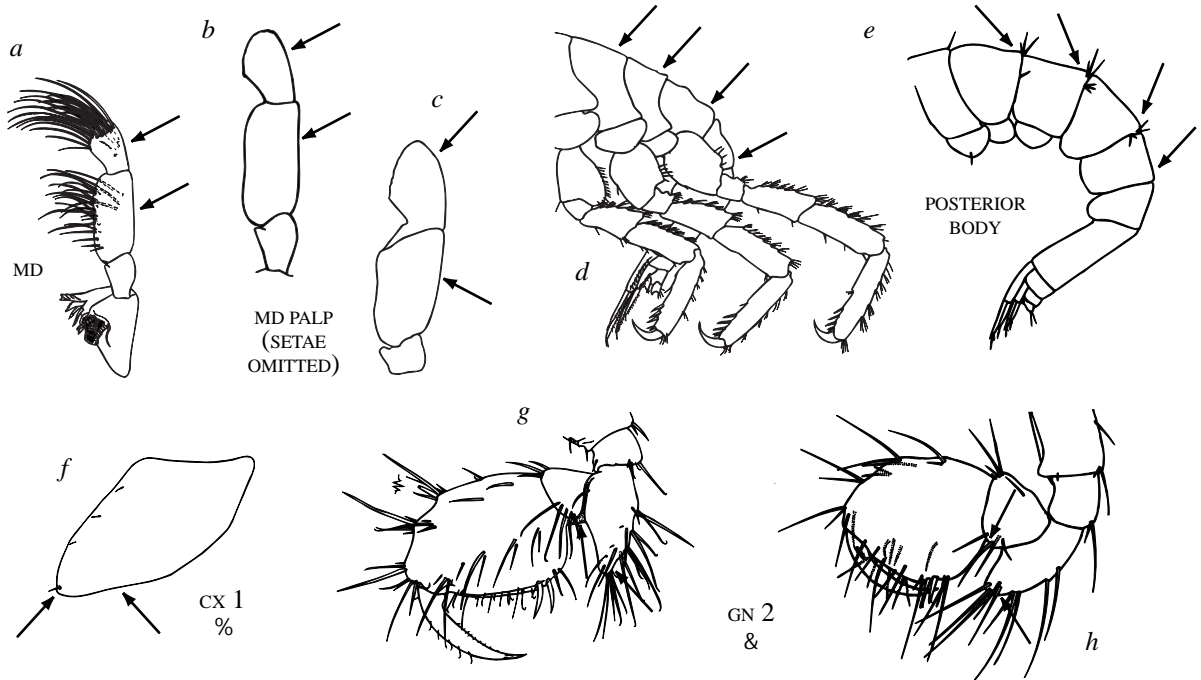


Figure 555.

- < Mandible, palp articles 2-3 slender, at least 2 1/2 times as long as wide; peraeon segments 6-7 and pleon segments 1-2 with posterodorsal processes; coxa 1, ventral margin notched, anteroventral angle acute; gnathopod 2 of female, merus weakly produced posterodistally, extending slightly beyond posterior margin of carpus *Podocerus kleidus*

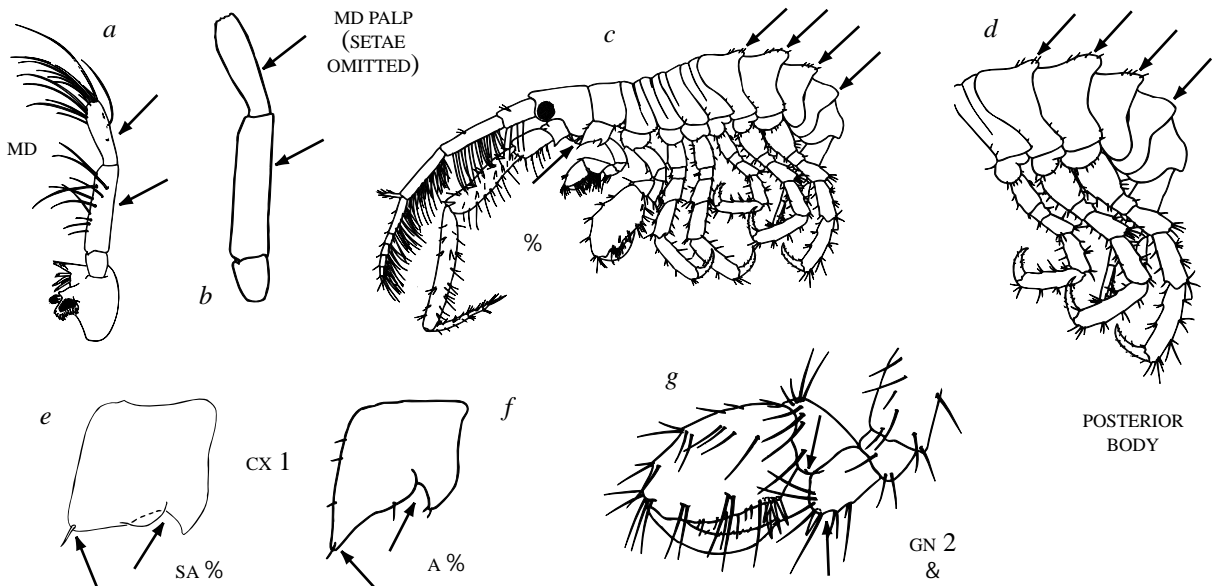


Figure 556.

2. < Gnathopod 2 of male, palm well-defined, extending one-half to two thirds length of propodus, lined with short sparse or dense setae; peraeopods 3-4, basis subquadrate, expanded anteriorly; uropods 1-2, peduncle without distoventral interramal spur 3

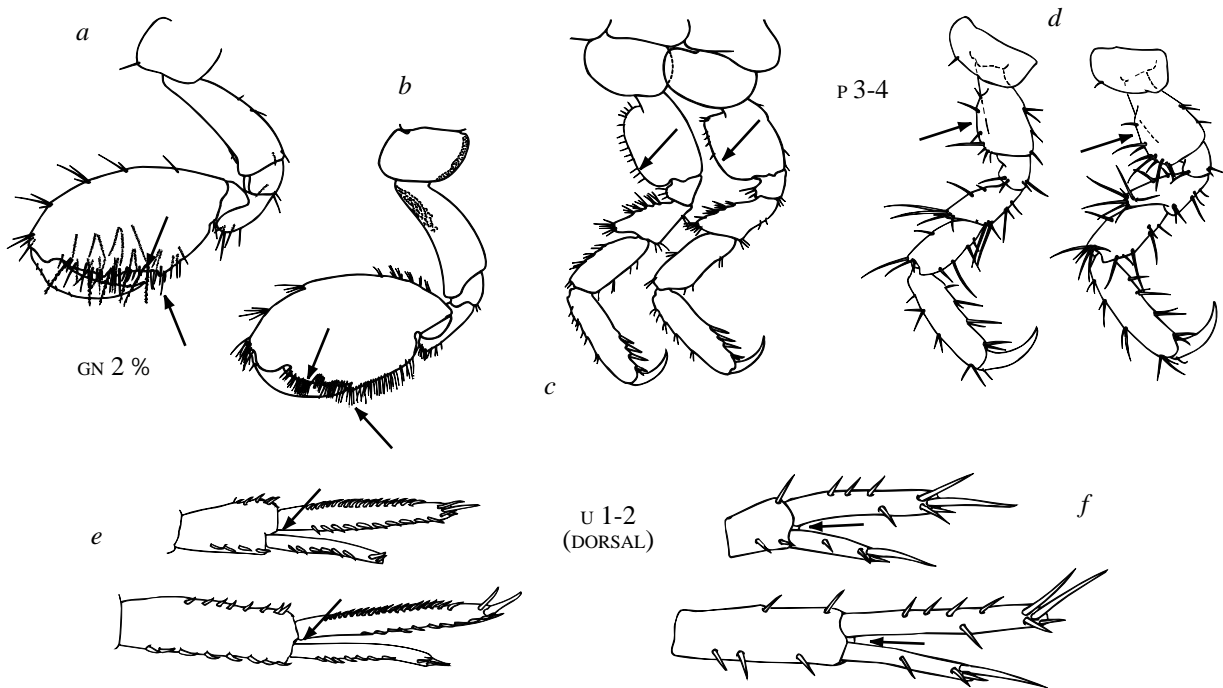


Figure 557.

- < Gnathopod 2 of male, palm poorly defined, extending almost entire length of propodus, lined with very long dense setae; peraeopods 3-4, basis linear, not expanded anteriorly; uropods 1-2, peduncle with distoventral interramal spur *Podocerus brasiliensis*

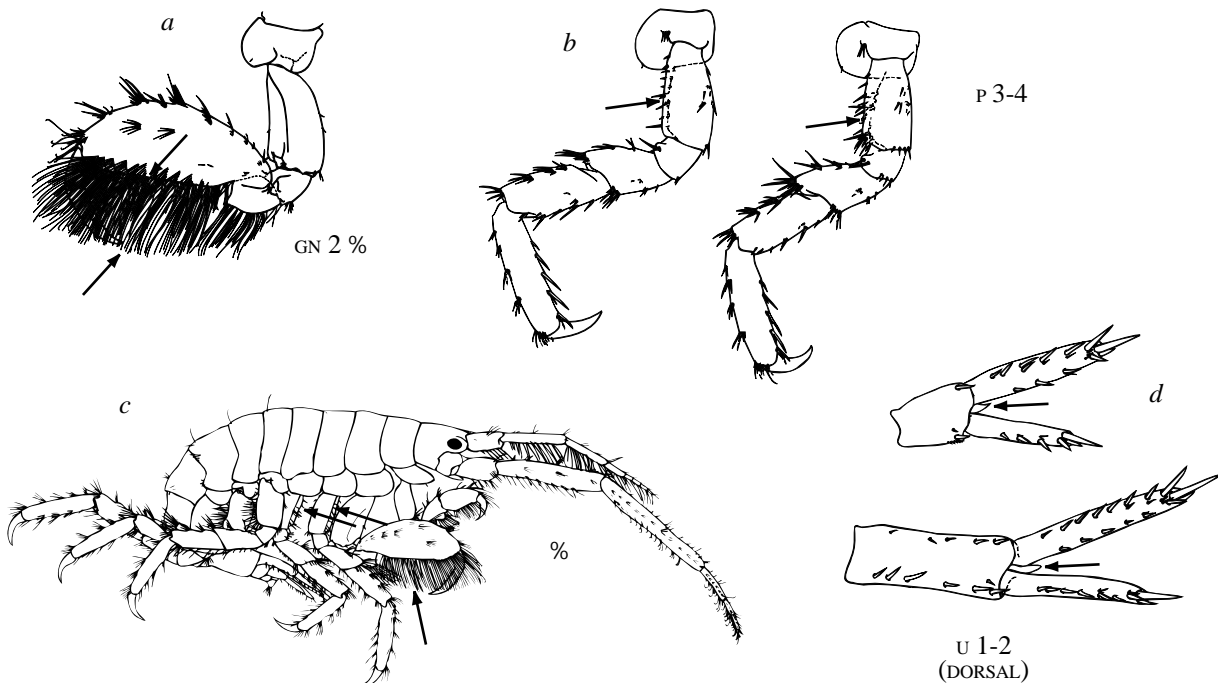


Figure 558.

- 3 < Antenna 2 of adult male, peduncle articles 3-5, posterior margin lined with very short setae, setae much less than width of article in length, flagellar articles, posterior margin lined with short dense setae; peraeon segments 5-7 and pleon segments 1-2, posterodorsal margin without setae; gnathopod 2 of male, palm extending one-half length of propodus, slightly convex, with broad, subquadrate distal tooth and 1-2 small, narrowly rounded median teeth, palm and hind margin lined with short dense setae; telson with 3-9 apical spines *Podocerus chelonophilus*

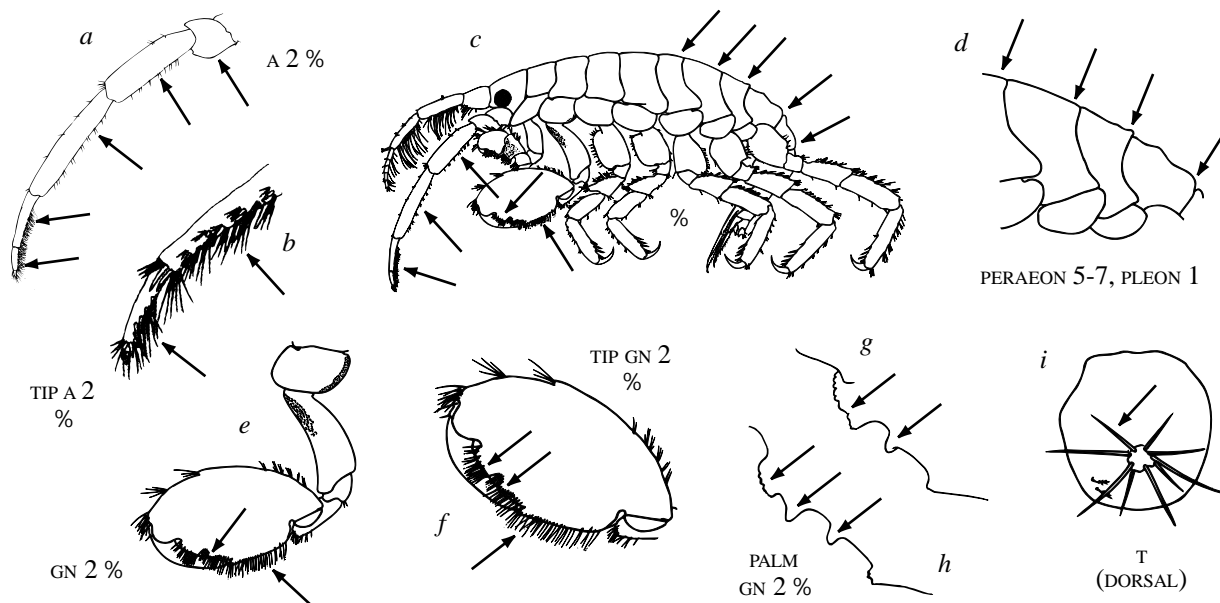


Figure 559.

- < Antenna 2 of adult male, peduncle articles 3-5, posterior margin lined with long setae, setae much more than width of article in length, flagellar articles, posterior margin without short dense setae; peraeon segments 5-7 and pleon segments 1 or 1-2, posterodorsal margin with long, relatively stout setae; gnathopod 2 of male, palm extending two thirds length of propodus, straight, with two low, broadly rounded median teeth, palm and hind margin lined with short sparse setae; telson with 2 apical spines *Podocerus fissipes*

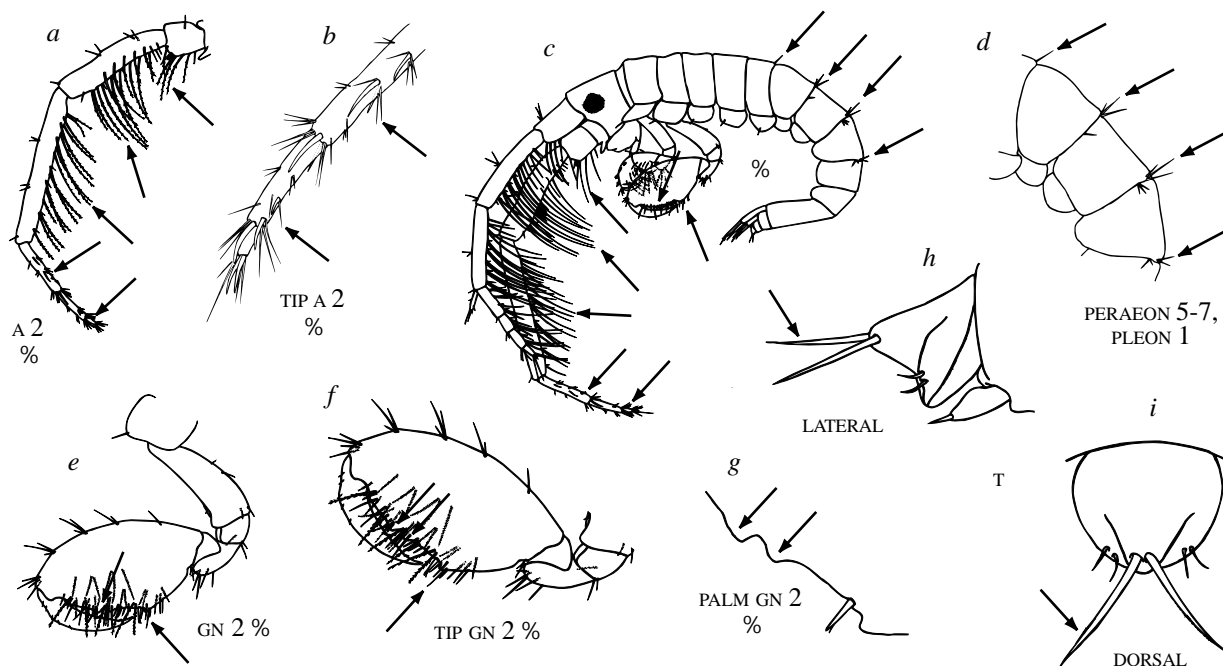


Figure 560.

***Podocerus brasiliensis* (Dana, 1853)**
(Figure 558)

Platophium brasiliense Dana, 1853, pp. 838-839, pl. 55, fig. 9.
Cyrtophium brasiliense: Bate, 1862, p. 274, pl. 66.
Podocerus brasiliensis: Stebbing, 1899, p. 239.
Platophium synaptochir Walker, 1904, pp. 296-297, pl. 8, fig. 52.
Podocerus synaptocheir: Walker, 1909, p. 343.
Podocerus synaptochir: Barnard, 1916, p. 279.

Regional diagnosis: Antenna 2 of adult male, peduncle articles 3-5, posterior margin lined with short setae, setae less than width of article in length, flagellar articles, posterior margin without short dense setae; mandible, palp articles 2-3 stout, no more than twice as long as wide; peraeon segments 5-7, posterodorsal margin without setae, segments 6-7 without posterodorsal processes; pleon segments 1-2, posterodorsal margin without setae, without posterodorsal processes; coxa 1, ventral margin entire, not notched (may be slightly concave), anteroventral angle narrowly rounded or subacute; gnathopod 2 of male, palm poorly defined, extending almost entire length of propodus, straight, with small, subacute distomedial tooth, palm and hind margin lined with very long, dense, plumose setae; gnathopod 2 of female, merus strongly produced posterodistally, extending well beyond posterior margin of carpus; peraeopods 3-4, basis linear, not expanded anteriorly; uropods 1-2, peduncle with distoventral interramal spur; telson with 4-8 apical spines.

Distribution: *Podocerus brasiliensis* is cosmopolitan in warm temperate and tropical waters. It is a common species on both coasts of Florida and in the Florida Keys.

Ecology: This species, like other podocerids, is commonly found as a fouling organism on hard substrates such as pilings, rocks, rubble, sea walls, buoys, etc. It is known to inhabit abandoned tubes, presumably those of polychaete worms (Barnard et al., 1988) and has also been reported from the carapace of the loggerhead sea turtle (Caine, 1986). It's broad distribution may be due, at least in part, to the relative ease with which it may transported from place to place on ship hulls and other floating objects. *Podocerus brasiliensis* is a filter-feeder, filtering suspended particles from the water column by extending the long, setose antennae into the current to form a net (Barnard et al., 1988). It occurs at depths of 0-24 m.

Remarks: Males of *P. brasiliensis* are easily distinguished from all other Florida members of the genus by the long, very dense setae lining the palm of gnathopod 2. Females are somewhat more difficult to distinguish; however they may be separated from all Florida species except for *P. kleidus* by the linear bases of peraeopods 3-4 and the presence of a distoventral spur on the peduncle of uropods 1-2 (basis of peraeopods 3-4 expanded, peduncular spur of uropods 1-2 absent in other Florida species). They are easily distinguished from females of *P. kleidus* by the absence of posterodorsal processes on the peraeon and pleon segments (processes present in *P. kleidus*).

The palmar tooth on gnathopod 2 of the male is very hard to see because of the long dense setae, especially in adults. Subadults have somewhat less dense setae, but the palmar tooth is also smaller. Live specimens of *P. brasiliensis* are brownish with lighter beige or tan chevrons dorsally on the peraeon (Thomas, 1993). Adult size in this species ranges from 3 to 6 mm and males are generally larger than females.

See Rabindranath, 1972a; Barnard, 1970, 1971; Thomas, 1993; Kilgallen, 2009.

***Podocerus chelonophilus* (Chevreux and de Guerne, 1888)
(Figure 559)**

Cyrtophium chelonophilum Chevreux and de Guerne, 1888, pp. 625-628.

Platophium cheloniae: Stebbing, 1888, pp. 1190-1194, pl. 130.

Platophium chelonophilum: Chevreux and de Guerne, 1893, 445.

Podocerus cheloniae: Stebbing, 1906, pp. 701-702.

Podocerus chelonophilus: Stebbing, 1906, pp. 703.

Regional diagnosis: Antenna 2 of adult male, peduncle articles 3-5, posterior margin lined with very short setae, setae much less than width of article in length, flagellar articles, posterior margin lined with short dense setae; mandible, palp articles 2-3 stout, no more than twice as long as wide; peraeon segments 5-7, posterodorsal margin without setae, segments 6-7 without posterodorsal processes; pleon segments 1-2, posterodorsal margin without setae, without posterodorsal processes; coxa 1, ventral margin entire, not notched (may be slightly concave), anteroventral angle narrowly rounded or subacute; gnathopod 2 of male, palm well-defined, extending one-half length of propodus, slightly convex, with broad, subquadrate distal tooth and 1-2 small, narrowly rounded median teeth, palm and hind margin lined with short dense setae; gnathopod 2 of female, merus strongly produced posterodistally, extending well beyond posterior margin of carpus; peraeopods 3-4, basis subquadrate, expanded anteriorly; uropods 1-2, peduncle without distoventral interramal spur; telson with 3-9 apical spines.

Distribution: Mediterranean Sea (Ruffo, 1993; Sezgin et al., 2009), Atlantic Ocean (Stebbing, 1906; Caine, 1986, as *P. cheloniae*; Thomas and Barnard, 1992a; Moore, 1995) and eastern Pacific Ocean off Ecuador (Baldinger, 2000). United States distribution: Pritchard's Island, South Carolina (Caine, 1986, as *P. cheloniae*; Thomas and Barnard, 1992a); Wassaw Island, Georgia (Pfaller et al., 2006); South Ponte Verde Beach to Hutchinson Island, Florida (Caine, 1986, as *P. cheloniae*; Thomas and Barnard, 1992a); Key West, Florida (Thomas and Barnard, 1992a).

Ecology: *Podocerus chelonophilus* is an epibiont on the carapace and body of loggerhead, hawksbill and green sea turtles (Chevreux and Fage, 1925; Thomas and Barnard, 1992a; Moore, 1995; Baldinger, 2000). They have also been found on Hester-Dendy samplers, but are presumed to have been transferred to the sampling plates from a turtle (Thomas and Barnard, 1992a). Although *P. chelonophilus* may feed in part by filtering planktonic material from the water column with the antennae, this is apparently not its sole source of nutrition. Moore (1995) found that some individuals collected from around lesions on the body of a loggerhead turtle contained amorphous tissue in their guts, presumably derived from the turtle. He found no evidence of material of planktonic origin in the guts of those individuals.

Remarks: *Podocerus chelonophilus* differs from all other Florida congeners except *P. fissipes* in the lack of a distoventral spur on the peduncle of uropods 1-2 and in the anteriorly expanded basis of peraeopods 3-4. It may be distinguished from *P. fissipes* by the lack of long posterodorsal setae on peraeon segments 5-7 and pleon segments 1-2 (setae present in *P. fissipes*), by the weaker dentition and sparser setation of the palmar margin of gnathopod 2 in the male (palmar margin with larger teeth and dense setae in *P. fissipes*), by the shorter dactyls of peraeopods 5-7 (approximately one-third length of propodus vs one-half length of propodus in *P. fissipes*) and by the presence of 3-9 apical spines on the telson (2 apical spines in *P. fissipes*). In addition to differences in the morphology of gnathopod 2, females of *P. chelonophilus* differ from males in having denser setation along the posterior margins of the peduncular articles of antenna 2. Adult size in *P. chelonophilus* ranges from 4.5 to 12 mm.

See Thomas and Barnard, 1992a; Thomas, 1993; Baldinger, 2000.

***Podocerus fissipes* Serejo, 1996**
(Figure 560)

Podocerus fissipes Serejo, 1995[1996], pp. 49-55, figs. 1-3.

Regional diagnosis: Antenna 2 of adult male, peduncle articles 3-5, posterior margin lined with long setae, setae much more than width of article in length, flagellar articles, posterior margin without short dense setae; mandible, palp articles 2-3 stout, no more than twice as long as wide; peraeon segments 5-7, posterodorsal margin with long, relatively stout setae, segments 6-7 without posterodorsal processes; pleon segments 1 or 1-2, posterodorsal margin with long, relatively stout setae, segments 1-2 without posterodorsal processes; coxa 1, ventral margin entire, not notched (may be slightly concave), anteroventral angle narrowly rounded or subacute; gnathopod 2 of male, palm well-defined, extending two thirds length of propodus, straight, with two low, broadly rounded median teeth, palm and hind margin lined with short sparse setae; gnathopod 2 of female, merus strongly produced posterodistally, extending well beyond posterior margin of carpus; peraeopods 3-4, basis subquadrate, expanded anteriorly; uropods 1-2, peduncle without distoventral interramal spur; telson with 2 apical spines.

Distribution: Biscayne Bay, Florida; Guana Island, British Virgin Islands (Baldinger and Gable, 2002); southeastern Brazil (Serejo, 1995[1996], 1998b; Wakabara and Serejo, 1998; Ribeiro et al. 2003).

Ecology: *Podocerus fissipes* is associated with the sponges *Dysidea fragilis* (Montagu, 1818) and *Mycale* (*Carmia*) *microstigmata* Arndt, 1927 in Brazil (Serejo, 1995[1996], 1998b; Ribeiro et al. 2003). Specific associations are unknown for the Biscayne Bay and the Guana Island material, although it is very possible that they were also associated with sponges. The known depth range for this species is 0 to 5 m.

Remarks: Although this represents the first report of *P. fissipes* from the northwestern Atlantic outside of the Caribbean, it seems likely that it is actually more widespread than that limited distribution pattern would indicate and that its currently known distribution may be an artifact caused by a lack of sampling. However, it is also possible that transportation of individuals as a part of the fouling community on boats has occurred and the distribution could actually be somewhat spotty. Further examination of collections from Caribbean localities is needed to clarify the actual distribution of this species.

Podocerus fissipes material from Florida closely resembles specimens from Guana Island in the British Virgin Islands (Baldinger and Gable, 2002) and is easily separated from other Florida species of *Podocerus* by the presence of long, relatively stout, posterodorsal setae on the peraeon and pleon segments and by the presence of only 2 apical spines on the telson. *Podocerus brasiliensis* occasionally has setae sparsely scattered on the peraeon and pleon, but these are much shorter, more slender and more widely separated than those of *P. fissipes* and they are not restricted to the posterodorsal margins of the segments. In addition, *P. brasiliensis* has 3 to 8 apical spines on the telson, rather than the 2 found in *P. fissipes*, has a distoventral spur on the peduncle of uropods 1-2 (absent in *P. fissipes*) and has linear bases on peraeopods 3-4 (bases expanded in *P. fissipes*). Small specimens of *P. fissipes*, especially juveniles, often have posterodorsal setae on fewer peraeon and pleon segments than adults. *Podocerus fissipes* is a small species, ranging from 2 to 3.5 mm in length.

See Serejo, 1995[1996]; Baldinger and Gable, 2002.

***Podocerus kleidus* Thomas and Barnard, 1992
(Figure 556)**

Podocerus kleidus Thomas and Barnard, 1992b, pp. 309-313, figs. 1-3.

Regional diagnosis: Antenna 2 of adult male, peduncle articles 3-5, posterior margin lined with medium setae, setae subequal to width of article in length, flagellar articles, posterior margin without short dense setae; mandible, palp articles 2-3 slender, at least 2 1/2 times as long as wide; peraeon segments 6-7, posterodorsal margin with short, slender setae, with posterodorsal processes; pleon segments 1 or 1-2, posterodorsal margin with short, slender setae, segments 1-2 with posterodorsal processes; coxa 1, ventral margin notched, anteroventral angle acute; gnathopod 2 of male, palm well-defined, extending two thirds length of propodus, with broad, subquadrate distal tooth only, palm and hind margin lined with short sparse setae; gnathopod 2 of female, merus weakly produced posterodistally, extending slightly beyond posterior margin of carpus; peraeopods 3-4, basis linear, not expanded anteriorly; uropods 1-2, peduncle with distoventral interramal spur; telson with 4-9 apical spines.

Distribution: Biscayne Bay, Florida; Florida Keys (Thomas and Barnard, 1992b; Thomas, 1993); southwest Florida off Cape Sable; Cuba (Ortiz and Lalana, 1998); northeastern Venezuela (Ayala and Martín, 2003; Martín and Díaz, 2003).

Ecology: *Podocerus kleidus* is found on the alga *Gracilaria* sp. and other fouling growth in high current habitats (Thomas and Barnard, 1992b; Thomas, 1993; Martín and Díaz, 2003). It was reported by Thomas (1993) to inhabit tubes attached to algae and gorgonians, although individuals were also observed to leave the tubes and travel over the substrate. It is probable that this represents an opportunistic use of tubes constructed by other species of amphipods or polychaete worms because podocerids do not possess spinning glands and cannot construct their own tubes (Laubitz, 1983, as subfamily Podocerinae; Kilgallen, 2009). *Podocerus brasiliensis* is also known to inhabit abandoned tubes, presumably those of polychaetes (Barnard et al., 1988). *Podocerus kleidus* occurs in high salinity waters at depths of 1 to 10 m.

Remarks: *Podocerus kleidus* can be distinguished from all other Florida *Podocerus* species by the presence of strong posterodorsal processes on peraeon segments 6-7 and pleon segments 1-2, and by the ventrally notched coxa 1. Juveniles have much smaller posterodorsal processes on the peraeon and pleon than adults. Also, the articles of the mandibular palp are stouter; however article 3 is still more linear than in juvenile *P. brasiliensis*. Adult *P. kleidus* range from 3 to 4.5 mm in length.

See Thomas and Barnard, 1992b; Thomas, 1993.

Family Pontoporeiidae Dana, 1855

Regional diagnosis: Antenna 1 strongly geniculate between peduncle articles 1 and 2, peduncle article 1 greatly enlarged, dwarfing and overhanging articles 2-3; eyes present, with 4-6 pigmented marginal facets; coxa 1 not greatly reduced, slightly shorter than but not hidden by coxae 2-4; gnathopod 1 well-developed, very weakly subchelate; gnathopod 2, article 3 not elongate, less than twice as long as wide; pereopod 5 doubly geniculate at article 4; urosome segments 1-3 separate; uropod 3, inner ramus short, scale-like, outer ramus elongate, 2-articulate.

Florida genera: *Bathyporeia*

Remarks: In the past, the genus *Bathyporeia* has been placed in the family Haustoriidae (Stebbing, 1906; Shoemaker, 1949; Bousfield, 1973) or Pontoporeiidae (Bousfield, 1982b, 1983; Barnard and Barnard, 1983; Barnard and Karaman, 1991; d'Udekem d'Acoz, 2004; d'Udekem d'Acoz and Menioui, 2004), although Bousfield and Shih (1994) suggested that this highly derived genus should be placed in its own family, the Bathyporeiidae. Although not generally accepted, this placement was later recognized as valid by d'Udekem d'Acoz (2006) based on a cladistic analysis of 137 morphological characters in 28 amphipod species, including four *Bathyporeia* species, one *Amphiporeia* species, one *Pontoporeia* species, one *Haustorius* species and one *Priscillina* species. This analysis strongly supported the placement of the genera *Bathyporeia* and *Amphiporeia* together in a separate family, the Bathyporeiidae. Therefore, although *Bathyporeia* is retained within the family Pontoporeiidae herein for reasons of internal consistency, its current valid placement is within the family Bathyporeiidae.

Genus *Bathyporeia* Lindström, 1855

Regional diagnosis: That of the family.

Florida species: *B. parkeri*

Remarks: A second species of *Bathyporeia*, *B. quoddyensis* Shoemaker, 1949, occurs along the east coast of Canada and the United States from Nova Scotia and the Bay of Fundy south to Chesapeake Bay (Bousfield, 1973). Although it has not been reported from Florida waters, it is possible that it may occur there, especially at somewhat deeper offshore locations. This species is readily distinguishable from *B. parkeri* by the lack of a median tooth on the posterior margin of epimera 1-2 (*B. parkeri* has an acute median tooth), the weakly sinuous posterior margin of epimeron 3 not extending posteriorly beyond the posteroventral tooth (strongly sinuous and extending well beyond the tooth in *B. parkeri*), the absence of small spinules on the anterior dorsal hump of urosomite 1 (*B. parkeri* has spinules), the posterodistal angle of the basis of pereopod 7 rounded and the posterodistal margin lacking spines (*B. parkeri* has a subacute posterodistal angle and spines on the posterodistal margin), and the presence of spines on the medial margins of the telson lobes (*B. parkeri* lacks medial spines on the telson lobes).

***Bathyporeia parkeri* Bousfield, 1973**
(Volume 1, Figure 39)

Bathyporeia parkeri Bousfield, 1973, p. 105, pl. XXIII.1.

Regional diagnosis: That of the family.

Distribution: South side of Cape Cod to Jupiter Island, Florida (Bousfield, 1973; Fox and Bynum, 1975; Dickinson, et al., 1980; Charvat, et al., 1990; pers. obs.).

Ecology: This species occurs on open sand beaches and fine sand bottoms from just below the surf zone out to a depth of 24m (Bousfield, 1973; d'Udekem d'Acoz, 2006).

Remarks: Although Bousfield (1973) states that this species is not abundant, Charvat et al. (1990) found it to be the dominant amphipod at Melbourne Beach and Sebastian Inlet on the northeast Florida coast. In those locations, it constituted approximately 63% of the total number of amphipods collected over 2 separate sampling years and distributed among 40 species. It may be that *B. parkeri* is a warm water species that is more abundant in the waters south of Chesapeake Bay, replacing the more cold-tolerant *B. quoddyensis* there.

Males and females of *B. parkeri* are only slightly sexually dimorphic. In male *B. parkeri*, antenna 2 is slightly longer than that of the female and the flagellar articles of both antennae bear calceoli, which are lacking in the female. Males also tend to have more ommatidia in the eyes than females. This species ranges in length from 3 to 5 mm, with males generally smaller than females.

See Bousfield, 1973; d'Udekem d'Acoz, 2006

Family Sebidae Walker, 1907

Regional diagnosis: Antennae 1-2, peduncle articles stout, flagellum reduced; eyes absent or poorly developed; body subcylindrical; coxae 1-4 deeper than wide; gnathopod 1 chelate or subchelate, larger than gnathopod 2; gnathopod 2 chelate, article 3 elongate, at least twice as long as wide; pereopods 3-4, dactyl stout, short, much shorter than propodus; pereopod 7, basis distinctly shorter in length than remaining articles combined; urosome segments 2 and 3 fused; uropod 3 uniramous; telson entire.

Florida genera: *Seba*

Remarks: Sebids comprise 2 genera (*Seba* and *Seborgia*) of tiny, generally subcylindrical amphipods that occur in both shallow and very deep waters and in numerous different habitats, including hydrothermal vents (Shaw, 1989; Larsen, 2007), low salinity coastal lakes (Bousfield, 1970b), freshwater artesian wells (Holsinger, 1986), limestone rock and rubble habitats (Thomas, 1993), submerged wood (Ariyama, 2009) and soft bottoms (Martín, 2001; Ariyama, 2009). They are also often associated with plants or other invertebrates such as kelp (*Ecklonia*) holdfasts (Moore, 1987), red (*Melobesia*) and brown (*Sargassum*) algae (Ariyama, 2009), sponges (Ariyama, 2009; Winfield et al., 2009), vestimentiferans (*Ridgeia*) (Shaw, 1989) and archaeogastropods (Shaw, 1989).

As mentioned by Thomas (1993), sebids are very similar to the equally cryptic colomastigids, especially species in the genus *Colomastix*, resembling them in the subcylindrical body form, the stout antennae and the fused urosome segments 2 and 3. They are distinguished from *Colomastix* species by having gnathopod 1 larger than gnathopod 2 and either chelate or subchelate (gnathopod 1 smaller than gnathopod 2 and either vestigial or elongate and simple in *Colomastix*), by the chelate gnathopod 2 (subchelate in *Colomastix*) and by the uniramous uropod 3 (biramous in *Colomastix*).

It should be noted here that although the key to families in volume 1 of this guide (LeCroy, 2000) indicates that gnathopod 1 in sebids is chelate, in a number of species this is true only for females. In males of those species, which include *Seba tropica*, gnathopod 2 is actually subchelate, although the palm is often transverse or nearly so. In other species of *Seba*, gnathopod 1 is chelate in both sexes.

Genus *Seba* Bate, 1862

Regional diagnosis: That of the family.

Florida species: *S. tropica*

Remarks: In 1989, Shaw established a new genus, *Caribseba*, in the family Sebidae, differing from *Seba* in the lack of an accessory flagellum on antenna 1, the presence of a single apical seta on mandibular palp article 3 and the lack of apical setae on the inner plate of maxilla 1. *Seba tropica* McKinney, 1980 was included in this new genus as the type and only species. However, as discussed by both Winfield, et al. (2009) and Ariyama (2009), the presence of a single apical seta on the inner plate of mandibular palp article 3 and the lack of apical setae on the inner plate of maxilla 1 are character states that are shared with other members of the genus *Seba*. These authors also point out that this genus is a very variable one morphologically and recommend returning the *Caribseba* species to *Seba*. Therefore, McKinney's (1980) species from the Gulf of Mexico and Caribbean Sea is once again placed in the genus *Seba*.

A second species of *Seba*, *S. aloë* Karaman, 1971, has been reported from 54 m depths off the southwest Florida coast by Ortiz (1979). However, *S. aloë* is a Mediterranean species (Karaman, 1971, 1993) and it seems more likely that Ortiz's material represents one of the three currently known Gulf and Caribbean *Seba* species (*S. tropica*; *S. robusta* Ortiz and Lemaitre, 1997; *S. alvarezii* Winfield, Ortiz and Cházaro-Olvera, 2009) or an undescribed species.

***Seba tropica* McKinney, 1980**
(Volume 1, Figure 13)

Seba A: McKinney, 1977, pp. 200-203, pl. 47-48.

Seba tropica McKinney, 1980, pp. 99-102, figs. 8-9.

Caribseba tropica: Shaw, 1989, p. 1885.

Seba n. sp.: Oliva-Rivera and Jiménez-Cueto, 1992, p. 182.

Regional diagnosis: That of the family.

Distribution: Biscayne Bay to the Florida Keys (Thomas, 1993); Port Isabel, Texas (McKinney, 1980); Yucatan Peninsula, Mexico (McKinney, 1980; Oliva-Rivera and Jiménez-Cueto, 1992, as *Seba* n. sp.); Belize (Thomas, 1993); Venezuela (Martín, 2001).

Ecology: This species occurs inside small cavities in coral rubble or limestone rock (Thomas, 1993) and has also been found on sandy bottoms with *Thalassia* beds nearby (Martín, 2001). It has been found at depths ranging from 1.5 to 12m.

Remarks: *Seba tropica* is unique among members of the genus in lacking an accessory flagellum on antenna 1. In life, individuals are ivory in color, with eyes composed of a few scattered yellowish ommatidia (Thomas, 1993). It is a tiny species, with adult body size ranging from 1.8 to 2.6 mm.

In Thomas (1993), Figure 95 was cited as originating from McKinney (1980); however it is not McKinney's (1980) figure and does not appear to represent *Seba tropica*. Based on McKinney's original description, *S. tropica* lacks well-developed eyes, lacks setae and aesthetascs on the antennae, has spines along the ventral margin of epimeron 3 and has subequal rami on uropod 1; the figured species differs from *S. tropica* in all of these characters.

See McKinney, 1980; Thomas, 1993.

Family Stenothoidae Boeck, 1871

Regional diagnosis: Antenna 1 slender, flagellum longer than peduncle article 3; eyes without 4 paired peripheral facets; pereaeon segments 3-5 not forming subtriangular lateral expansion above coxal plates; coxa 1 reduced, distinctly shorter than and mostly hidden by following coxae; coxa 4 shield-like, not excavate posterodorsally; gnathopod 1 well-developed, with 7 articles; gnathopod 2 subchelate, not exceptionally slender, article 3 not elongate, less than twice as long as wide; pereaeopod 5, basis linear; urosome segments 1-3 separate, segment 1 not elongate, less than twice length of segments 2-3 combined, without dorsal crest; uropod 2 subequal to or longer than uropod 3; uropod 3 uniramous, ramus 2-articulate.

Florida genera: *Parametopella*, *Stenothoe*

KEY TO FLORIDA GENERA OF STENOTHOIDAE

1. < Maxilla 1, palp 1-articulate; gnathopod 1 simple; coxa 4 very large, subovate, covering basis of pereaeopod 7; pereaeopods 6-7, basis linear *Parametopella*

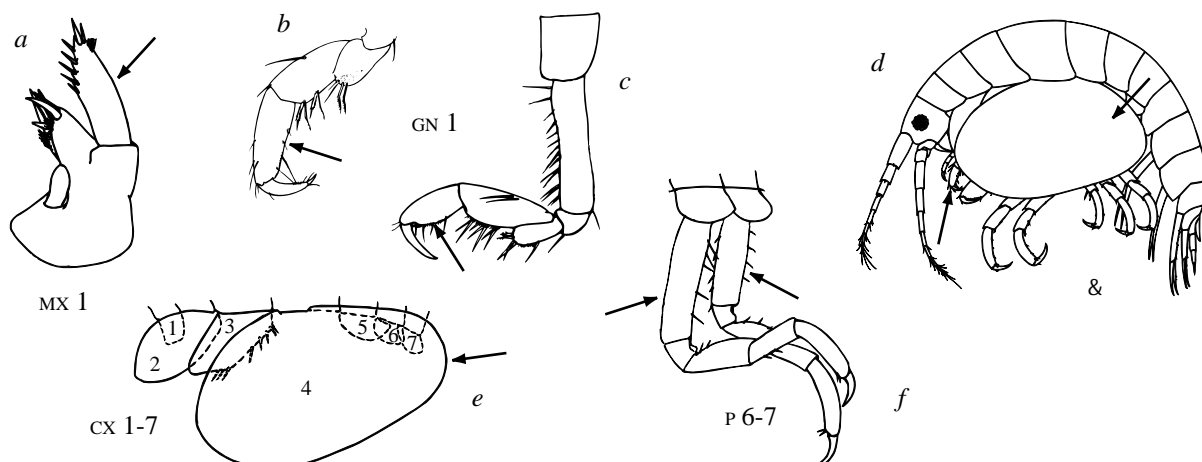


Figure 561.

- < Maxilla 1, palp 2-articulate; gnathopod 1 subchelate; coxa 4 large, subtrapezoidal, not covering basis of pereaeopod 7; pereaeopods 6-7, basis expanded posteriorly *Stenothoe*

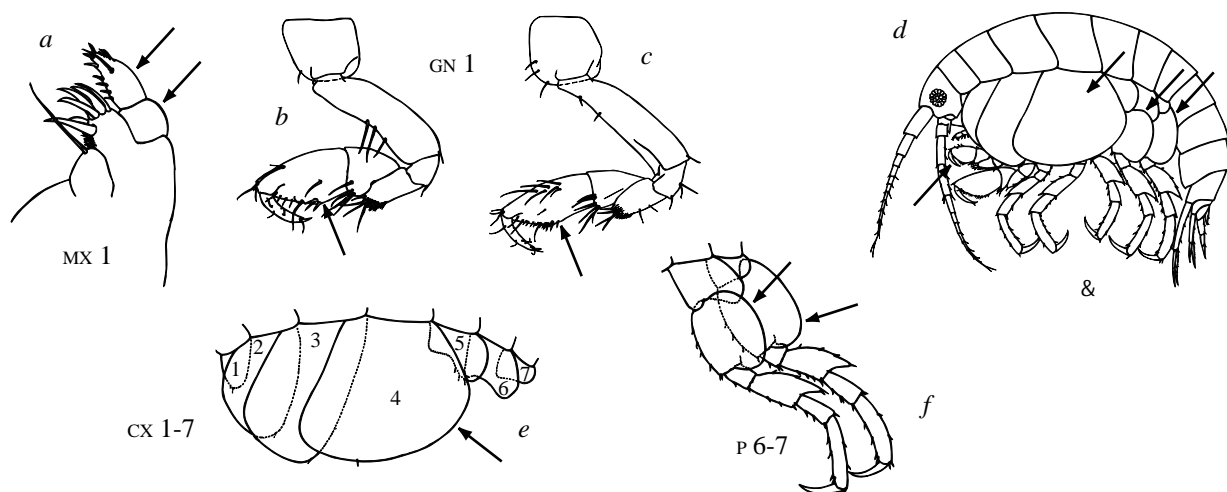


Figure 562.

Genus *Parametopella* Gurjanova, 1938

Regional diagnosis: Maxilla 1, palp 1-articulate; gnathopod 1 simple; coxa 4 very large, subovate, covering basis of peraeopod 7; peraeopods 6-7, basis linear.

Florida species: *P. cypris*, *P. inquilinus* (?), *P. texensis* (?)

Remarks: Two of the three species of *Parametopella* found along the Atlantic and Gulf coasts of the United States are not definitely known to occur in Florida waters, although *P. cf. texensis* McKinney et al., 1978 was reported from Perdido Key, Florida, by Rakocinski et al. (1993, 1996). However, further examination of those specimens revealed that they actually represent *P. cypris*, the most widespread of the three species. The third species, *Parametopella inquilinus* Watling, 1976, occurs on the east coast of the United States on Delaware Bay oyster bars (Watling, 1976). This species has not been reported from Florida waters to date, although it is possible that it may be found on oysters and other hard substrates in northeast Florida. Because of this possibility and also because there appears to be considerable intraspecific morphological variation in the features normally used to distinguish between these species, all three are included in the key below.

KEY TO FLORIDA SPECIES OF *PARAMETOPELLA*

1. < Antenna 1, peduncle article 2 stout, length 2-3 times width; gnathopod 1, propodus elongate, approximately 3 times as long as wide, posterior margin straight; gnathopod 2 of male, propodus with palmar margin not deeply excavate proximally, crenulate distally, lined with closely set setae, that of female straight to slightly concave, palm crenulate along entire length, both sexes without process at palmar angle *Parametopella cypris*

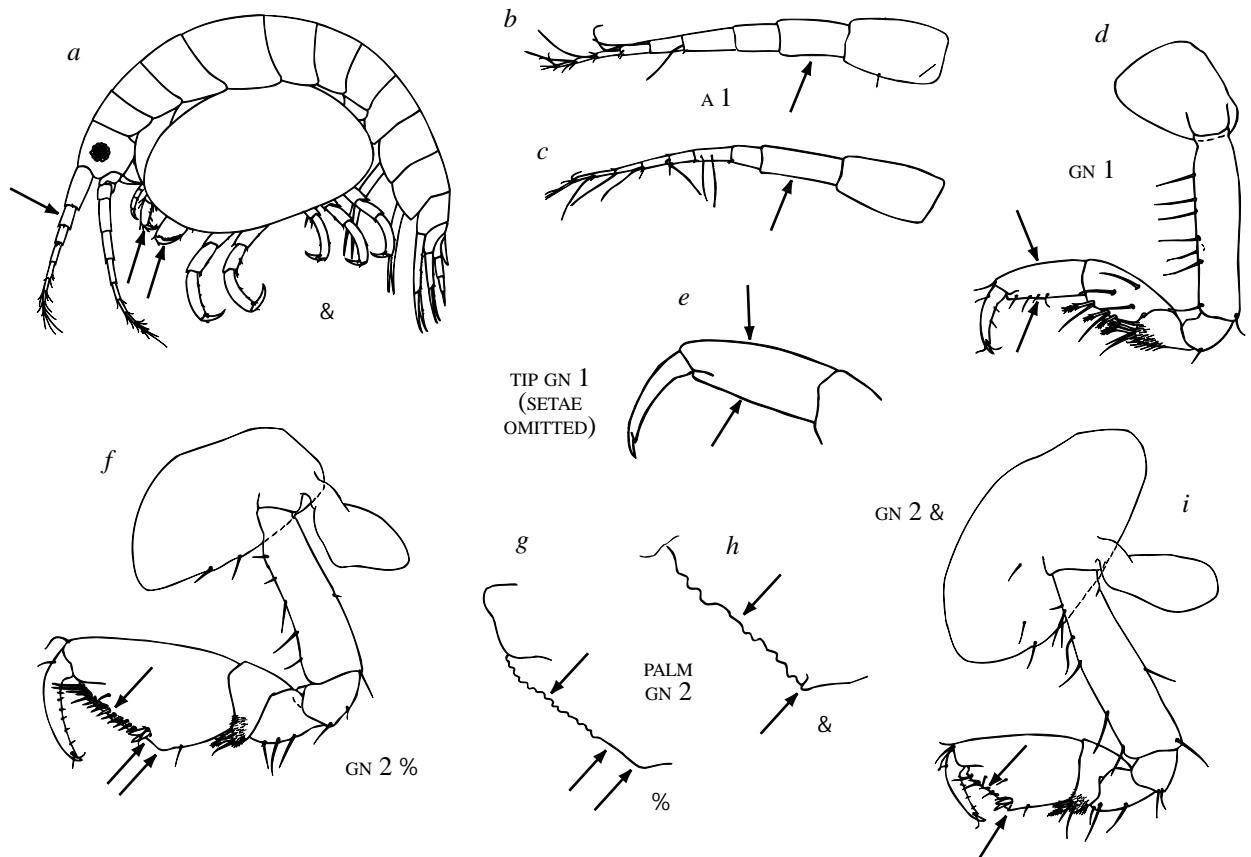


Figure 563.

< Antenna 1, peduncle article 2 slender, length at least 4 times width; gnathopod 1, propodus not elongate, approximately twice as long as wide, posterior margin slightly convex; gnathopod 2 of male (unknown for *P. texensis*), propodus with palmar margin deeply excavate proximally, not lined with closely set setae, with 3 unequal processes distally, with process at palmar angle, that of female similar, but smaller 2

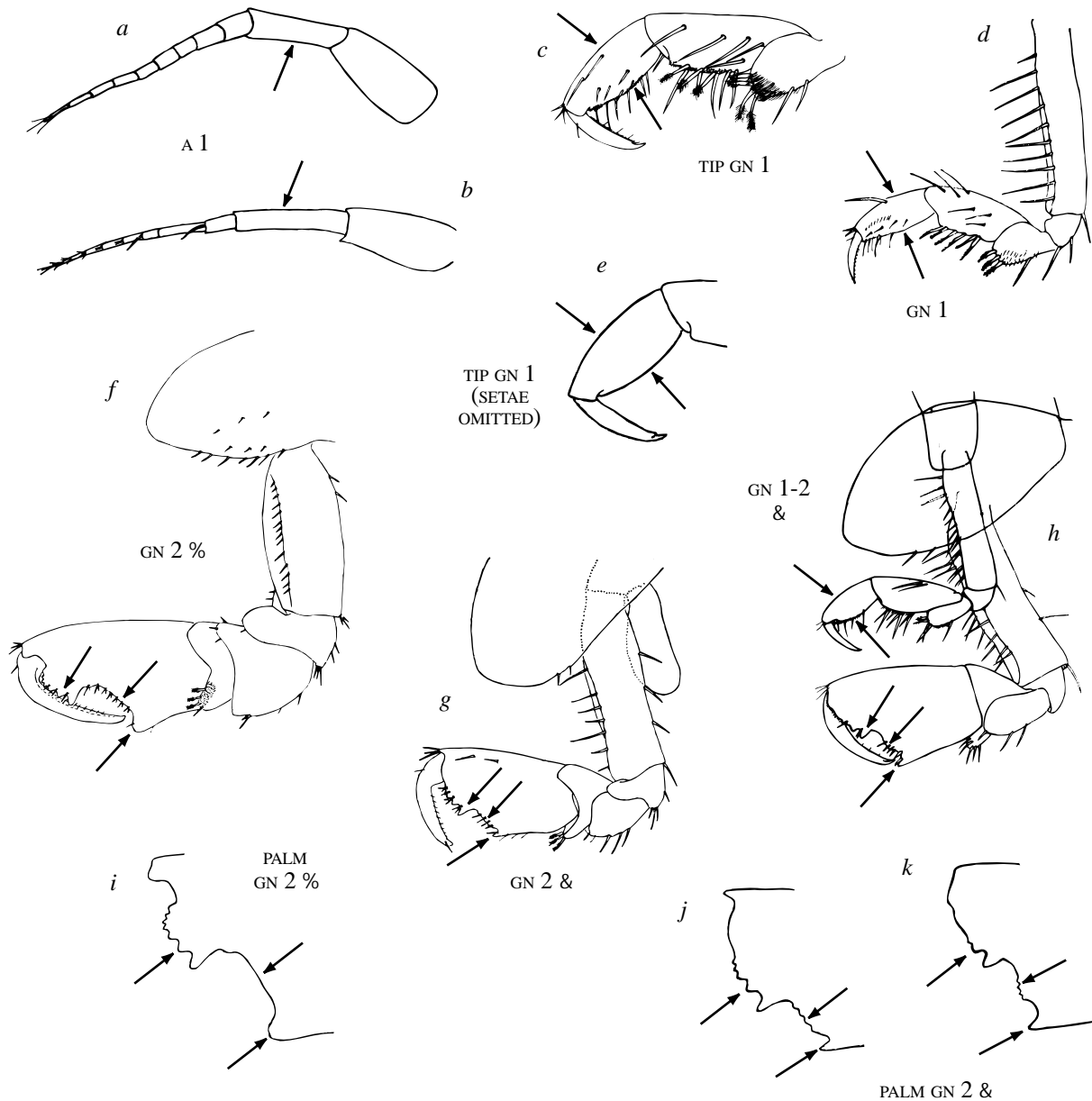


Figure 564.

2. < Antenna 1, peduncle article 3 distinctly shorter than flagellum article 1, flagellum article 1 5-6 times length of subsequent flagellar articles; antenna 2, flagellum article 1 approximately twice as long as subsequent flagellar articles; head, inferior antennal sinus poorly developed, not excavate; coxa 1 wider than deep; coxa 3 distinctly shallower than coxa 2, posterior margin without setae; gnathopod 2 of female, palm oblique; peraeopod 3 basis, anterior margin with proximal and distal setae only *Parametopella inquilinus*

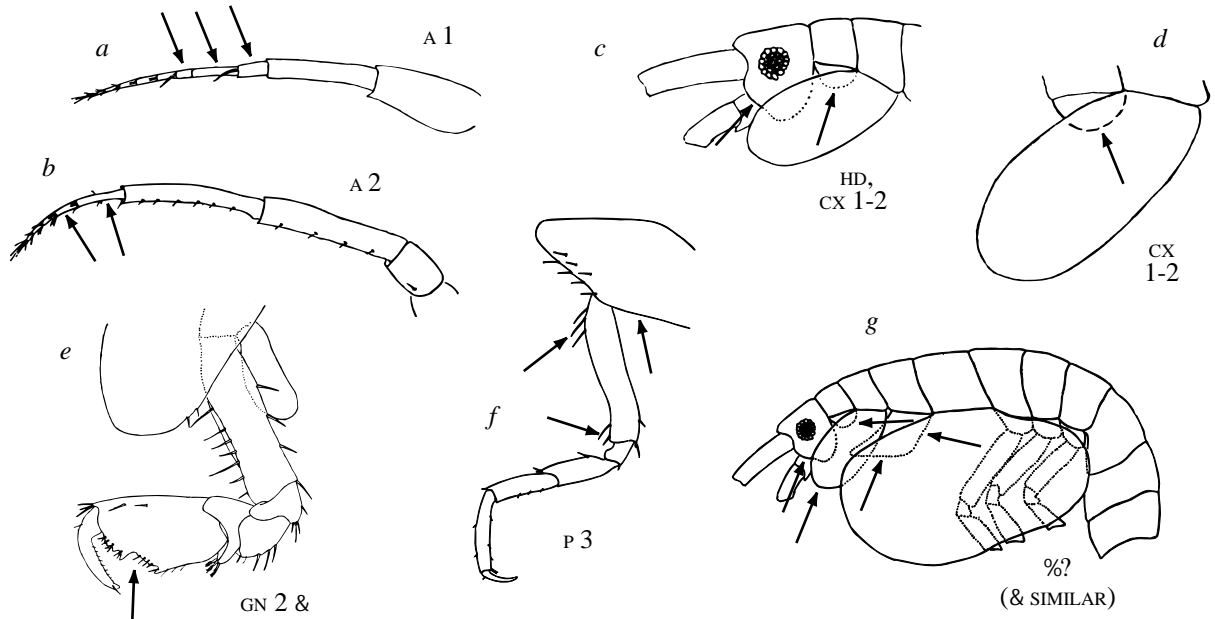


Figure 565.

- < Antenna 1, peduncle article 3 subequal to flagellum article 1 in length, flagellum article 1 subequal to or slightly longer than subsequent flagellar articles; antenna 2, flagellum article 1 subequal to subsequent flagellar articles in length; head, inferior antennal sinus well-developed, excavate; coxa 1 deeper than wide; coxa 3 subequal to coxa 2 in depth, posterior margin with several setae; gnathopod 2 of female, palm nearly transverse; peraeopod 3 basis, anterior margin with setae along entire length of margin *Parametopella texensis*

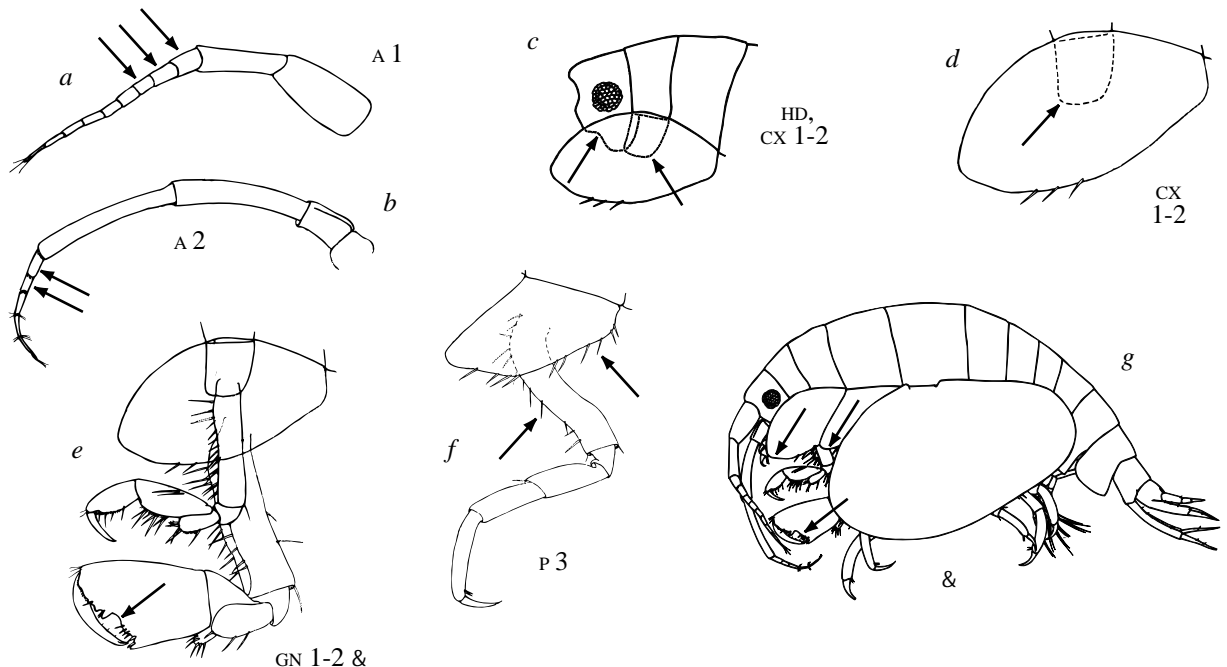


Figure 566.

***Parametopella cypris* (Holmes, 1905)**
(Figure 563)

Stenothoe cypris Holmes, 1903, p. 278; 1905, pp. 484-485, text fig.

Parametopella cypris: Gurjanova, 1938, p. 281.

Parametopella cf *texensis*: Rakocinski et al., 1993, p. 102; 1996, p. 350.

Regional diagnosis: Antenna 1, peduncle article 2 stout, length 2-3 times width, article 3 slightly shorter than flagellum article 1, flagellum article 1 slightly longer than subsequent flagellar articles; antenna 2, flagellum article 1 subequal to or slightly longer than subsequent flagellar articles; head, inferior antennal sinus well-developed, excavate; coxa 1 wider than deep; coxa 3 distinctly shallower than coxa 2, posterior margin with several small setae; gnathopod 1, propodus elongate, approximately 3 times as long as wide, posterior margin straight; gnathopod 2 of male, propodus with palmar margin not deeply excavate proximally, crenulate distally, lined with closely set setae, that of female oblique, straight to slightly concave, crenulate along entire length, both sexes without process at palmar angle; peraeopod 3 basis, anterior margin with proximal and distal setae only.

Distribution: Cape Cod to northern Florida (Bousfield, 1973); Florida Bay off Cape Sable; Charlotte Harbor (Florida Department of Environmental Protection, unpublished records); Apalachicola Bay (Sheridan, 1980); Perdido Key (Rakocinski et al., 1993; 1996 as *P. cf texensis*); Dauphin Island, Alabama; Biloxi, Mississippi; Chandeleur Sound, Louisiana.

Ecology: *Parametopella cypris* is typically found associated with hydroids, bryozoans, sponges and other fouling growth (Bousfield, 1973), but also often occurs on fine or muddy sand mixed with shell, usually near structures such as buoys, pilings, boat moorings or *Diopatra* tubes. It is found at depths of 1 to 14 m and at salinities of 16 to 31 ppt (Bousfield, 1973; pers. obs.).

Remarks: Although this small species (1.5-2.5 mm) is fairly widespread geographically, it is relatively uncommon. Males tend to be smaller than females, but are otherwise very similar, differing mainly in the morphology of gnathopod 2. In males, the propodus of the second gnathopod is larger than in females and the palmar margin is lined with closely set setae that are not present in females. Kunkel (1918, Figure 14) illustrates gnathopod 2 for both sexes; however the labels on his illustrations may have been inadvertently reversed. His drawing of the female gnathopod 2 actually more closely resembles that of male (probably subadult) and vice versa, although neither illustrates the closely set setae of the adult male. In life, individuals of *P. inquilinus* are translucent with rose-colored pigment spots on the peraeon and coxae; the gills are also pale rose in color (Holmes, 1905). It swims in a jerky fashion, rising into the water column, then stopping and sinking to the bottom, resembling the ostracod, *Cypris*, in its movements (Holmes, 1905).

Parametopella cypris is most easily separated from its regional congeners by the morphology of the gnathopods and third peraeopod. The propodus of gnathopod 1 is elongate, with a straight posterior margin in *P. cypris*, whereas in the other two species it is shorter and the posterior margin is slightly convex. The palm of gnathopod 2 in both sexes is not excavate proximally and has no process ("thumb") at the palmar angle; *P. inquilinus* and *P. texensis* have a proximally excavate palm and a small process at the palmar angle. Coxa 3 is usually much more rounded anteriorly in *P. cypris* than in *P. inquilinus* or *P. texensis* and the posterior margin has several setae (setae present in *P. texensis*; no setae in *P. inquilinus*). However, in very large individuals, coxa 3 is less rounded anteriorly, more closely resembling that of the other two species in shape. Finally, the anterior margin of the basis of peraeopod 3 has only proximal and distal setae in *P. cypris*. This is also true of *P. inquilinus*; however, *P. texensis* has setae lining the entire anterior margin of the basis.

Several antennal characters that have been used to distinguish between the regional species of *Parametopella* appear to be quite variable within *P. cypris*, possibly as a result of developmental changes. According to McKinney et al. (1978), peduncle articles 4-5 of antenna 2 are shorter in *P. cypris* than in *P. inquilinus* and *P. texensis*, and article 5 is shorter than article 4 (articles subequal in *P. inquilinus* and *P. texensis*). This appears to be true in the *P. cypris* material illustrated by Holmes (1905), Kunkel (1918) and Bousfield (1973), and also in smaller adult individuals from Florida

collections. In larger adults, however, those articles are subequal and elongate and are very similar to those of *P. inquilinus* and *P. texensis*.

See Holmes, 1905 (as *Stenothoe cypris*); Kunkel, 1918 (as *Stenothoe cypris*); Bousfield, 1973.

***Parametopella inquilinus* Watling, 1976**

(Figure 565)

Parametopella inquilinus Watling, 1976, pp. 429-432, figs. 1-2.

Regional diagnosis: Antenna 1, peduncle article 2 slender, length at least 4 times width, article 3 distinctly shorter than flagellum article 1, flagellum article 1 5-6 times length of subsequent flagellar articles; antenna 2, flagellum article 1 approximately twice as long as subsequent flagellar articles; head, inferior antennal sinus poorly developed, not excavate; coxa 1 wider than deep; coxa 3 distinctly shallower than coxa 2, posterior margin without setae; gnathopod 1, propodus not elongate, approximately twice as long as wide, posterior margin slightly convex; gnathopod 2 of male, propodus with palmar margin deeply excavate proximally, with 3 unequal processes distally, not lined with closely set setae, with process at palmar angle, that of female similar, but smaller, palm oblique; peraeopod 3 basis, anterior margin with proximal and distal setae only.

Distribution: Delaware Bay (Watling, 1976); South Carolina (Southeastern Regional Taxonomic Center, unpublished data).

Ecology: This species occurs among hydroids, especially *Tubularia crocea*, on oyster reefs and other hard substrates (Watling, 1976). It has been reported from 8 m depths at salinities of 18 to 25 ppt (Maurer and Watling, 1973, as *P. cypris*; Watling, 1976).

Remarks: *Parametopella inquilinus* is very similar to *P. texensis*, differing mainly in the less excavate inferior antennal sinus, the wider than deep coxa 1 (deeper than wide in *P. texensis*), the short coxa 3 without setae on the posterior margin (coxa 3 deeper and setae present in *P. texensis*), and the presence of proximal and distal setae only on the anterior margin of the basis of peraeopod 3 (setae along entire margin in *P. texensis*). Adults of *P. inquilinus* (3.0 mm) and *P. texensis* (3.0-4.5 mm) are larger than those of *P. cypris* (1.5-2.5 mm). Other differences between *P. inquilinus* and *P. cypris* are discussed in the Remarks section for the latter species.

Males of *P. inquilinus* are slightly smaller than females, but gnathopod 2 is larger and more well-developed, with a more deeply excavate palmar margin. In addition, the anterior margin of the basis of gnathopod 1 is less setose in the male than in the female.

See Watling, 1976; McKinney, Kalke and Holland, 1978.

***Parametopella texensis* McKinney, Kalke and Holland, 1978**
(Figure 566)

Parametopella texensis McKinney, Kalke and Holland, 1978, pp. 141-144, figs. 5-7.

Regional diagnosis: Antenna 1, peduncle article 2 slender, length at least 4 times width, article 3 subequal to flagellum article 1 in length, flagellum article 1 subequal to or slightly longer than subsequent flagellar articles; antenna 2, flagellum article 1 subequal to subsequent flagellar articles in length; head, inferior antennal sinus well-developed, excavate; coxa 1 deeper than wide; coxa 3 subequal to coxa 2 in depth, posterior margin with several long setae; gnathopod 1, propodus not elongate, approximately twice as long as wide, posterior margin slightly convex; gnathopod 2 of female (that of male unknown), propodus with palm nearly transverse, palmar margin excavate proximally, with 3 unequal processes distally, not lined with closely set setae, not crenulate proximally, with process at palmar angle; peraeopod 3 basis, anterior margin with setae along entire length of margin.

Distribution: Matagorda Island, South Padre Island and Galveston Island, Texas (McKinney et al., 1978); Camaronera Lagoon, Veracruz, Mexico (Cházaro-Olvera, et al., 2002).

Ecology: *Parametopella texensis* has been found on sand bottoms mixed with varying amounts of silt/clay (McKinney, 1977; McKinney et al., 1978) and in areas where both hard and soft substrates are available (Cházaro-Olvera, et al., 2002). It occurs at a fairly wide range of moderate to high salinities (19-37 ppt) and at depths of 1.4 to 18 m (McKinney et al., 1978; Cházaro-Olvera, et al., 2002).

Remarks: As is true for other species of *Parametopella*, *P. texensis* appears to be relatively rare and the males of this species have not been described. It is morphologically very similar to *P. inquilinus* and differences between the two species are outlined in the Remarks section for that species. In spite of their morphological similarities, however, the two species appear to have very different habitat requirements. *Parametopella texensis* is usually found on soft bottoms, whereas *P. inquilinus* occurs on oyster reefs. Adults of *P. texensis* range from 3.0 to 4.5 mm in length.

See McKinney, Kalke and Holland (1978).

Genus *Stenothoe* Dana, 1852

Regional diagnosis: Maxilla 1, palp 2-articulate; gnathopod 1 subchelate; coxa 4 large, subtrapezoidal, not covering basis of pereopod 7; pereopods 6-7, basis expanded posteriorly.

Florida species: *S. gallensis*, *S. georgiana*, *S. minuta*, *S. valida*

Remarks: There is a fifth species of *Stenothoe*, *S. symbiotica* Shoemaker, 1956, present in Florida waters; however this species has only been reported from depths of 84-187 meters (Shoemaker, 1956; Thomas and Cairns, 1984) and is thus beyond the scope of this guide. It is easily distinguished from all other members of the genus by the prehensile pereopods, which have an expanded, spinose posterodistal margin on the propodus. *Stenothoe symbiotica* is a commensal species and occurs attached to the mouthparts of a deep-water spider crab (*Stenocionops spinimana*) (Shoemaker, 1956; Thomas and Cairns, 1984).

The taxonomy of the genus *Stenothoe* is complex and somewhat confused, both because of the relatively large number of species in the genus (55+ known species worldwide) (Krapp-Schickel, 2006), many of which are closely similar, and because developmental changes in morphology are poorly documented for many of them. For some species (e.g. *S. gallensis*), subadult males have even been described as different species from the adults. Also, stenothoids are commonly found in fouling communities and thus are easily transported on ships and other floating objects, thereby potentially expanding the ranges of many species. In addition, although some species are not sexually dimorphic, others are, and for a number of these only one sex has been described. And finally, there are many instances of misidentification in the literature, resulting in some questionable distribution records for some of the more widespread species. In general, species determination for *Stenothoe* specimens is best accomplished with adult material, and subadults and juveniles are often not identifiable in the absence of adults. Krapp-Schickel (2006) presents a useful key to males and females of the 55 *Stenothoe* species known at that time.

KEY TO FLORIDA SPECIES OF *STENOTHOE*

1. < Antenna 1 subequal to or slightly longer than antenna 2; gnathopod 2 of male, coxa smaller than propodus, propodus with palm and posterior margin indistinguishable, straight, strongly setose, palmar angle absent, bilobed distal palmar tooth present, dactyl, posterior margin densely setose; gnathopod 2 of female, propodus with palm and posterior margin indistinguishable, palmar angle absent, palmar spines short

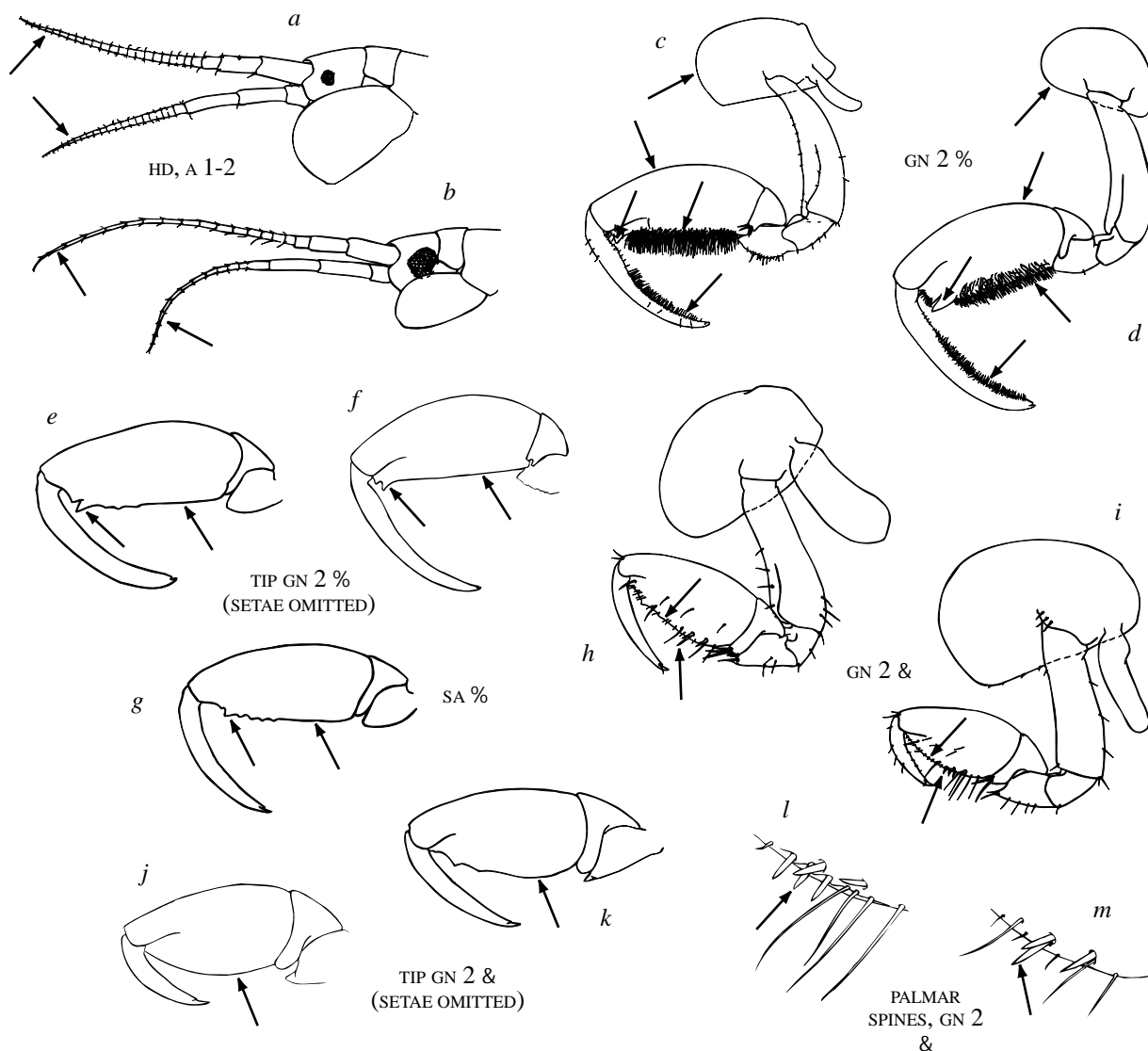


Figure 567.

< Antenna 1 distinctly longer than antenna 2; gnathopod 2 of male, coxa larger than propodus, propodus with palm and posterior margin distinguishable, convex or angled, without or with very few setae, palmar angle present (may be weak), distal palmar tooth absent, dactyl, posterior margin not densely setose; gnathopod 2 of female, propodus with palm and posterior margin distinguishable, palmar angle present, palmar spines elongate 3

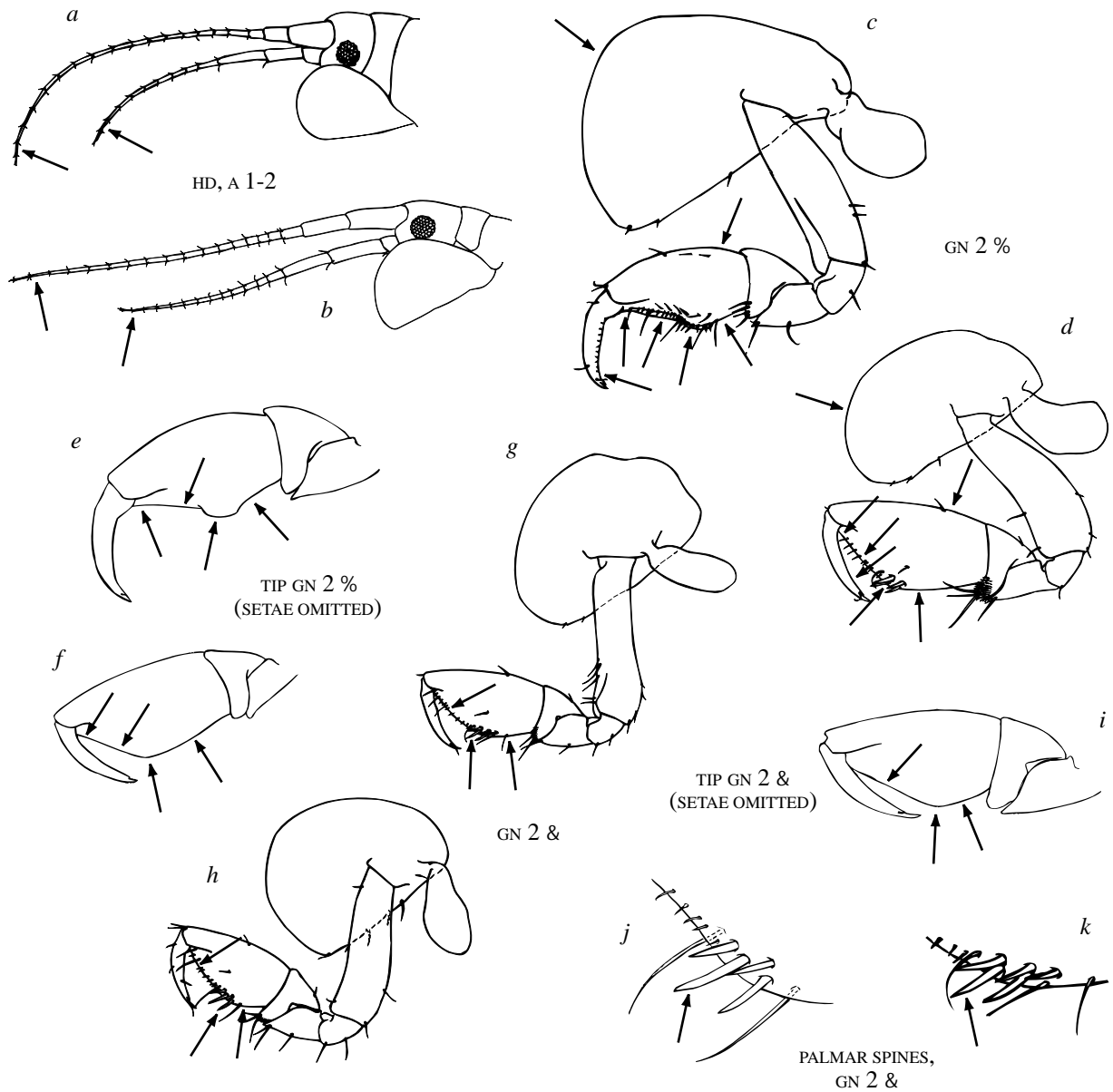


Figure 568.

2. < Eye small; upper lip, lobes subequal in size; maxilliped, ischium longer than palp articles 1-2 combined; gnathopod 2 of male, merus, posterior margin crenulate, propodus, distal palmar tooth relatively small; gnathopod 2 of female, propodus, posterior margin convex, without distal palmar teeth; pereopod 7, merus not broadly expanded, posterodistal lobe not reaching more than halfway to distal margin of carpus; uropod 1, peduncle with distoventral spur; uropod 3 of male, terminal article of ramus expanded proximally, dorsal margin with crenulations *Stenothoe gallensis*

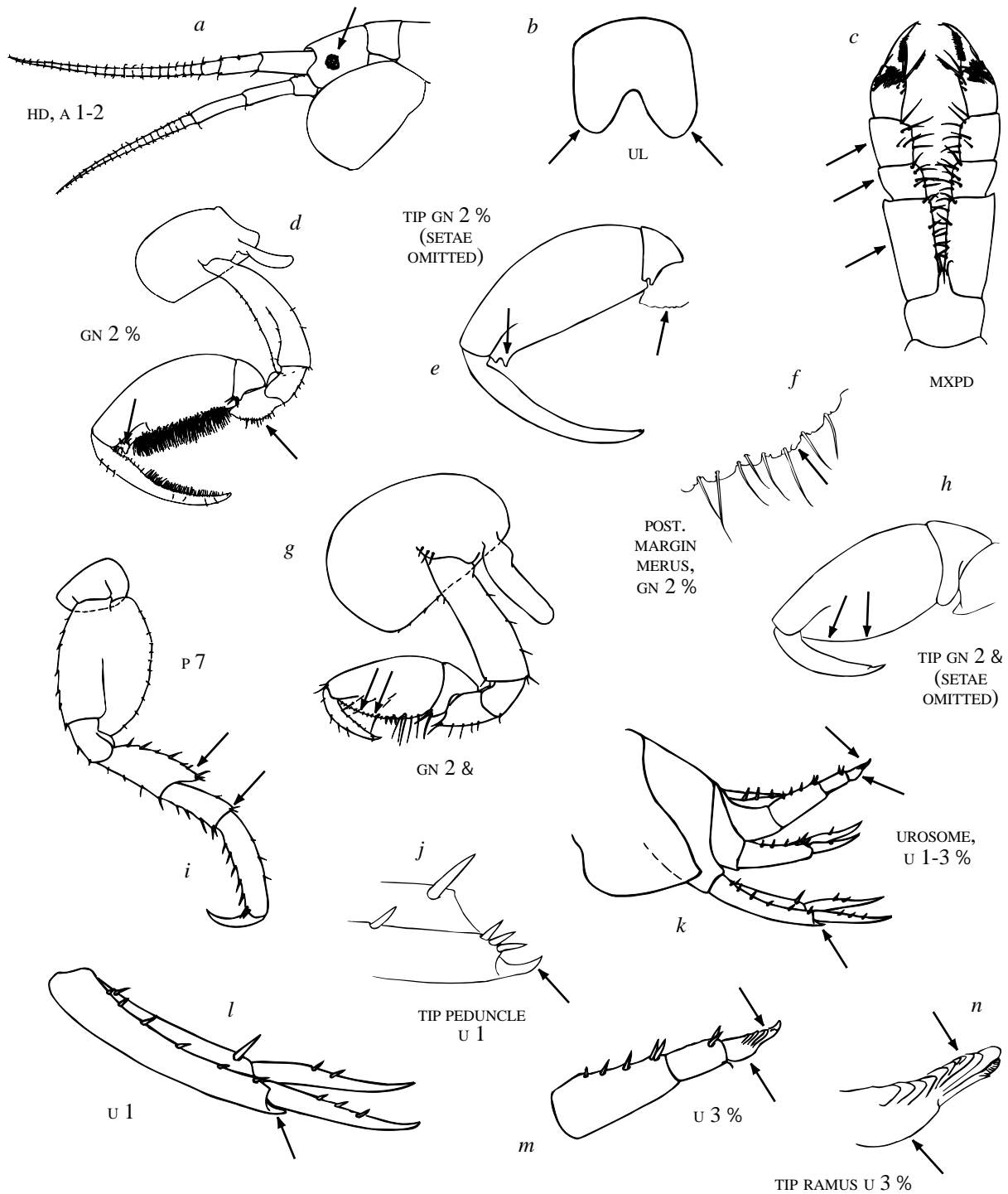


Figure 569.

< Eye large; upper lip, lobes unequal in size; maxilliped, ischium subequal to or shorter than palp articles 1-2 combined; gnathopod 2 of male, merus, posterior margin entire, not crenulate, propodus, distal palmar tooth relatively large; gnathopod 2 of female, propodus, posterior margin straight, with 1-3 small distal palmar teeth; peraeopod 7, merus broadly expanded, posterodistal lobe nearly reaching or reaching distal margin of carpus; uropod 1, peduncle without distoventral spur; uropod 3 of male, terminal article of ramus lanceolate, not expanded proximally, dorsal margin without crenulations *Stenothoe valida*

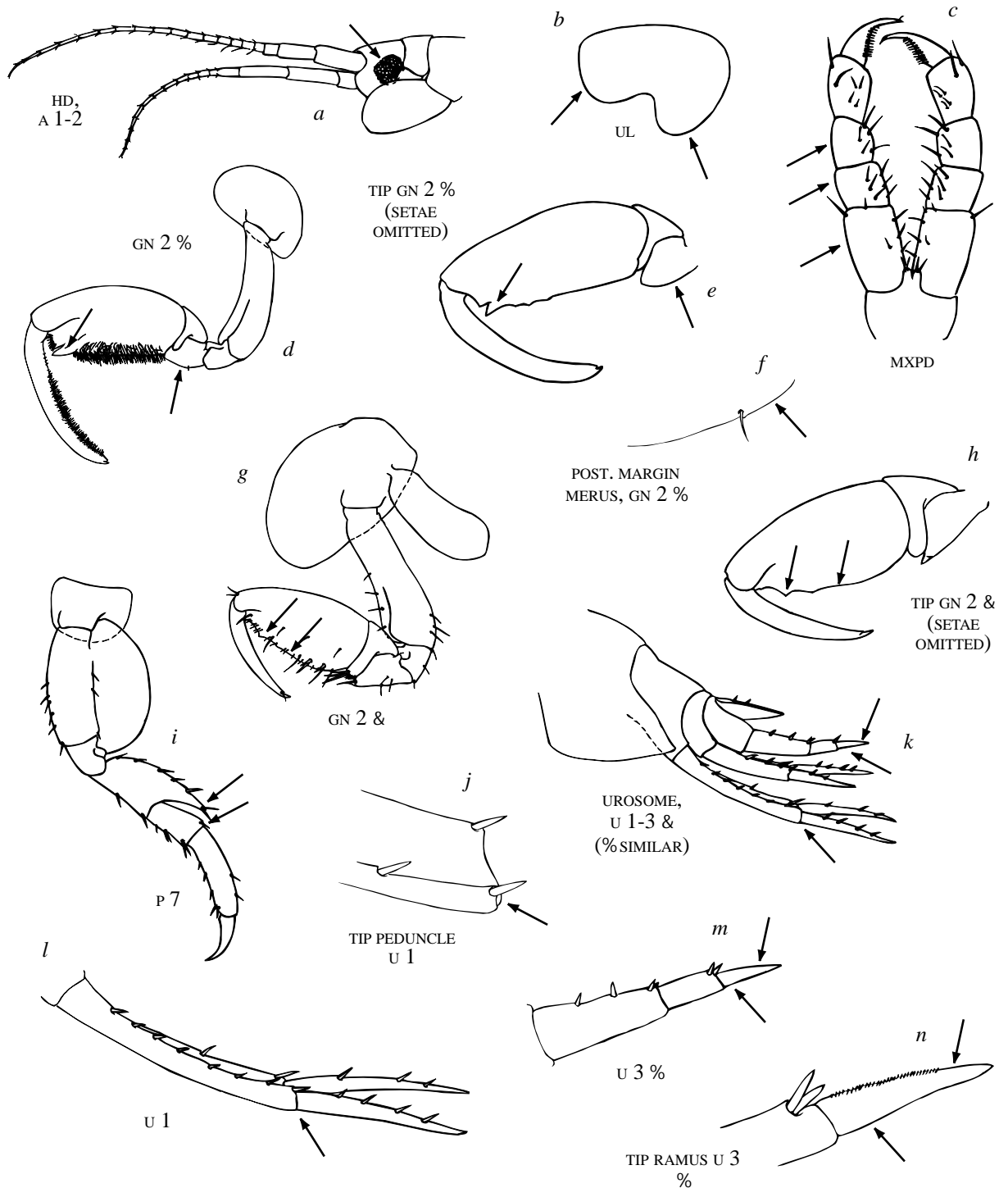


Figure 570.

3. < Upper lip, lobes subequal in size; maxilliped, ischium longer than palp articles 1-2 combined, without distolateral setae; gnathopod 1, propodus, posterior margin weakly concave, that of male longer than palmar margin; gnathopod 2 of male, palmar angle expanded, with spinose lobe; pereopod 7, basis narrow, posterior margin nearly straight; uropod 1, peduncle with distoventral spur; uropod 2, outer ramus subequal to inner ramus in length, with 1-2 marginal spines; uropod 3, peduncle subequal to first article of ramus in length *Stenothoe georgiana*

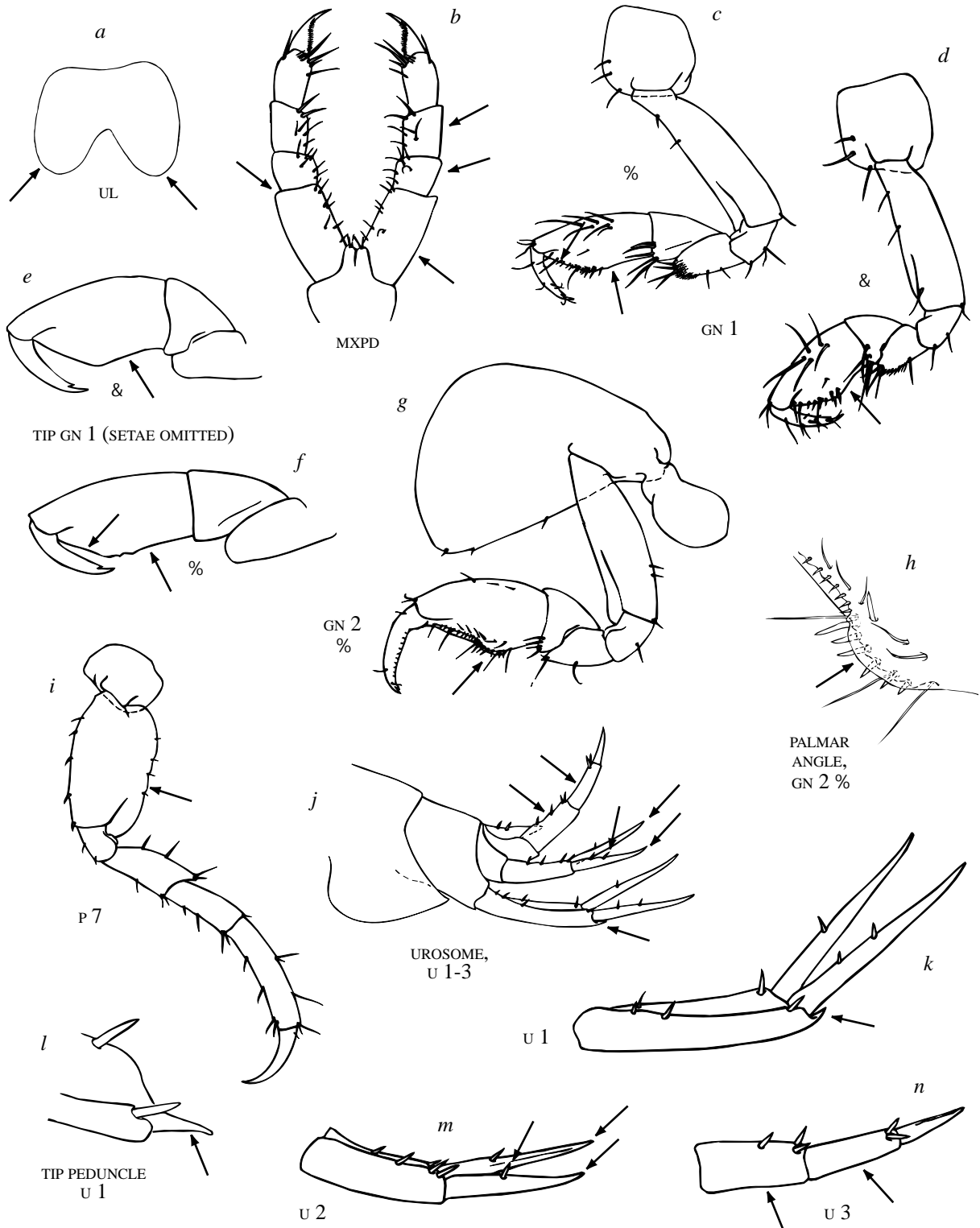


Figure 571.

< Upper lip, lobes unequal in size; maxilliped, ischium subequal in length to palp articles 1-2 combined, with 2-3 distolateral setae; gnathopod 1, propodus posterior margin straight, that of male shorter than palmar margin; gnathopod 2 of male, palmar angle evenly rounded or weakly angled, without spinose lobe; pereopod 7, basis broad, posterior margin convex; uropod 1, peduncle without distoventral spur; uropod 2, outer ramus much shorter than inner ramus, without marginal spines; uropod 3, peduncle longer than first article of ramus
 *Stenothoe minuta*

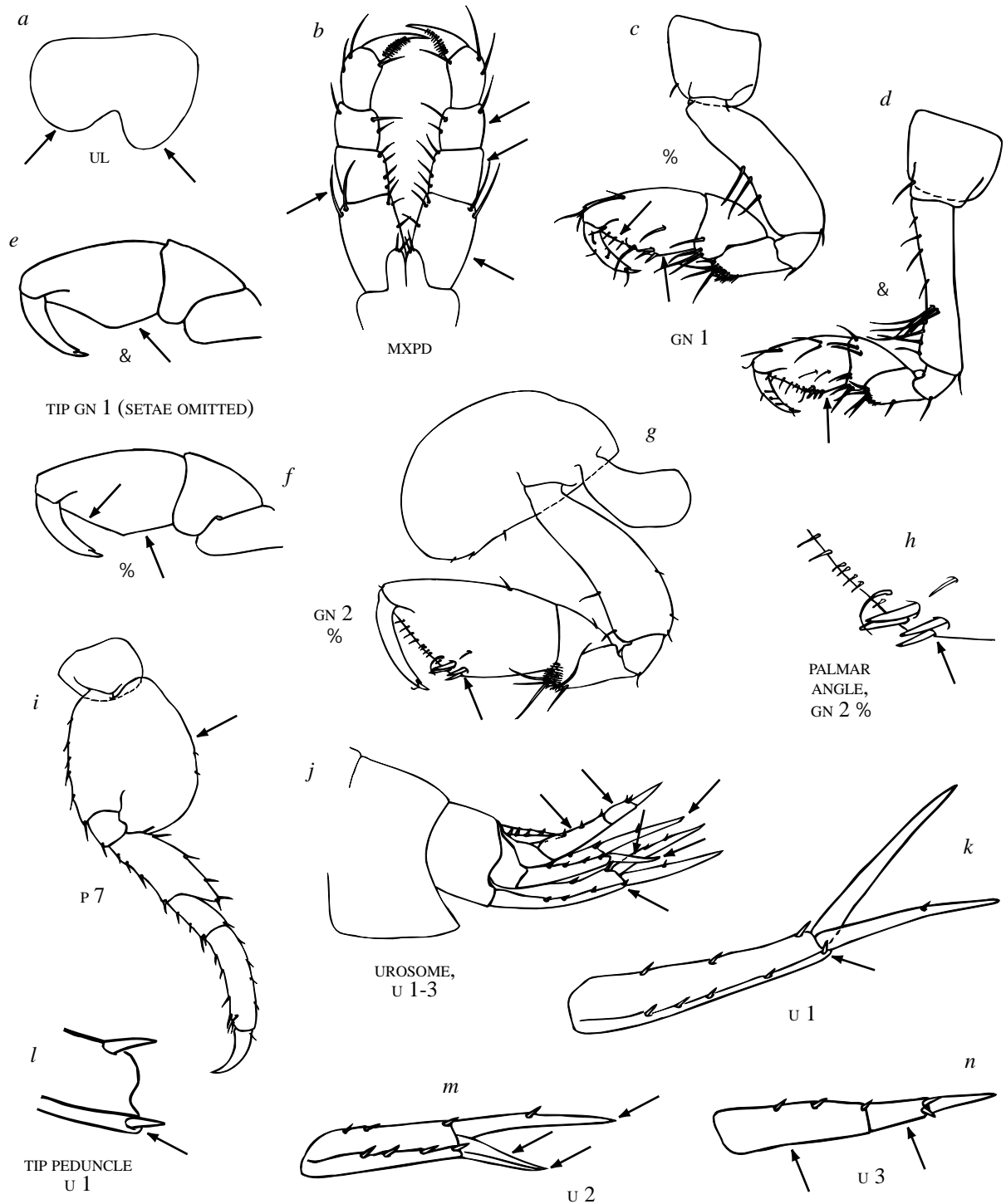


Figure 572.

***Stenothoe gallensis* Walker, 1904**
(Figure 569)

Probolium polyprion: Catta, 1876, pp. 15-27, pl. 2, fig. 1 [not *Probolium polyprion* Costa, 1853].

Stenothoe gallensis Walker, 1904, pp. 261-262, pl. 3, fig. 19.

Stenothoe cattai Stebbing, 1906, p. 195.

Stenothoe crenulata Chevreux, 1907, pp. 412-413.

Stenothoe valida: Kunkel, 1910, pp. 16-18, fig. 5 [not *Stenothoe valida* Dana, 1853]

Stenothoe sp. A: Rakocinski et al., 1996, p. 350.

Regional diagnosis: Antenna 1 subequal to or slightly longer than antenna 2; eye small; upper lip, lobes subequal in size; maxilliped, ischium longer than palp articles 1-2 combined, with 0-1 distolateral setae; gnathopod 1, propodus, posterior margin straight to slightly concave, subequal to palmar margin in length; gnathopod 2 of male, coxa smaller than propodus, merus, posterior margin crenulate, propodus with palm and posterior margin indistinguishable, straight, strongly setose, palmar angle absent, bilobed distal palmar tooth present, relatively small, dactyl, posterior margin densely setose; gnathopod 2 of female, propodus with palm and posterior margin indistinguishable, margin convex, without distal palmar teeth, palmar angle absent, palmar spines short; peraeopod 7, basis moderately broad, posterior margin convex, merus not broadly expanded, posterodistal lobe not reaching more than halfway to distal margin of carpus; uropod 1, peduncle with distoventral spur; uropod 2, outer ramus subequal to inner ramus in length, with 1-2 marginal spines; uropod 3, peduncle subequal to first article of ramus in length, that of male with terminal article of ramus expanded proximally, dorsal margin with crenulations.

Distribution: Cosmopolitan in tropical and warm temperate seas. In the western Atlantic, this species occurs from North Carolina to Brazil, including the Caribbean Sea (North Carolina [Fox and Bynum, 1975]; off Louisiana [Lewbel et al., 1987]; Indian River Lagoon [Nelson, 1995; pers. obs.]; Florida Keys [Thomas, 1993]; Boca Grande Causeway [Florida Department of Environmental Protection, unpublished records]; NE Gulf of Mexico [Culpepper, 1969]; Perdido Key [Rakocinski et al., 1996, as *Stenothoe* sp. A]; Texas [McKinney, 1977]; Mexico [McKinney, 1977; Oliva-Rivera and Jiménez-Cueto, 1992]; Cuba [Ortiz and Lalana, 1996]; Venezuela [Martín and Díaz, 2003]; Puerto Rico and the Virgin Islands [Shoemaker, 1935, as *S. crenulata*]).

Ecology: *Stenothoe gallensis* occurs in fouling communities on hard substrates such as pilings, floats, ship bottoms, buoys, rocks and mangrove prop roots. Within those communities, it has been found to be associated with algae (Oliva-Rivera and Jiménez-Cueto, 1992; Nelson, 1995; Martín et al., 2002; Martín and Díaz, 2003), hydroids and bryozoans (Barnard, 1971; Thomas, 1993) and worm reefs and solitary tunicates (Martín and Díaz, 2003). It has also occasionally been found in the plankton (Fox and Bynum, 1975; Martín and Díaz, 2003) and on shallow sand bottoms (Rakocinski et al., 1996; Martín and Díaz, 2003). This species is usually found in relatively high salinity waters at depths of 0.5 to 44 m.

Remarks: Among Florida stenothoid species, *S. gallensis* is most similar to *S. valida* because of its relatively large size, the straight, strongly setose palm of gnathopod 2 in the male and the lack of a palmar angle on gnathopod 2 of the female. In addition, considerable developmental variation in gnathopod 2 and uropod 3 morphology occurs in both species, especially in males. However, both sexes as well as most juveniles of the two species may be easily distinguished by the length of the posterodistal lobe of the merus on peraeopod 7. In *S. gallensis* this lobe is short, reaching less than halfway to the distal margin of the carpus, whereas in *S. valida* the lobe is longer, reaching or nearly reaching the distal margin of the carpus. In addition, *S. gallensis* has a distoventral spur on the peduncle of uropod 1; this spur is lacking in *S. valida*. Males of the two species also differ in the morphology of uropod 3, ramus article 2. In *S. gallensis*, this article is expanded proximally, with a crenulate dorsal margin and a concave ventral margin. In *S. valida*, it is lanceolate and lacks crenulations. Size in *S. gallensis* ranges from 2 to 6 mm and females are generally smaller than males.

See Culpepper, 1969; Thomas, 1993.

Stenothoe georgiana Bynum and Fox, 1977

(Figure 571)

Stenothoe minuta: Williams and Bynum, 1972, tpls. 1-4, 7 (in part) [not *Stenothoe minuta* Holmes, 1903].

Stenothoe sp.: Williams and Bynum, 1972, tpls. 1-2.

Stenothoe sp.: Fox and Bynum, 1975, p. 228.

Stenothoe georgiana Bynum and Fox, 1977, pp. 22-23, figs. 12-14.

Regional diagnosis: Antenna 1 distinctly longer than antenna 2; eye medium; upper lip, lobes subequal in size; maxilliped, ischium longer than palp articles 1-2 combined, without distolateral setae; gnathopod 1, propodus, posterior margin weakly concave, longer than (male) or subequal to (female) palmar margin; gnathopod 2 of male, coxa larger than propodus, merus, posterior margin entire, not crenulate, propodus with palm and posterior margin distinguishable, without or with very few setae, palmar angle present, expanded, with spinose lobe, distal palmar tooth absent, dactyl, posterior margin not densely setose; gnathopod 2 of female, propodus with palm and posterior margin distinguishable, without distal palmar teeth, palmar angle present, spines elongate; peraeopod 7, basis narrow, posterior margin nearly straight, merus not broadly expanded, posterodistal lobe not reaching more than halfway to distal margin of carpus; uropod 1, peduncle with distoventral spur; uropod 2, outer ramus subequal to inner in length, with 1-2 marginal spines; uropod 3, peduncle subequal to first article of ramus in length, that of male with terminal article of ramus lanceolate, not expanded proximally, dorsal margin without crenulations, with double row of minute spinules.

Distribution: Norfolk, Virginia to Sebastian Inlet, Florida (Bynum and Fox, 1977; Nelson and Demetriades, 1992); Florida Bay, Florida Keys, southeastern Gulf of Mexico between Cape Romano and Cape Sable (pers. obs.); Pine Island Sound (Florida Department of Environmental Protection, unpublished records); Sarasota Bay, Tampa Bay, Dry Tortugas (Loggerhead Key), Brazil (Bynum and Fox, 1977, data from C.R. Shoemaker's unpublished manuscript notes).

Ecology: This species occurs among sponges, bryozoans and other fouling growth on pilings (Bynum and Fox, 1977) and also associated with sabellariid worm reefs (Nelson and Demetriades, 1992). It has also been found to be associated with the gorgonian *Pterogorgia anceps* on coral rubble bottoms with mixed algae and seagrass growth (pers. obs.). *Stenothoe georgiana* occurs at moderate to high salinities from the intertidal zone to depths of 5 m.

Remarks: All stages of *Stenothoe georgiana*, with the possible exception of very small juveniles, can be distinguished from all other Florida *Stenothoe* species except *S. gallensis* by the presence of a distoventral spur on the peduncle of uropod 1 (*S. valida* and *S. minuta* lack a spur). However, in *S. gallensis*, the peduncle of uropod 3 is distinctly longer than the first article of the ramus whereas in *S. georgiana* the peduncle of uropod 3 is subequal to the first article of the ramus in length. This is true for adults and subadults, but in juveniles of both species the relative lengths of these articles is more variable and they tend to be subequal in length. In subadult males, the lobe at the palmar angle of gnathopod 2 is very weak; however, the spines are present. This is a relatively small species, with adult sizes ranging from 2.5 to 3.5 mm. Adult females are often smaller than males.

In her key to the known species of *Stenothoe*, Krapp-Schickel (2006) indicates that *S. georgiana* should be synonymized with *S. estacola* Barnard, 1962 from California. However, no reason for the synonymy is given and the two species, although similar in many respects, appear to differ in several diagnostic features based on the illustrations of *S. estacola* in Barnard (1962b). In *S. estacola*, the lobe at the palmar angle of gnathopod 2 in the male is present, but there is no double row of strong spines (spines present in *S. georgiana*). In addition, there are 3 small processes on the palmar margin of *S. estacola* that are lacking or, at most, very weakly indicated in *S. georgiana* and the margin is more concave in the former species. The female gnathopod 1 also differs between the two species. In *S. estacola*, the palm is longer and more oblique, the spines at the palmar angle are stronger and the hind margin is straighter than in *S. georgiana*. It may be that these will prove to be developmental or population level differences; however, pending further clarification, *S. georgiana* is recognized as a valid species herein.

See Bynum and Fox, 1977.

Stenothoe minuta Holmes, 1903

(Figure 572)

Stenothoe minuta Holmes, 1903, p. 278; 1905, pp. 485-486, text fig.

?*Stenothoe* sp.: Culpepper, 1969, pp. 78-81, fig. 11.

Regional diagnosis: Antenna 1 distinctly longer than antenna 2; eye large; upper lip, lobes unequal in size; maxilliped, ischium subequal in length to palp articles 1-2 combined, with 2-3 distolateral setae; gnathopod 1, propodus, posterior margin straight, shorter than palmar margin; gnathopod 2 of male, coxa larger than propodus, merus, posterior margin entire, not crenulate, propodus with palm and posterior margin distinguishable, without or with very few setae, palmar angle present (may be weak), evenly rounded or weakly angled, without spinose lobe, distal palmar tooth absent, dactyl, posterior margin not densely setose; gnathopod 2 of female, propodus with palm and posterior margin distinguishable, palmar angle present, palmar spines elongate; peraeopod 7, basis broad, posterior margin convex, merus not broadly expanded, posterodistal lobe not reaching more than halfway to distal margin of carpus; uropod 1, peduncle without distoventral spur; uropod 2, outer ramus much shorter than inner ramus, without marginal spines; uropod 3, peduncle longer than first article of ramus, that of male with terminal article of ramus lanceolate, not expanded proximally, dorsal margin without crenulations.

Distribution: Cape Cod to northeast Florida (Holmes, 1903; Watling and Maurer, 1972a; Bousfield, 1973; Caine, 1986); Pine Island Sound, Florida (Florida Department of Environmental Protection unpublished records); Apalachee Bay, Florida (Lewis, 1984, 1987); ?northeastern Gulf of Mexico off Panama City (Culpepper, 1969, as *Stenothoe* sp.); south Texas (McKinney, 1977).

Ecology: *Stenothoe minuta* is found among hydroids (including *Tubularia crocea*), bryozoans and other fouling growth on hard substrates (Holmes, 1905; Watling and Maurer, 1972a; Bousfield, 1973), as well as among algae and seagrasses (*Laurencia*, *Digenia*, *Halimeda*, *Penicillus*, *Thalassia*) (Lewis, 1984, 1987). It has also been reported from the plankton (Bousfield, 1973) and as an epibiont on marine turtle carapaces (Caine, 1986). This species occurs at depths of 0 to 17 m and over a wide range of salinities, ranging from low salinity estuarine waters to relatively high salinity grassbed environments (Bousfield, 1973; Lewis, 1984, 1987).

Remarks: *Stenothoe minuta* differs from all other Florida stenothoids in having the outer ramus of uropod 2 distinctly shorter than the inner ramus (rami subequal in *S. georgiana*; outer ramus slightly shorter than inner in *S. valida* and *S. gallensis*) and in its lack of sexual dimorphism (the other three species are sexually dimorphic). It is further distinguishable from *S. valida*, the only other Florida species to lack a distoventral spur on the peduncle of uropod 1, by its small adult size (1.5-2.5 mm), weakly setose palmar margin of the male gnathopod 2 and short posterodistal lobe on the merus of peraeopod 7. This lobe reaches no more than halfway to the distal margin of the carpus in *S. minuta*; in *S. valida* it reaches nearly as far as the distal margin of the carpus and may actually reach that margin in some specimens. Color in live material from New England is clear with reddish brown spots and reddish brown bands across the peraeon and pleon in some specimens (Holmes, 1905).

Culpepper (1969) encountered material of a *Stenothoe* species that he referred to as *Stenothoe* sp. in his study of the fouling amphipods on floats near Panama City, Florida. This species, which co-occurred with *S. gallensis*, is very similar to *S. minuta* and may prove to be that species. His material resembles *S. minuta* in the large eye (although that of *S. minuta* is slightly smaller), having antenna 1 slightly longer than antenna 2, the relatively elongate articles in the antennal flagella, the elongate ramus on the peduncle of uropod 3, the lack of sexual dimorphism and the relatively small body size. However, Culpepper (1969) states that the mouthparts are identical to those of *S. gallensis* and thus they are different from those of *S. minuta*, especially in the morphology of the upper lip (equally bilobed in *S. gallensis*; unequally bilobed in *S. minuta*) and maxilliped (ischium longer than palp articles 1-2 combined in *S. gallensis*; subequal to articles 1-2 in *S. minuta*). In addition, the palmar angle of gnathopod 2 appears to be slightly more rounded in *Stenothoe* sp. than in *S. minuta*. A re-examination of Culpepper's material or other material from the area will be necessary before a definite identification can be made.

See Holmes, 1905; Bousfield, 1973; Bynum and Fox, 1977.

Stenothoe valida Dana, 1853

(Figure 570)

Stenothoe validus Dana, 1853, pp. 924-925, pl. 63, fig. 1.

Probolium polyprion Costa, 1853, p. 173.

Probolium megacheles Heller, 1866, pp. 13-14, pl. 2, figs 1-2.

Stenothoe valida: Stebbing, 1906, p. 194

Stenothoe assimilis Chevreux, 1908, pp. 4-8, figs 4-6.

Stenothoe ornata Barnard, K.H., 1930, p. 341, fig. 16.

Regional diagnosis: Antenna 1 subequal to or slightly longer than antenna 2; eye large; upper lip, lobes unequal in size; maxilliped, ischium subequal to or shorter than palp articles 1-2 combined, with 0-1 distolateral setae; gnathopod 1, propodus posterior margin straight, shorter than (male) or subequal to (female) palmar margin; gnathopod 2 of male, coxa smaller than propodus, merus, posterior margin entire, not crenulate, propodus with palm and posterior margin indistinguishable, straight, strongly setose, palmar angle absent, bilobed distal palmar tooth present, relatively large, dactyl, posterior margin densely setose; gnathopod 2 of female, propodus with palm and posterior margin indistinguishable, margin straight, with 1-3 small distal palmar teeth, palmar angle absent, palmar spines short; pereopod 7, basis broad, posterior margin convex, merus broadly expanded, posterodistal lobe nearly reaching or reaching distal margin of carpus; uropod 1, peduncle without distoventral spur; uropod 2, outer ramus subequal to or slightly shorter than inner ramus in length, with 1-2 marginal spines; uropod 3, peduncle longer than first article of ramus, that of male with terminal article of ramus lanceolate, not expanded proximally, dorsal margin without crenulations.

Distribution: Nearly cosmopolitan in tropical and warm temperate waters. In the Western Atlantic region, *S. valida* occurs in North Carolina (Fox and Bynum, 1975); South Carolina (SERTC, unpublished records); Biscayne Bay, Florida (pers. obs.); the Dry Tortugas (Pearse, 1932); the Caribbean coast of Colombia (Ortiz and Lemaitre, 1994); and Brazil (Dana, 1853; Wakabara and Serejo, 1998).

Ecology: *Stenothoe valida* usually occurs in fouling growth on hard substrates, including hydroids (*Tubularia crocea* and other species) from piling scrapes (Barnard, 1953; 1959a) and algae (Wakabara et al., 1991). It has also been found in *Thalassia* (Ortiz and Lemaitre, 1994), among molluscs at the base of black coral (Barnard, 1959a), associated with the sponge *Spheciospongia vesparium* (Pearse, 1932), and on shell/foraminiferan (Reid, 1951), sand, mud, clay or shell hash (Barnard, 1953; 1959a) bottoms. Presumably in the latter habitats it clings to some type of structure rather than living infaunally. This species is found at depths ranging from 1 to 33 m at moderate to high salinities.

Remarks: *Stenothoe valida* can be distinguished from all other Florida *Stenothoe* species by the expanded merus of pereopod 7, the posterodistal lobe of which reaches or nearly reaches the distal margin of the carpus. It also is one of only two regional species that lacks a distoventral spur on the peduncle of uropod 1 and it differs from that species, *Stenothoe minuta*, in having the outer ramus of uropod 2 slightly shorter than the inner ramus (outer ramus much shorter in *S. minuta*). Males of the two species can be easily distinguished by the morphology of gnathopod 2 (palmar margin straight and heavily setose, posterior margin of dactyl setose in *S. valida*; palmar margin angled and weakly setose, posterior margin of dactyl without setae in *S. minuta*). In addition, *S. valida* is a relatively large species (2.5-6.0 mm) and is sexually dimorphic whereas *S. minuta* is smaller (1.5-2.5 mm) and not sexually dimorphic. The most similar species to *S. valida* based on male and female gnathopod 2 morphology and size is *S. gallensis*; see the **Remarks** section for that species for a discussion of differences between the two.

Material from Bermuda identified as *S. valida* by Kunkel (1910) appears to be referable to *S. gallensis* based on the illustrations provided by Kunkel. In particular, article 2 of the ramus on the male third uropod has the basally expanded form of *S. gallensis* rather than the lanceolate form of *S. valida* and the posterior margin of the carpus of the male gnathopod 2 is crenulate (entire in *S. valida*).

See Lincoln, 1979; Krapp-Schickel, 1993.

Family Synopiidae Dana, 1855

Regional diagnosis: Antenna 1 slightly shorter than, subequal to or longer than peduncle of antenna 2 in female (usually in male also), not strongly geniculate between peduncle articles 1 and 2, peduncle article 1 not greatly enlarged, not overhanging articles 2-3, accessory flagellum present; ocular lobe broad, not strongly produced anteriorly, without small, sharp cusp; eyes present, well-developed, without 4 paired or 4-6 single peripheral facets, accessory eye often present, composed of 2-3 ommatidia; buccal mass normal, rounded or subquadrate; maxilliped, palp well-developed, 3-4 articulate; coxae 1-2 unreduced, slightly shorter than, subequal to or longer than following coxae, not hidden; coxae 1-3 not becoming shorter posteriorly; coxae 2-3 not twice as long as coxae 1 and 4; coxae 2-4, posterior margin without small medial process; gnathopod 1 well-developed, 7-articulate, simple, weakly subchelate or pseudochelate; gnathopod 2 simple or pseudochelate, article 3 not elongate, less than twice as long as wide; peraeopods 3-7, dactyl present (may be very short); peraeopod 5 not doubly geniculate at article 4; peraeopods 5-6 not geniculate at article 5; peraeopods 5-7, distal articles linear; peraeopod 7 not elongate, distal articles not unusually slender, article 6 uniarticulate, not subdivided; urosome segments 1-3 separate; uropod 1, inner ramus subequal to or longer than outer ramus; uropod 2 present; uropod 3 well-developed, biramous, rami lanceolate; telson separate, not partially fused to urosome segment 3, cleft, lobes lanceolate, lateral margins without spines or setae, tips subacute.

Florida genera: *Garosyrrhoë*, *Metatiron*, *Synopia*

Remarks: The family Synopiidae is a diverse group comprised of predominantly deep, cold-water species; however a few genera, including several found in Florida waters, contain exclusively shallow, warm-water members (Barnard, 1972). These shallow-water taxa are generally infaunal/planktonic, burying themselves in the sediment during the day and swarming up into the water column at night (Thomas, 1993).

Currently, the specific composition of the genera *Tiron* and *Metatiron* is in a somewhat confused state. In 1972, Rabindranath established the genus *Metatiron*, which he distinguished from both *Tiron* and *Pseudotiron* by the absence of a mandibular palp. Unfortunately, although he placed *Metatiron brevidactylus* (Pillai, 1957) in that genus, he did not also reassign other species of *Tiron sensu lato* without a mandibular palp to *Metatiron*. Indeed, for many species of *Tiron*, the morphology of the mandible remains unknown and material of these species needs to be examined to determine the presence or absence of a palp. Subsequent authors have either elected to follow Rabindranath (1972b) and recognize the validity of *Metatiron* (Ledoyer, 1979; Barnard and Karaman, 1991; Thomas, 1993; Alonso de Pina, 1998), rejected the validity of *Metatiron* and continued to place new species without a mandibular palp in the genus *Tiron* (Just, 1981; Jańdćewski, 1990), or did not mention the establishment of *Metatiron* and continued to place relevant new species in the genus *Tiron* (Goeke, 1982; Hirayama, 1988). No one to date has completely revised the genus *Tiron* to assign those species without a mandibular palp to *Metatiron* or to reject the validity of that genus and reassign the *Metatiron* species to *Tiron*. The three species found in Florida waters all lack a mandibular palp and, following Thomas (1993), McLaughlin et al. (2005) and LeCroy et al. (2009), are included in the genus *Metatiron* herein. However, this placement may change if future revisionary work does not support the validity of the genus *Metatiron*.

KEY TO FLORIDA GENERA OF SYNOPIIDAE

1. < Accessory eye present; coxa 3 larger than coxa 4; gnathopods 1-2, palm, if present, without large, serrate spine at palmar angle; gnathopod 1 simple or weakly subchelate; gnathopod 2 simple; epimeron 3, posterior margin entire or weakly crenulate; uropods 1-2, peduncle without distolateral spur; uropod 3 extending well beyond tips of rami of uropods 1-2..... 2

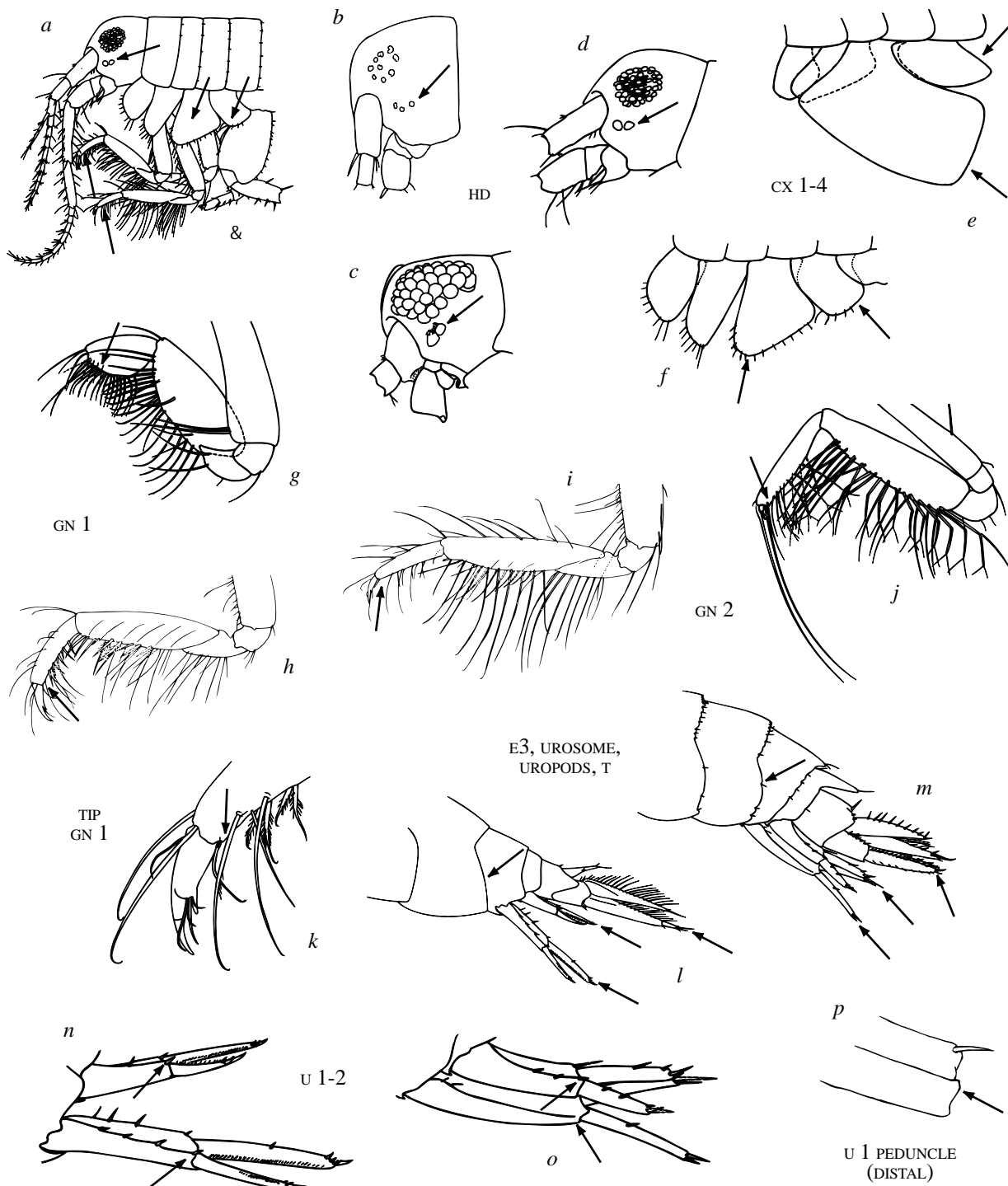


Figure 573.

< Accessory eye absent; coxa 3 slightly smaller than coxa 4; gnathopods 1-2 pseudochelate, palm with large, serrate spine at palmar angle; epimeron 3, posterior margin serrate; uropods 1-2, peduncle with distolateral spur; uropod 3 not extending beyond tips of rami of uropods 1-2 *Garosyrrhoë*

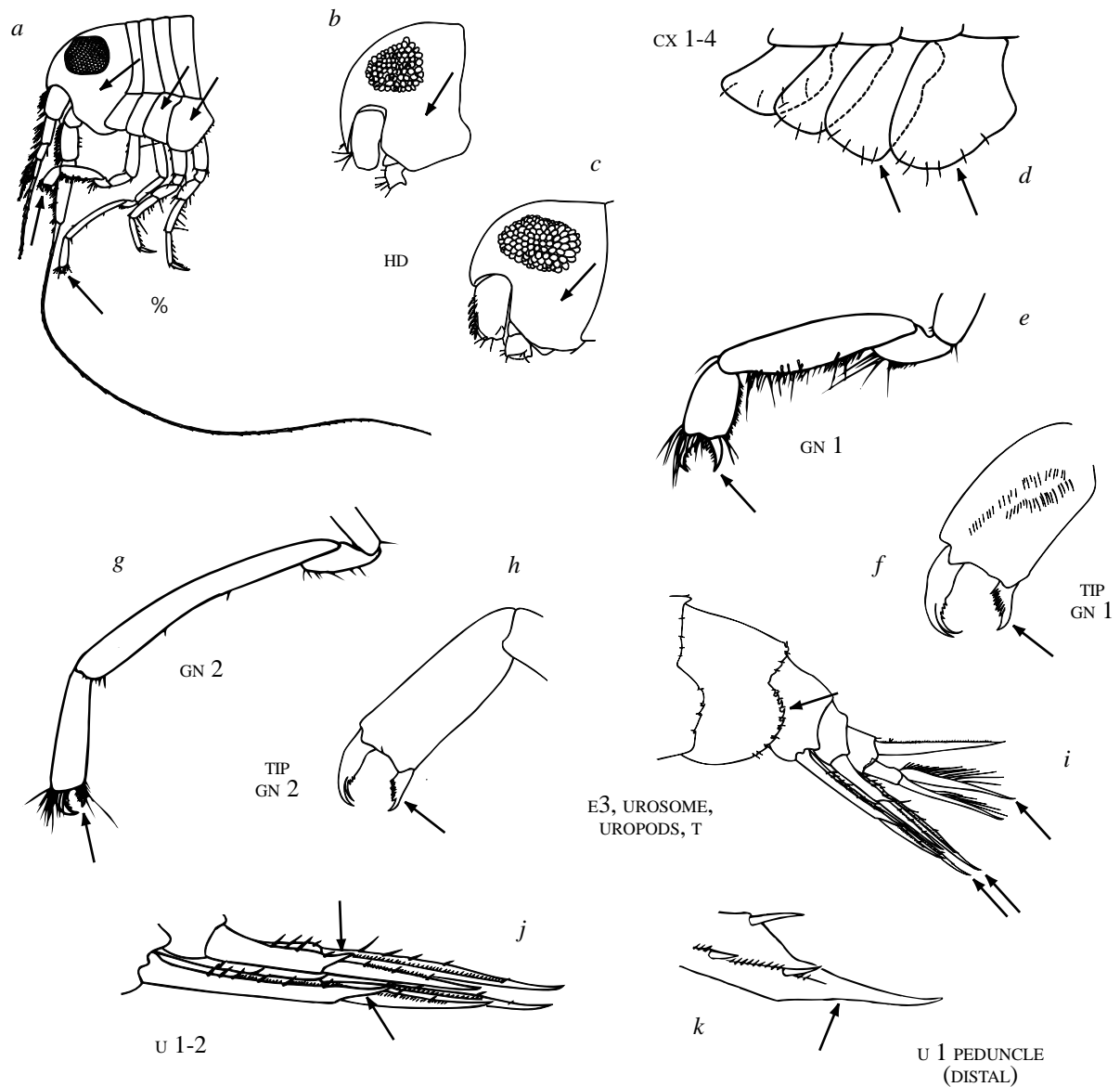


Figure 574.

2. < Mandible, palp absent (seta may be present); coxae 3-4 not pelagont (posterior margin of coxa 3 not enclosing coxa 4), coxa 3 slightly larger than coxa 4; gnathopod 1 simple; gnathopod 2, dactyl normal, not vestigial; pereopods 3-7, dactyls short, stubby; epimeron 3, posterior margin convex; urosome segments 1-2 with posterodorsal processes; telson elongate, extending nearly to tips of rami of uropod 3 *Metatiron*

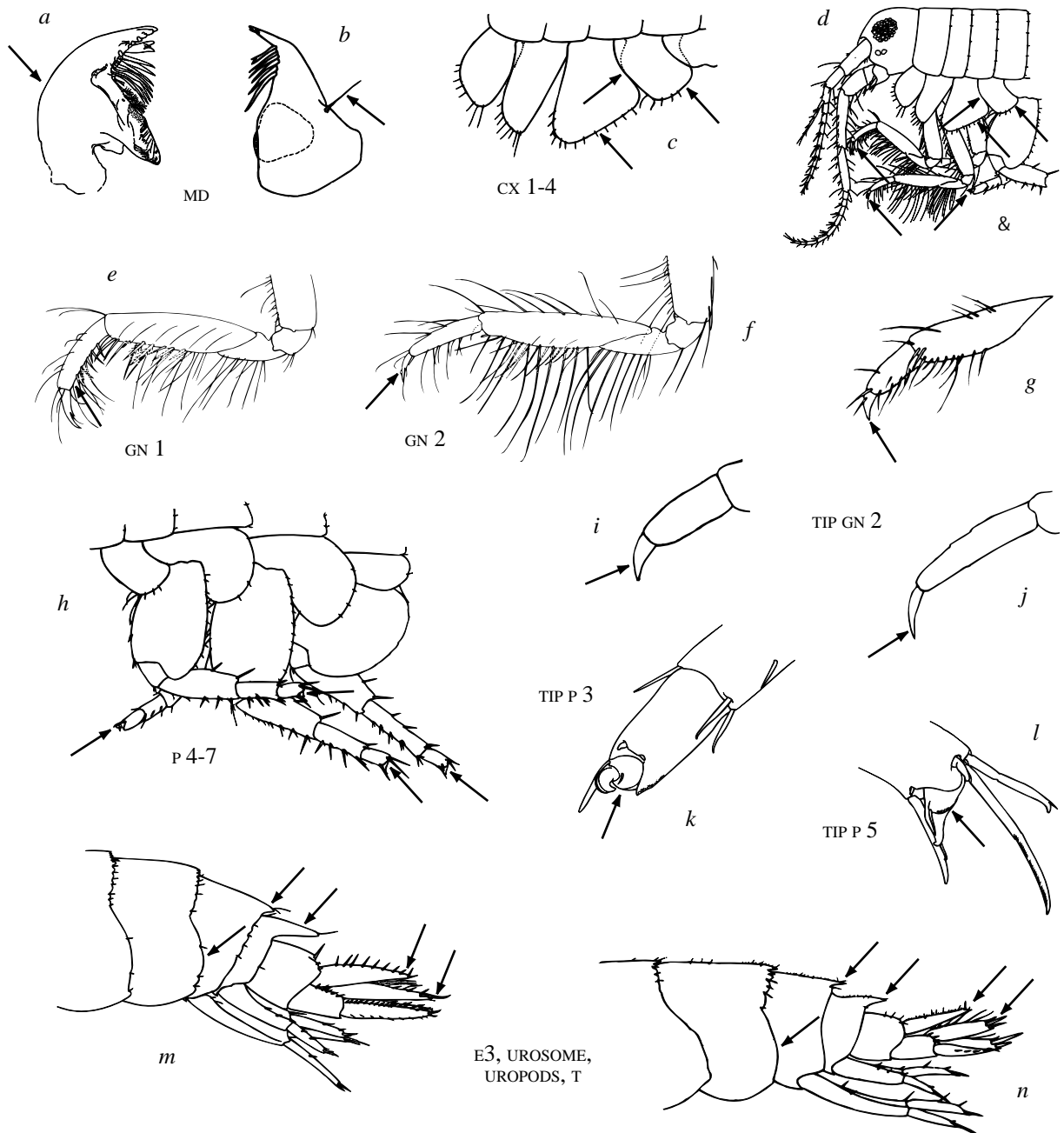


Figure 575.

< Mandible, palp present; coxae 3-4 pelagont (posterior margin of coxa 3 enclosing coxa 4), coxa 3 much larger than coxa 4; gnathopod 1 weakly subchelate; gnathopod 2, dactyl vestigial; peraeopods 3-7, dactyls long, slender; epimeron 3, posterior margin straight; urosome segments 1-2 without posterodorsal processes; telson short, extending slightly beyond peduncle of uropod 3 *Synopia*

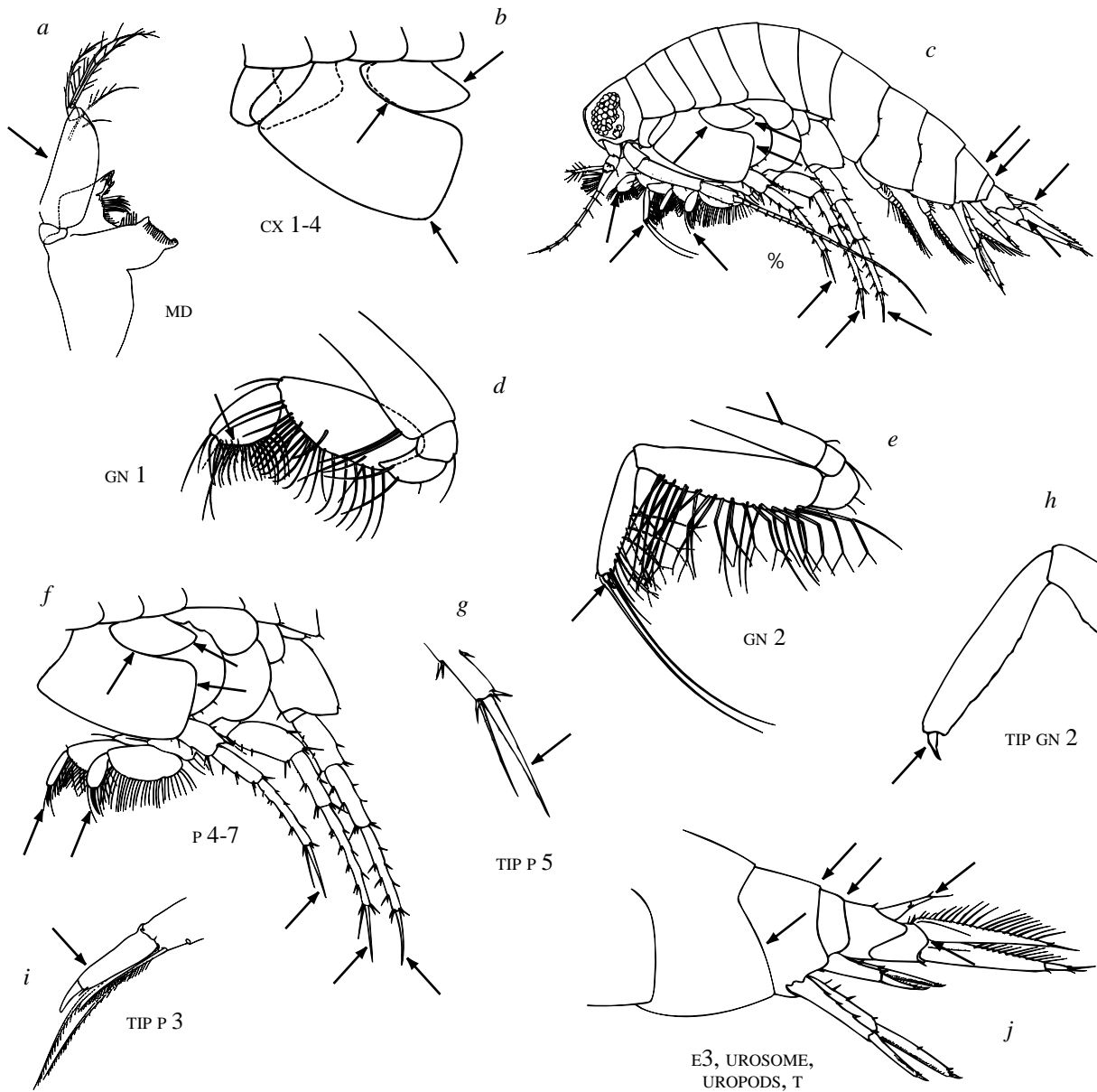


Figure 576.

Genus *Garosyrrhoë* Barnard, 1964

Regional diagnosis: Accessory eye absent; mandible, palp present, article 2 not greatly enlarged; coxae 3-4 not pelagont (posterior margin of coxa 3 not enclosing coxa 4), coxa 3 slightly smaller than coxa 4; gnathopods 1-2 pseudochelate, palm with large, serrate spine at palmar angle; gnathopod 2, dactyl normal, not vestigial; pereopods 3-7, dactyls long, slender; epimeron 3, posterior margin convex, serrate; urosome segments 1-2 without posterodorsal processes; uropods 1-2, peduncle with distolateral spur; uropod 3 not extending beyond tips of rami of uropods 1-2; telson elongate, extending nearly to tips of rami of uropod 3.

Florida species: *G. cf bigarra*

Remarks: A second Caribbean species of *Garosyrrhoë*, *G. luquei* Ortiz, 1985, has been described from the Southwest Cuban Shelf, near the Isla de Juventud (Ortiz, 1985), but has not been found in Florida waters to date. It is easily distinguished from *G. cf bigarra* by the stout, marginally serrate basis of pereopod 5 (basis more slender, marginal serrations lacking in *G. cf bigarra*), by the single long, subacute posterodorsal process and several strong dorsolateral teeth on pereonite 7 and pleonites 1-2 (2 short, blunt posterodorsal processes and no dorsolateral teeth in *G. cf bigarra*), and by the slender, widely separated telson lobes (lobes broader and not widely separated in *G. cf bigarra*).

Garosyrrhoë cf bigarra (Barnard, 1962) (Figure 574)

Syrrhoites bigarra Barnard, 1962a, pp. 73-75, fig. 1.

Garosyrrhoë bigarra: Barnard, 1966, p. 94.

Garosyrrhoë disjuncta Barnard, 1969, pp. 224-225, fig. 30.

Regional diagnosis: That of the genus.

Distribution: Southwest Florida shelf between Cape Romano and Cape Sable; Carrie Bow Cay, Belize (Barnard and Thomas, 1989); Venezuela (Díaz and Martín, 2001; Martín and Díaz, 2003); Southern California, Baja California and the Gulf of California (Barnard, 1962a, 1969, 1972).

Ecology: *Garosyrrhoë cf bigarra* occurs at depth of 8 to 18 m in the high salinity waters off the southwest Florida coast; however, no specific habitat information is known for the species in this region. *Garosyrrhoë bigarra* from Belize is found in sand or "coralgal sand-mud" at depths of 27 to 33 m (Barnard and Thomas, 1989), whereas California populations of this species occur from the rocky intertidal to 24 m, usually on coarse substrate (Barnard, 1969) and in coarse, rust colored sand at a depth of 44 m (Barnard, 1962a). It seems likely that Florida populations occupy similar sand or sand-mud habitats in the live bottoms off South Florida.

Remarks: Florida material of *G. cf bigarra* differs from Belize specimens of *G. bigarra* in the slightly larger eye, the unrecurved posterodorsal processes and the lack of dorsolateral processes on pereonite 7 and pleonites 1-2, and in the lack of serrations on the posterior margin of epimeron 2. Males can be distinguished from females in this species by the shorter, blunter rostrum, the slightly larger eye, the elongate flagellum of antenna 2 and by the presence of numerous aesthetascs along the dorsal margins of the peduncular articles and flagella of antennae 1-2. *Garosyrrhoë cf bigarra* is a moderately small species, with adults ranging from 3 to 4 mm in length.

See Barnard, 1962a (as *Syrrhoites bigarra*); Barnard, 1969 (as *Garosyrrhoë disjuncta*); Barnard and Thomas, 1989.

Genus *Metatiron* Rabindranath, 1972

Regional diagnosis: Accessory eye present; mandible, palp absent; coxae 3-4 not pelagont (posterior margin of coxa 3 not enclosing coxa 4), coxa 3 slightly larger than coxa 4; gnathopods 1-2 simple, palm absent; gnathopod 2, dactyl normal, not vestigial; peraeopods 3-7, dactyls short, stubby; epimeron 3, posterior margin convex, entire or weakly crenulate; urosome segments 1-2 with posterodorsal processes; uropods 1-2, peduncle without distolateral spur; uropod 3 extending well beyond tips of rami of uropods 1-2; telson elongate, extending nearly to tips of rami of uropod 3.

Florida species: *M. bellairsi*, *M. triocellatus*, *M. tropakis*

Remarks: A number of species of *Tiron* and *Metatiron*, including the three Florida species, have unique stubby dactyls on peraeopods 3-7. These are apparently used to hold flattened bits of shell, coral or sediment over the animal for protection as it crawls over the sand or burrows just under the surface (Just, 1981; Thomas, 1993).

KEY TO FLORIDA SPECIES OF *METATIRON*

1. < Antenna 1, accessory flagellum 4-5-articulate; accessory eye composed of 2 ommatidia; gnathopods 1-2, articles relatively slender, densely setose; peraeopods 5-6, carpus at least twice as long as propodus; telson lobes with dorsomedial row of long spines
 *Metatiron tropakis*

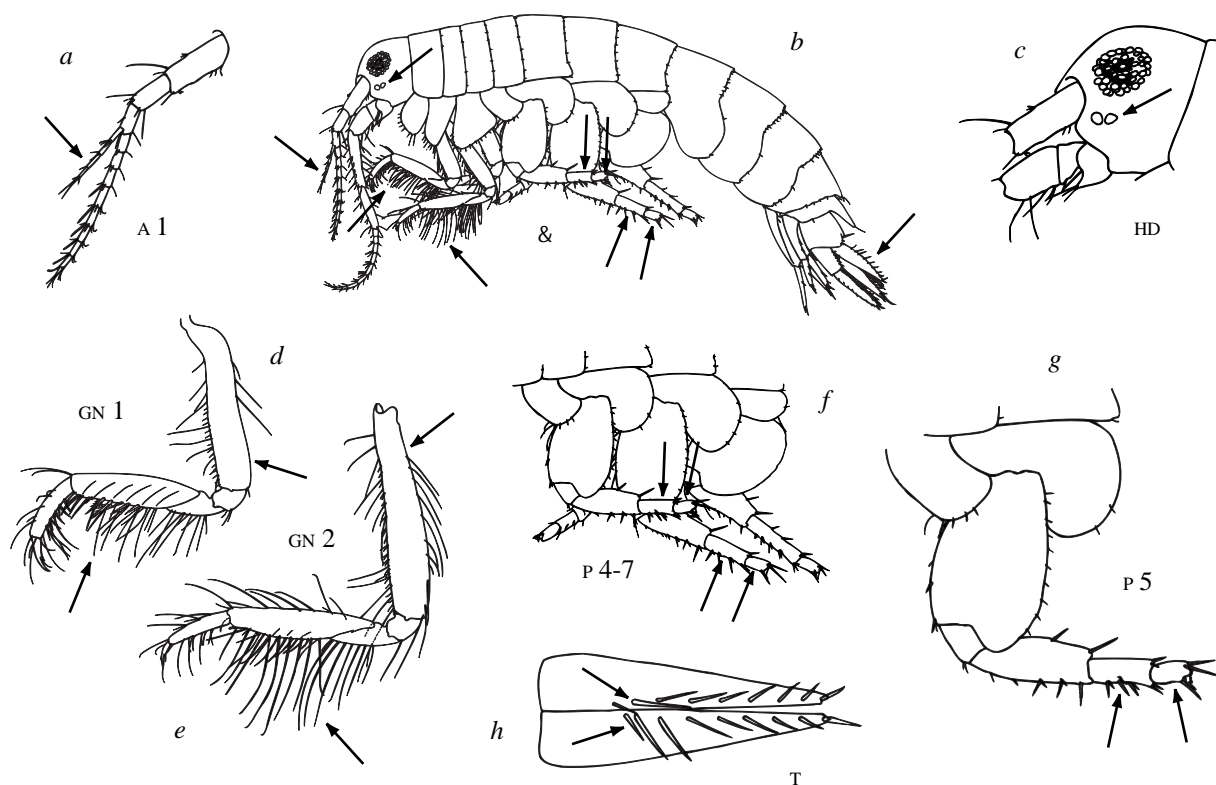


Figure 577.

< Antenna 1, accessory flagellum 2-articulate; accessory eye composed of 3 ommatidia;
 gnathopods 1-2, articles relatively stout, moderately setose; peraeopods 5-6, carpus subequal
 to or shorter than propodus; telson lobes without dorsomedial row of long spines 2

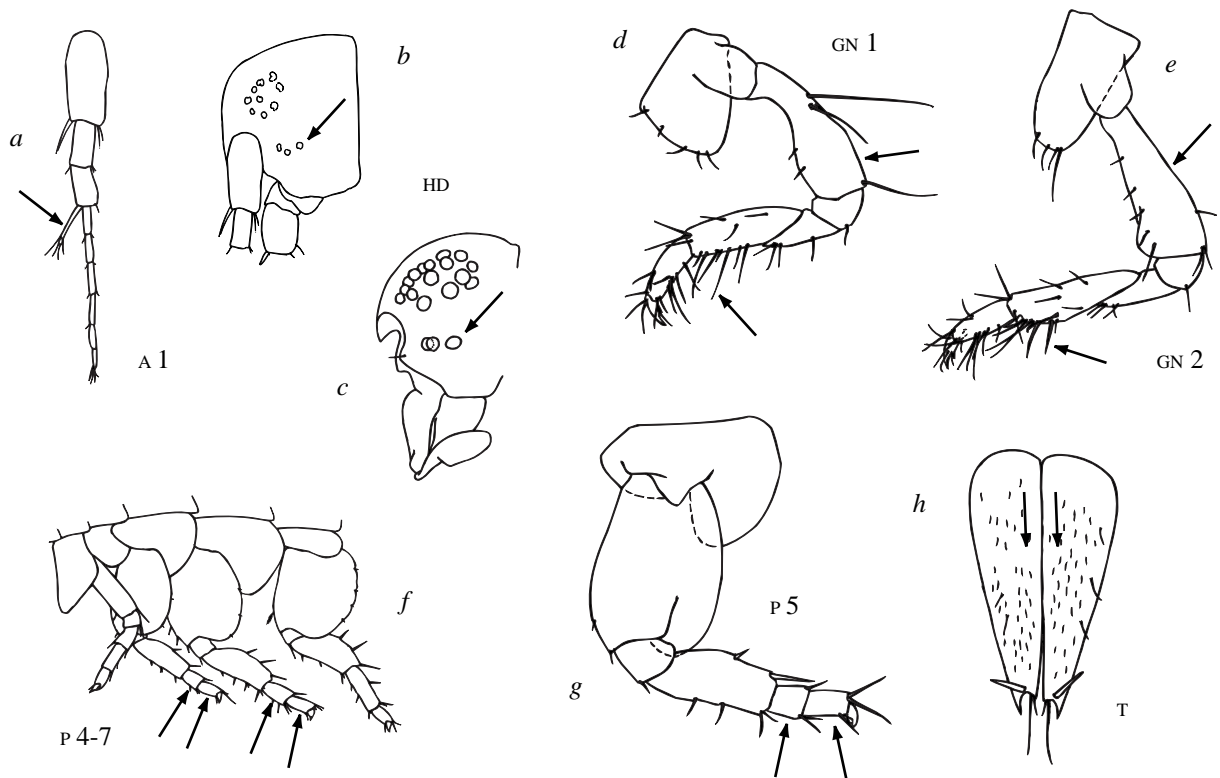


Figure 578.

2. < Head of female, anterodorsal margin evenly rounded; primary eye composed of 16-20 ommatidia; accessory eye, anterior 2 ommatidia closely apressed; mandible, palp represented by small seta; maxilla1, palp slender, shorter than outer plate; maxilliped, palp article 4 reduced, subquadrate, terminal claw slender, seta-like *Metatiron bellairsi*

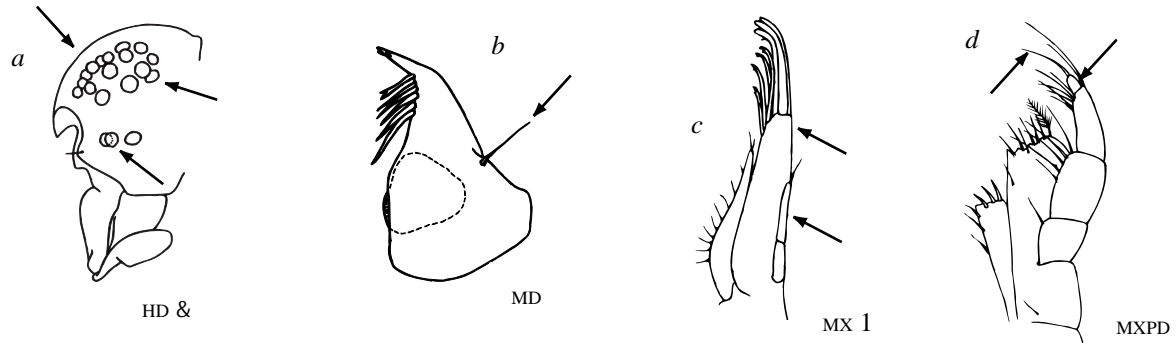


Figure 579.

- < Head of female, anterodorsal margin angled strongly downward, subquadrate; primary eye composed of 9-10 ommatidia; accessory eye, anterior 2 ommatidia distinctly separate; mandible, palp not represented by small seta; maxilla 1, palp stout, longer than outer plate; maxilliped, palp article 4 approximately twice as long as wide, terminal claw stout, claw-like *Metatiron triocellatus*

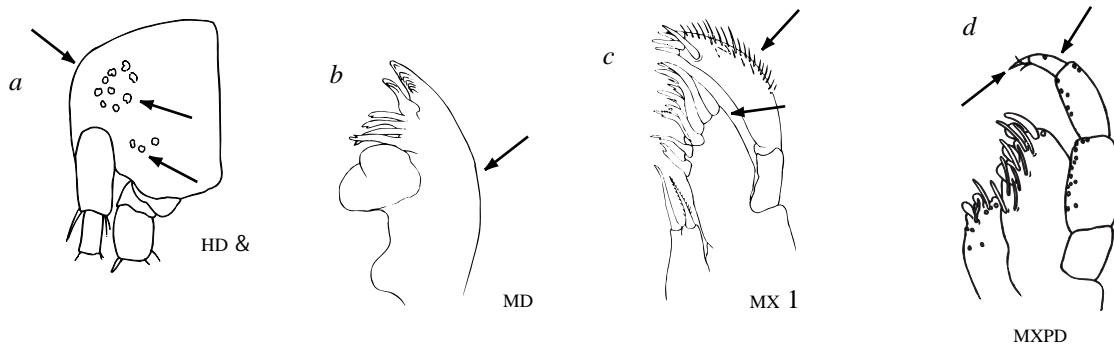


Figure 580.

***Metatiron bellairsi* (Just, 1981)
(Figure 579)**

Tiron bellairsi Just, 1981, pp. 259-262, figs. 1-4.

Metatiron bellairsi: Thomas, 1993, p. 71, fig. 100.

Regional diagnosis: Antenna 1, accessory flagellum 2-articulate; head of female, anterodorsal margin evenly rounded; primary eye composed of 16-20 ommatidia; accessory eye composed of 3 ommatidia, anterior 2 ommatidia closely appressed; mandible, palp represented by small seta; maxilla 1, palp slender, shorter than outer plate; maxilliped, palp article 4 reduced, subquadrate, terminal claw slender, seta-like; gnathopods 1-2, articles relatively stout, moderately setose; pereopods 5-6, carpus subequal to or shorter than propodus; telson lobes without dorsomedial row of long spines.

Distribution: Florida Bay; Southwest Florida shelf between Cape Romano and Cape Sable; Barbados (Just, 1981); Carrie Bow Cay, Belize (Barnard and Thomas, 1989); Venezuela (Martín and Díaz, 2003).

Ecology: This species is generally found in silty or muddy sand at relatively high salinities and at depths ranging from 2.5 to 13 m (Just, 1981; pers. obs.) It sometimes occurs in or near sparsely vegetated grassbeds.

Remarks: Males of *M. bellairsi* are similar to females except for the somewhat more vertical anterior margin of the head, the presence of a calynophore and a more elongate accessory flagellum on antenna 1, and an elongate peduncle, with the anterior margins of articles 4-5 lined with short setae, and a very elongate flagellum on antenna 2. In addition, the dorsal process on urosome segment 2 is longer than that of the female. *Metatiron bellairsi* is a small species, with adults ranging from 2 to 3 mm in length.

Although Thomas (1993) suggested that *M. bellairsi* may be a junior synonym of *M. triocellatus*, further examination of material from South Florida samples indicates that they are distinct species. In addition to having a shorter accessory flagellum, a more anteriorly rounded head and a closely appressed anterior pair of accessory ommatidia, *M. bellairsi* has strikingly different mouthparts from those of *M. triocellatus*. The mandible has a seta located at the insertion point of the mandibular palp, although the palp itself is lacking; this seta is not present in *M. triocellatus*. In the lower lip, both the outer lobe and the mandibular process are more elongate and slender in *M. bellairsi* than in *M. triocellatus*. In addition, the palp of maxilla 1 is slender and much shorter than the outer plate in *M. bellairsi* and is stout and much longer than the outer plate in *M. triocellatus*. Finally, article 4 and the terminal claw of the maxillipedal palp are very different in the two species. In *M. bellairsi*, article 4 is reduced and the terminal claw is very slender and seta-like, whereas in *M. triocellatus*, article 4 is much larger and the terminal claw is stouter and claw-like. Although the two species are apparently closely related, resembling each other and differing from *M. tropakis* in the 2-articulate accessory flagellum of antenna 1 (4-5-articulate in *M. tropakis*), the accessory eye composed of 3 ommatidia (2 ommatidia in *M. tropakis*), the stouter, less setose gnathopods and the telson lobes lacking a dorsomedial row of spines (spines present in *M. tropakis*), they are clearly distinct.

See Just, 1981 (as *Tiron bellairsi*); Thomas, 1993.

***Metatiron triocellatus* (Goeke, 1982)**

(Figure 580)

Tiron triocellatus Goeke, 1982, pp. 148-152, figs. 1-2.

Metatiron triocellatus: Thomas, 1993, pp. 71-72; not Thomas, 1993, fig. 100 (= *M. bellairisi* (Just, 1981)).

Regional diagnosis: Antenna 1, accessory flagellum 2-articulate; head of female, anterodorsal margin angled strongly downward, subquadrate; primary eye composed of 9-10 ommatidia; accessory eye composed of 3 ommatidia, anterior 2 ommatidia distinctly separate; mandible, palp not represented by small seta; maxilla 1, palp stout, longer than outer plate; maxilliped, palp article 4 approximately twice as long as wide, terminal claw stout, claw-like; gnathopods 1-2, articles relatively stout, moderately setose; pereopods 5-6, carpus subequal to or shorter than propodus; telson lobes without dorsomedial row of long spines.

Distribution: North Carolina (Goeke, 1982); Hutchinson Island, Florida (pers. obs.); Florida Keys to Mobile Bay, Alabama (Goeke, 1982; Thomas, 1993; Rakocinski et al., 1993, 1996).

Ecology: *Metatiron triocellatus* occurs in medium to coarse sand or sand and shell hash, with little or no detritus. It is found in relatively high salinity waters (> 27 ppt) at depths of 2 to 17 m (Goeke, 1982; Thomas, 1993; Rakocinski, 1993).

Remarks: *Metatiron triocellatus* is readily distinguished from the other Florida members of the genus, *M. tropakis* and *M. bellairisi*, by the 3 completely separate ommatidia in the accessory eye (anterior 2 accessory ommatidia closely appressed in *M. bellairisi*; only 2 accessory ommatidia present in *M. tropakis*). It most closely resembles *M. bellairisi* in size (3-4 mm vs 3.5-6 mm in *M. tropakis*), number of accessory ommatidia (3 vs 2 in *M. tropakis*), length of the accessory flagellum (2-articulate vs 4-5-articulate in *M. tropakis*), shape of the gnathopods (stout vs slender in *M. tropakis*) and the lack of dorsomedial spines on the telson lobes (present in *M. tropakis*). However, *M. triocellatus* differs from *M. bellairisi* in many characters, most notably those pertaining to the structure of the mouthparts (see **Remarks** section for *M. bellairisi* for a more complete discussion of the differences between these two species.).

Males and females of *M. triocellatus* are similar, differing mainly in the more vertical anterior margin of the head, the presence of a callynophore on antenna 1, the elongate flagellum and dorsally setose peduncle articles of antenna 2, and the more well-developed posterodorsal processes on the urosomites of the male (head more rounded anteriorly; antenna 1 without a callynophore; antenna 2 flagellum short and peduncle sparsely setose; posterodorsal processes of urosomites smaller in the female). In addition to the variation due to sexual dimorphism, there is some variability in the roundness of the anterodorsal margin of the head and the placement of the ommatidia in the accessory eye in *M. triocellatus*, with some individuals approaching the morphology of *M. bellairisi* (anterodorsal margin of the head more rounded and anterior 2 ommatidia in the accessory eye set closer together than usual). However, the primary eye in these specimens still has fewer ommatidia than are found in the eye of *M. bellairisi* and the mouthparts are similar to those of other, more typical, specimens of *M. triocellatus*.

See Goeke, 1982 (as *Tiron triocellatus*); Thomas, 1993.

***Metatiron tropakis* (Barnard, 1972)**

(Figure 577)

Tiron tropakis Barnard, 1972, pp. 86-89, figs. 45-46.

Metatiron tropakis: McLaughlin et al., 2005, p. 170.

Regional diagnosis: Antenna 1, accessory flagellum 4-5-articulate; head of female, anterodorsal margin angled weakly downward; primary eye composed of 25-35 ommatidia; accessory eye composed of 2 ommatidia; mandible, palp not represented by small seta; maxilla 1, palp stout, longer than outer plate; maxilliped, palp article 4 approximately twice as long as wide, terminal claw stout, claw-like; gnathopods 1-2, articles relatively slender, densely setose; peraeopods 5-6, carpus at least twice as long as propodus; telson lobes with dorsomedial row of long spines.

Distribution: Virginia to Brazil, including the Gulf of Mexico; California to Peru (Barnard, 1972; McKinney, 1977; Wakabara and Serejo, 1998).

Ecology: This species occurs in fine to coarse sand, often mixed with shell hash. It is usually found in relatively high salinity waters (>30 ppt) and at depths ranging from 3 to 157 m (Barnard, 1972; McKinney, 1977). Its habitat preferences are very similar to those of *M. triocellatus* and the two species frequently cooccur.

Remarks: *Metatiron tropakis* is the most distinctive of the three Florida species of *Metatiron* and is relatively easily separated from its congeners. It has only 2 ommatidia in the accessory eye (3 in *M. triocellatus* and *M. bellairisi*), 4-5 articles in the accessory flagellum (2 articles in *M. triocellatus* and *M. bellairisi*), slender, strongly setose gnathopods (gnathopods stouter and less setose in *M. triocellatus* and *M. bellairisi*), the carpus of peraeopods 5-6 is at least twice as long as the propodus (carpus subequal to or shorter than the propodus in *M. triocellatus* and *M. bellairisi*), and the telson lobes each have a dorsomedial row of strong spines (dorsomedial spines lacking in *M. triocellatus* and *M. bellairisi*). *Metatiron tropakis* is also larger than the other two species, ranging from 3.5 to 6 mm in length.

As is true for other species in the genus, males differ from females in the somewhat more vertical anterior margin of the head, the presence of a callynophore on antenna 1, the elongate flagellum and setose dorsal margins of the peduncle articles in antenna 2 and in the more well-developed posterodorsal processes on the urosome segments. The dorsomedial spines on the telson lobes are present in the male as well as in the female, but they are shorter in the former.

See Barnard, 1972 (as *Tiron tropakis*)

Genus *Synopia* Dana, 1852

Regional diagnosis: Accessory eye present; mandible, palp present, article 2 greatly enlarged; coxae 3-4 pelagont (posterior margin of coxa 3 enclosing coxa 4), coxa 3 much larger than coxa 4; gnathopod 1 weakly subchelate, palm without large, serrate spine at palmar angle; gnathopod 2 simple, palm absent, dactyl vestigial; peraeopods 3-7, dactyls long, slender; epimeron 3, posterior margin straight, entire or weakly crenulate; urosome segments 1-2 without posterodorsal processes; uropods 1-2, peduncle without distolateral spur; uropod 3 extending well beyond tips of rami of uropods 1-2; telson short, extending slightly beyond peduncle of uropod 3.

Florida species: *S. ultramarina*

Remarks: A second species of *Synopia*, *S. scheeleana* Bovallius, 1886, has been reported from the Gulf Stream waters 40 miles off the Florida coast between Miami and Fort Pierce (Barnard and Thomas, 1989). In addition to the deep cobalt blue color of live material, it differs from *S. ultramarina* in the shorter telson without distolateral serrations and in the lack of long apical setae on the telson lobes. Members of the genus *Synopia* are generally considered to be epipelagic in continental shelf waters and may be attracted to lights at night (Barnard and Thomas, 1989; Thomas, 1993).

Synopia ultramarina Dana, 1853 (Figure 576)

Synopia ultramarina Dana, 1853, p.955, pl. 68, fig. 6a-h.

Regional diagnosis: That of genus.

Distribution: Tropical western Atlantic Ocean, Bahamas, Caribbean Sea, Cuba, Florida Keys (Shoemaker, 1933a, 1945, 1948; Barnard, 1972; Barnard and Thomas, 1989; Thomas, 1993); Brazil (Wakabara and Serejo, 1998); Venezuela (Martín and Díaz, 2003); Yucatan (McKinney, 1977; Oliva-Rivera and Jiménez-Cueto, 1992; Oliva-Rivera, 2003); southeastern Gulf of Mexico off southwest Florida.

Ecology: *Synopia ultramarina* occurs in coarse sand (Barnard and Thomas, 1989; Thomas, 1993) or sand mixed with shell hash in high salinity forereef and live bottom habitats. They are uncommon during the day, emerging from the sediment and swarming up into the water column at night (Thomas, 1993). As is true of other synopiids, when members of this species bury themselves in the sediment, they turn sideways and cover the body with sediment grains or pieces of shell held in place with the dactyls of peraeopods 3-7 (Thomas, 1993). *Synopia ultramarina* is found at depths of 2 to 15 m.

Remarks: Males of *S. ultramarina* are similar to females, differing in the slightly larger eyes, the more well-developed callynophore on antenna 1 (a small callynophore is present in the female), the dense sensory setae on the peduncle of antenna 2, the larger pleopods and the more setose uropod 3. The mandibular palp of this species is very unusual and differs from that of *Garosyrrhoë* cf. *bigarra* in having article 2 greatly enlarged and broadly expanded (article 2 short, slender and rod-like in *G. cf. bigarra*). Species of *Metatiron* lack a mandibular palp.

The color of live specimens of *S. ultramarina* has been reported as hyaline (glassy) with a yellowish cast and the mouthparts are tinged with red (Barnard and Thomas, 1989). However, recent observations based on central Pacific material indicate that this yellowish shade represents the diurnal color; material collected from the water column at night is bright blue (J. Thomas and K. White, pers. comm.) Adult size in *S. ultramarina* generally ranges from 3 to 5 mm, although specimens as large as 7 mm have been reported (Shoemaker, 1945, 1948).

See Barnard, 1972; Barnard and Thomas, 1989.

Family Talitridae Bulycheva, 1957

Regional diagnosis: Antenna 1 much shorter than peduncle of antenna 2, not strongly geniculate between peduncle articles 1-2, peduncle article 1 not greatly enlarged, not overhanging articles 2-3; head not globular, buccal mass not exceptionally large relative to size of head, ocular lobe broad, not strongly produced anteriorly; eyes present, normal, without marginal facets; mandible lacking palp, molar present; maxilliped, palp article 4 vestigial or absent; coxae 1-2 not reduced, subequal to or slightly shorter than following coxae in length; coxae 1-3 not becoming shorter posteriorly; coxae 2-4 with small medial process on posterior margin; gnathopod 1 well-developed, with 7 articles, that of male subchelate or weakly subchelate, that of female simple or weakly subchelate; gnathopod 2, article 3 not elongate, less than twice as long as wide; gnathopod 2 of female, propodus and dactyl together mitten-shaped; peraeopod 5 not doubly geniculate at article 4; peraeopods 5-6 not geniculate at article 5; urosome segments 1-3 separate; urosome segment 1 not elongate, deeper than long, less than twice as long as segment 2; uropod 1, inner ramus at least one-half length of outer ramus; uropod 2 present; uropod 3 present, uniramous; telson separate, not partially fused to urosome segment 3.

Florida genera: *Americhorchestia*, *Chelorchestia*, *Orchestia*, *Platorchestia*, “*Tethorchestia*”, *Tethorchestia*, *Uhlorchestia*

Remarks: In general, the family Talitridae is comprised of taxa that are terrestrial in nature, although they often inhabit the wrack line or supralittoral zone of beaches, marshes, mangroves and other coastal habitats. Seven talitrid genera occur in these habitats in Florida and consequently are found in shallow-water estuarine samples relatively frequently. Several of these taxa (e.g. *Chelorchestia*, *Orchestia*, *Uhlorchestia*) are somewhat more aquatic than others and are also found around the submerged bases of *Spartina* and *Juncus* plants at high tide in euryhaline (*Orchestia*) or oligohaline (*Chelorchestia*, *Uhlorchestia*) marshes. An eighth talitrid genus, *Talitroides*, also occurs in Florida, but is not included in this guide because its members are fully terrestrial species. Two species in this genus are found in Florida (*T. topitotum* [Burt, 1934] and *T. alluaudi* [Chevreux, 1901]), both of which inhabit leaf litter and damp humus habitats and are often found in pet water dishes left out overnight or washed into swimming pools after a heavy rain event. They will also occasionally jump into open sampling containers that are set on or near leaf litter, thus sometimes showing up as contaminants in samples from freshwater habitats. Both species are non-native and have been widely dispersed by man, being carried to many greenhouses, botanical gardens and warm coastal areas worldwide in shipments of tropical plants from the Indo-Pacific region (Shoemaker, 1936, as *Talitrus sylvaticus* and *Talitrus alluaudi*, respectively; Biernbaum, 1980). Morphologically, *Talitroides* is distinguished from other talitrid genera by the non-sexually dimorphic gnathopod 2 (small and mitten-like in both sexes), the distinctly unequal rami of pleopods 1-2 (inner ramus much shorter than outer), the vestigial pleopod 3, and the outer ramus of uropod 2 lacking marginal spines.

Live specimens of many talitrid species can be distinguished by pigmentation pattern and although the pattern is frequently somewhat variable in intensity within a species, it is relatively stable between species. These patterns persist to some degree in formalin, but fade rapidly in alcohol. Often some individuals in a population will be orange in color and will move far more slowly than normally colored individuals. Such off-color specimens are serving as intermediate hosts in the life cycle of a trematode parasite and their obvious color and slow movement make them easy prey for the final bird host of the trematode.

KEY TO FLORIDA GENERA OF TALITRIDAE

1. < Gnathopod 1 of male weakly subchelate, dactyl greatly exceeding palmar angle; that of female simple; uropod 2, outer ramus shorter than inner; uropod 3, ramus laterally compressed, not tapering distally, tip rounded *Americorchestia*

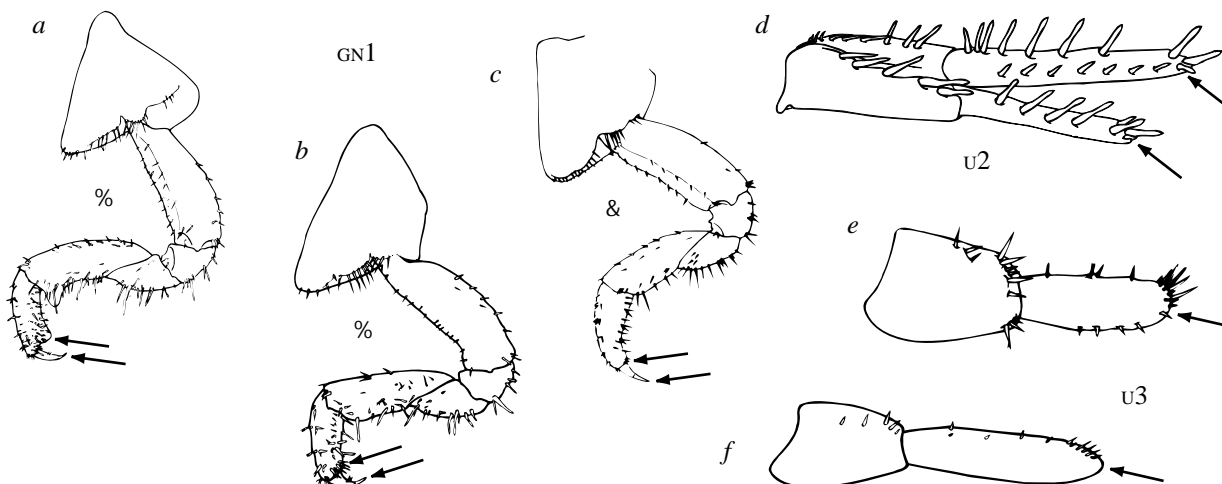


Figure 581.

- < Gnathopod 1 of male subchelate, dactyl at most slightly exceeding palmar angle; that of female weakly subchelate; uropod 2, outer ramus subequal to inner in length; uropod 3, ramus cylindrical, not laterally compressed, tapering distally, tip subacute 2

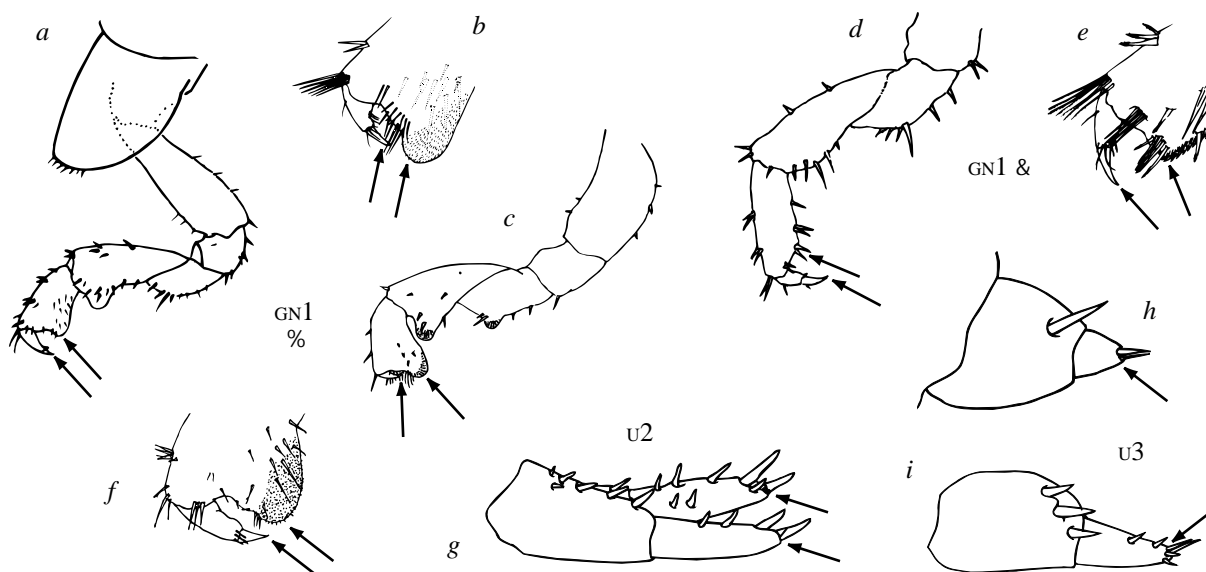


Figure 582.

2. < Uropod 1, outer ramus without marginal spines 3

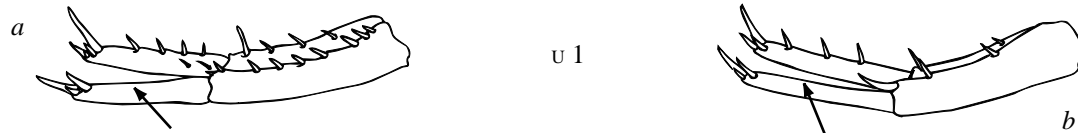


Figure 583.

- < Uropod 1, outer ramus with marginal spines 6

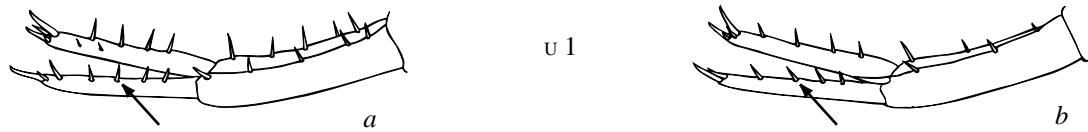


Figure 584.

3. < Gnathopod 2 of male chelate, basis slender, with 1-3 tubercles on anteroproximal margin, dactyl with tooth on flexor margin; gnathopod 2 of female, basis sublinear, anterior margin straight; uropod 3, ramus stout, slightly longer than deep; telson subequal to uropod 3 in length, extending well beyond distal end of peduncle *Chelorchestia*

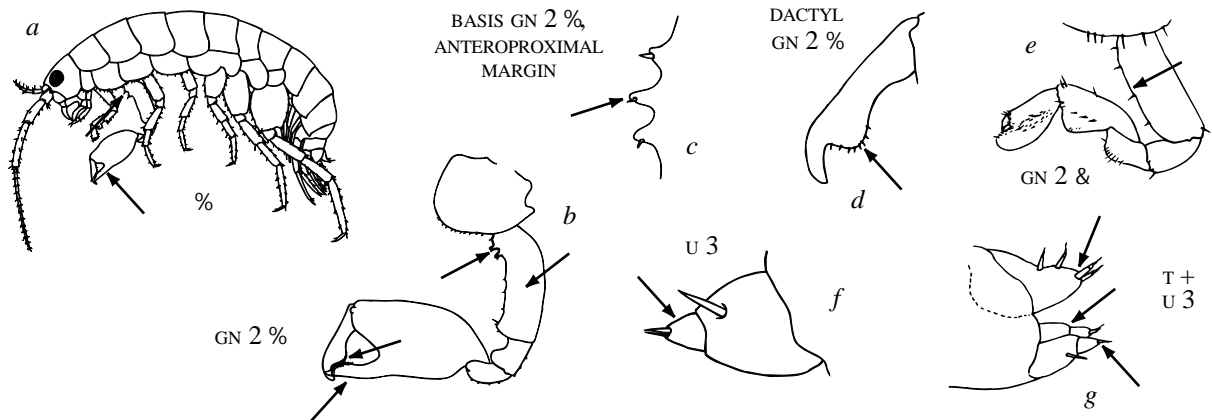


Figure 585.

- < Gnathopod 2 of male subchelate, basis stout, without tubercles on anteroproximal margin, dactyl without tooth on flexor margin; gnathopod 2 of female, basis subovate or inverted pyriform, anterior margin broadly expanded, evenly convex or narrowing distally; uropod 3, ramus elongate, at least twice as long as deep; telson distinctly shorter than uropod 3, usually only extending to distal end of peduncle 4

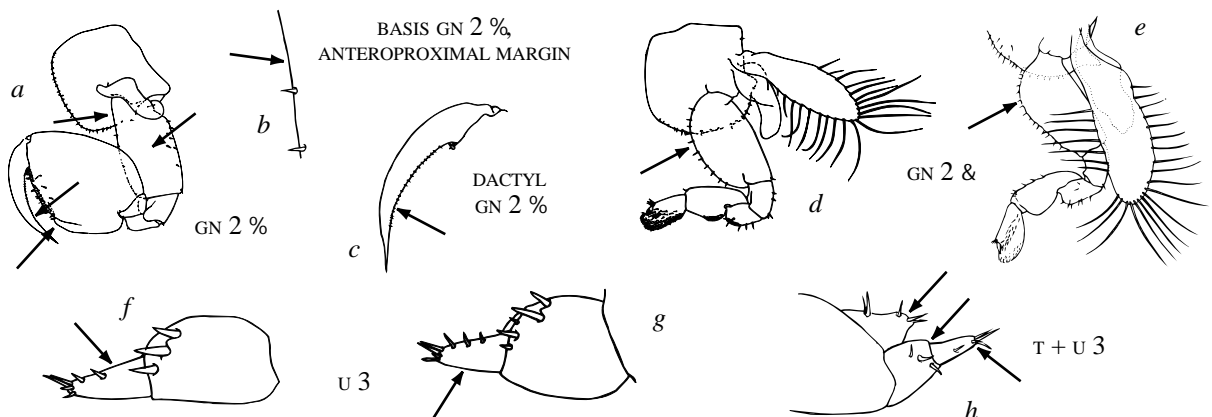


Figure 586.

4. < Antenna 2 of male, peduncle enlarged, much stouter than that of female, distinctly longer than flagellum; coxa 6, posterior lobe with anterodistal margin subquadrate, often slightly produced, without spines; peraeopod 7 of male, propodus without clusters of long, stiff, slightly medial setae on anterodistal and distal margins; uropod 3, peduncle with 2-3 dorso-lateral distal spines *Platorchestia*

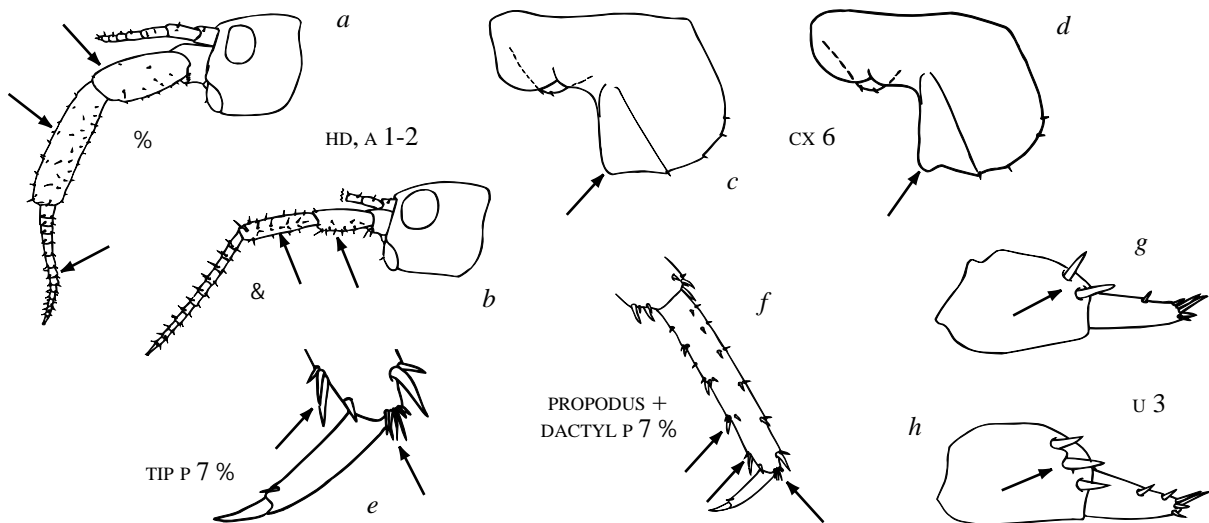


Figure 587.

- < Antenna 2 of male, peduncle slender, only slightly stouter than that of female, subequal to or shorter than flagellum; coxa 6, posterior lobe with anterodistal margin broadly rounded, unproduced, with short spines; peraeopod 7 of male, propodus with 2-6 clusters of long, stiff, slightly medial setae on anterodistal and distal margins; uropod 3, peduncle with 3-6 (usually 4-5) dorsolateral distal spines 5

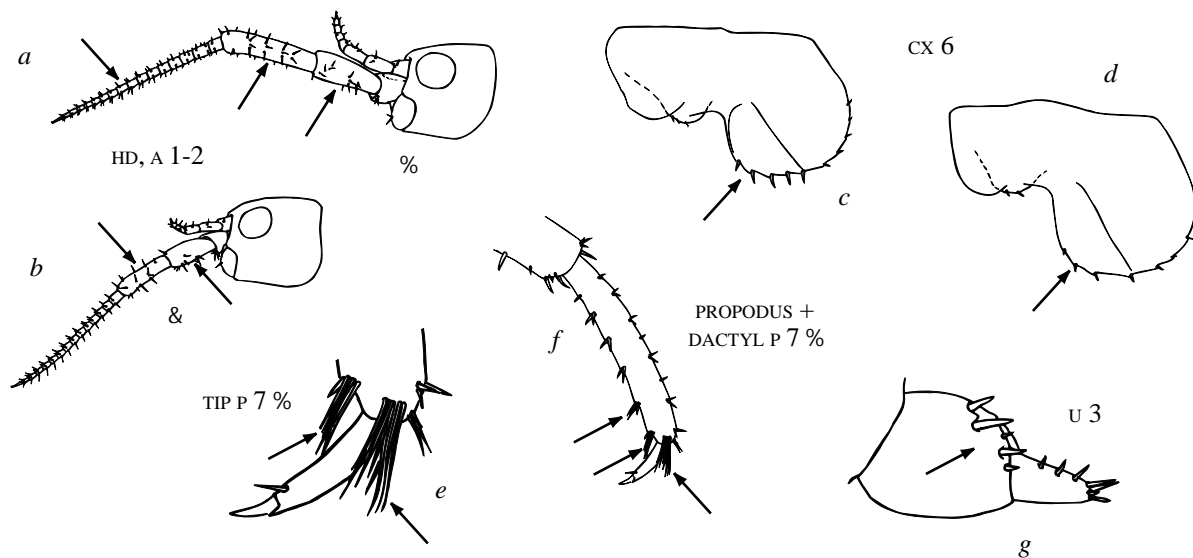


Figure 588.

5. < Gnathopod 1 of male, propodus narrowly subtriangular, palmar angle rounded, posterior margin nearly straight; gnathopod 2 of female, basis inverted pyriform, anterior margin narrowing distally; peraeopod 7 of male, propodus with 5-6 clusters of long, stiff, slightly medial setae on anterodistal and distal margins; uropod 1, peduncle with well-developed dorsolateral distal spine *Tethorchestia*

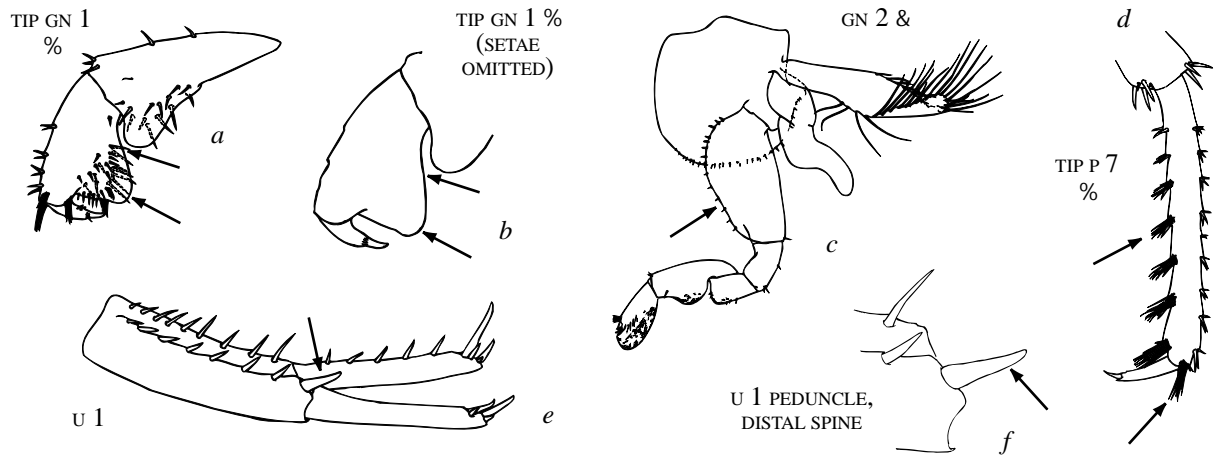


Figure 589.

- < Gnathopod 1 of male, propodus broadly subtriangular, palmar angle expanded to form slender lobe, posterior margin concave; gnathopod 2 of female, basis subovate, anterior margin evenly convex; peraeopod 7 of male, propodus with 2-3 clusters of long, stiff, slightly medial setae on anterodistal and distal margins; uropod 1, peduncle without well-developed dorsolateral distal spine "*Tethorchestia*"

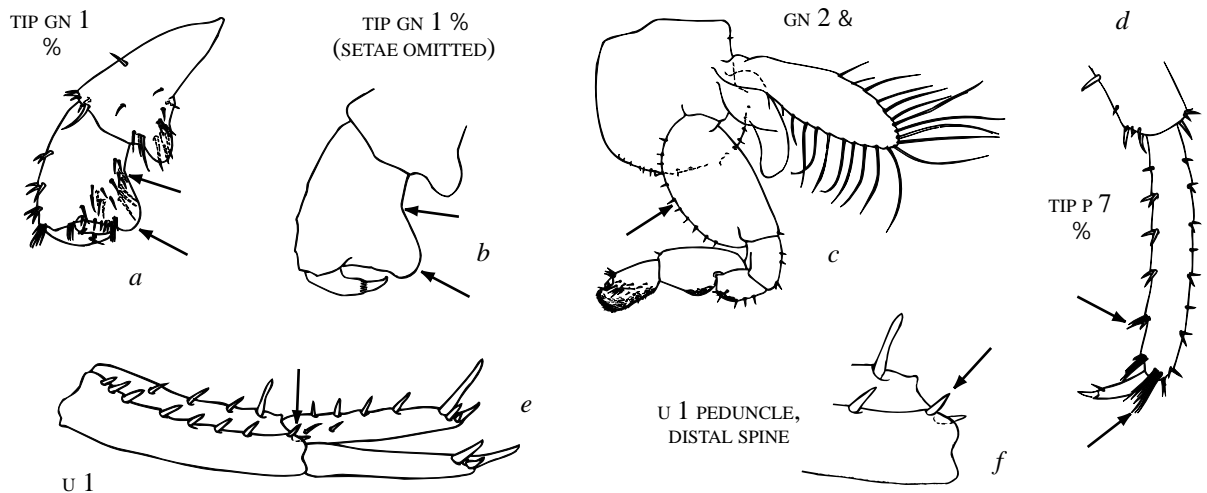


Figure 590.

6. < Gnathopod 1 of female, palm well-developed, dactyl not extending beyond palmar angle when closed; gnathopod 2 of male, palm and dactyl extending at least three-fourths length of propodus; gnathopod 2 of female, basis subrectangular, anterior margin unexpanded or slightly expanded proximally, narrowing distally; uropod 1, peduncle with well-developed dorsolateral distal spine *Uhlorchestia*

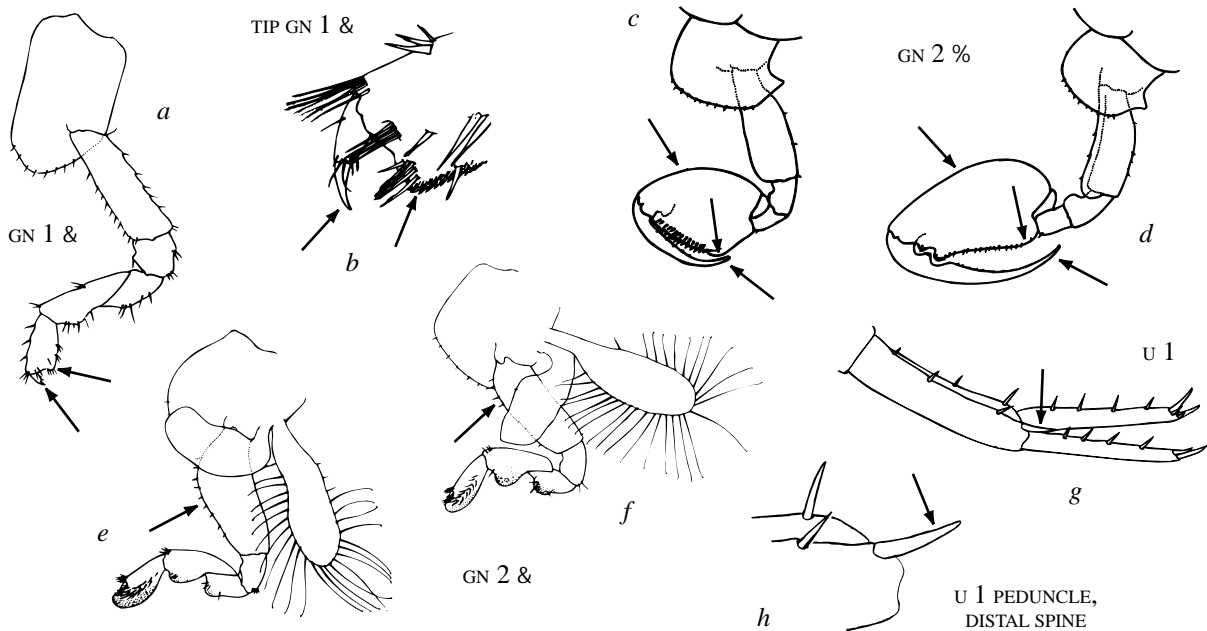


Figure 591.

- < Gnathopod 1 of female, palm poorly developed, dactyl extending well beyond palmar angle when closed; gnathopod 2 of male, palm and dactyl extending one-half length of propodus; gnathopod 2 of female, basis subovate, anterior margin broadly expanded medially; uropod 1, peduncle without well-developed dorsolateral distal spine *Orchestia*

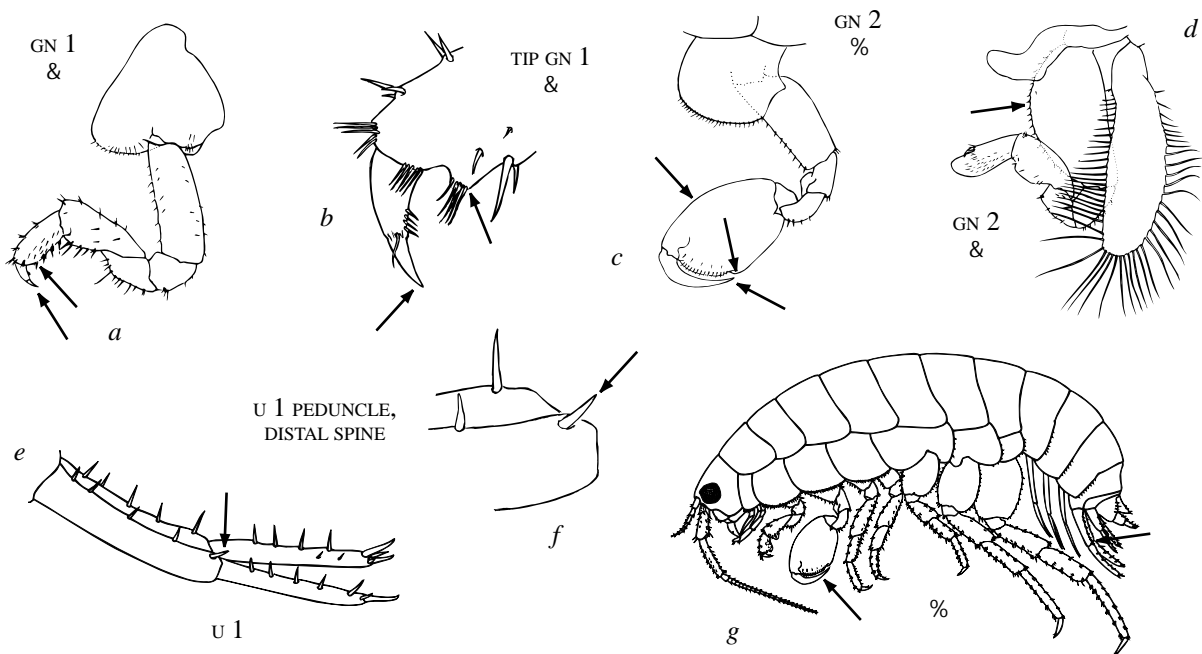


Figure 592.

Genus *Americorchestia* Bousfield, 1991

Regional diagnosis: Antenna 2 of male, peduncle slender, only slightly stouter than that of female, subequal to or shorter than flagellum; coxa 6, posterior lobe with anterodistal margin broadly rounded, unproduced, with short spines; gnathopod 1 of male weakly subchelate, propodus subrectangular, palmar angle subquadrate, posterior margin nearly straight, dactyl greatly exceeding palmar angle; gnathopod 1 of female simple, palm lacking; gnathopod 2 of male subchelate, basis stout, without tubercles on anteroproximal margin, palm and dactyl extending one-half length of propodus; dactyl without tooth on flexor margin; gnathopod 2 of female, basis subovate, broadly expanded medially, anterior margin evenly convex; peraeopod 7 of male, propodus without clusters of long, stiff, slightly medial setae on anterodistal and distal margins; uropod 1, peduncle without well-developed dorsolateral distal spine, outer ramus with marginal spines; uropod 2, outer ramus shorter than inner; uropod 3, peduncle with 3-8 dorsolateral distal spines, ramus elongate, at least twice as long as deep, laterally compressed, not tapering distally, tip rounded; telson distinctly shorter than uropod 3, at most extending slightly beyond distal end of peduncle.

Florida species: *A. heardi*, *A. longicornis*, *A. salomani*

Remarks: A fourth species of *Americorchestia*, *A. barbarae* Bousfield, 1991, occurs along the northern Gulf coast of Texas, but has not been reported from east of the Mississippi River. It is similar to *A. salomani* but has 3 long pairs of spines on the flexor margin of the propodus of peraeopod 5 (2 pairs in *A. salomani*), the propodus is subequal to the carpus in length on peraeopods 6-7 (propodus longer than carpus in *A. salomani*), epimeron 1 lacks spines on the anteroventral margin (spines present in *A. salomani*) and the ramus of uropod 3 has 3-4 subapical dorsal spines (6+ spines in *A. salomani*). In addition, the distal flagellar articles on antenna 2 in adult males lack the small, distoventral tooth that is present in males of *A. salomani*. *Americorchestia magalophthalma* (Bate, 1862), a northeastern species that sometimes occurs as far south as Georgia, is also similar to *A. salomani* but has acuminate spines on the flexor margin of the carpus of peraeopod 5 (blunt-tipped spines in *A. salomani*) and the marginal spines on the outer ramus of uropod 1 are twice the width of the ramus (subequal to the width of the ramus in *A. salomani*). Additionally, *A. megalophthalma* has a broadly rounded tip on the ramus of uropod 3 (narrowly rounded in *A. salomani*) and the ventral margin of the ramus of uropod 3 has spines (spines absent in *A. salomani*). In juveniles and small subadults of *Americorchestia*, the outer ramus of uropod 2 may be subequal to the inner ramus in length. However, the characteristic shape of the ramus of uropod 3, with its rounded tip, will serve to distinguish these individuals from those of other regional genera.

KEY TO FLORIDA SPECIES OF *AMERICORCHESTIA*

1. < Head, lateral and anterior margins nearly straight in dorsal view, front subquadrate, eyes medium; coxa 5, posterior lobe, posterior margin lined with short spines; gnathopod 2 of male, palmar angle slightly produced, with low, rounded process; peraeopod 5, carpus with spines on flexor margin acuminate, propodus distinctly longer than carpus; uropod 2, outer ramus without spines on inner margin; uropod 3, ramus with spines on ventral margin 2

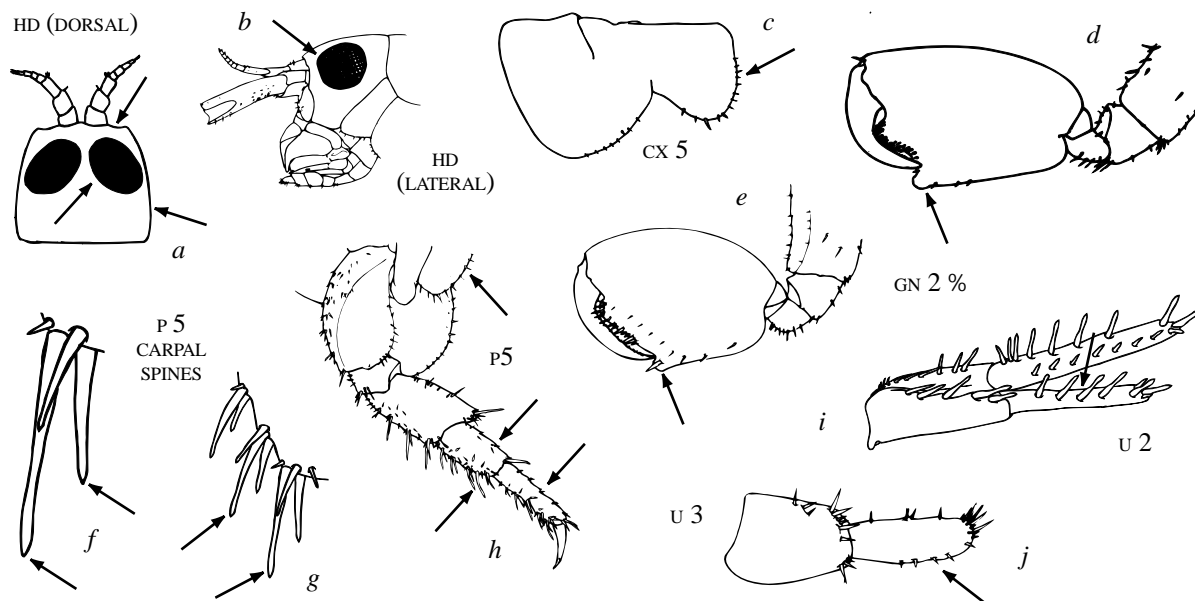


Figure 593.

- < Head, lateral and anterior margins convex in dorsal view, front broadly rounded, eyes large; coxa 5, posterior lobe, posterior margin entire, without spines; gnathopod 2 of male, palmar angle unproduced, without process; peraeopod 5, carpus with spines on flexor margin blunt-tipped, propodus shorter than carpus; uropod 2, outer ramus with spines on inner margin; uropod 3, ramus without spines on ventral margin *Americorchestia salomani*

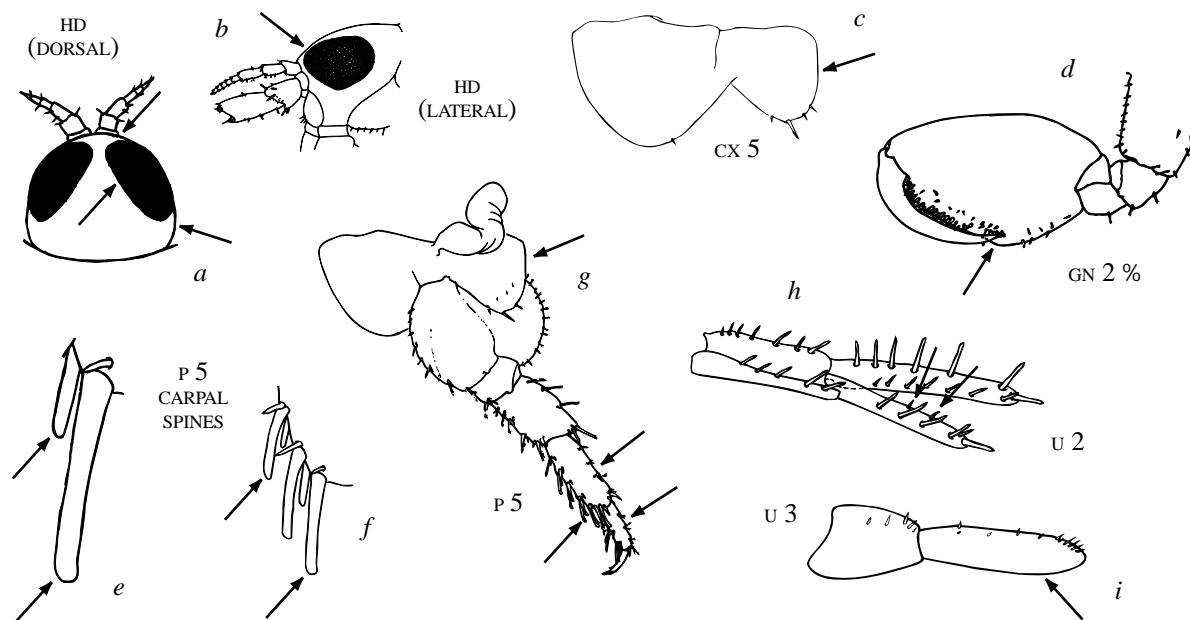


Figure 594.

2. < Antenna 2 of adult male, flagellum slightly shorter than peduncle; gnathopod 2 of male, palmar margin flattened, lateral submarginal spines stout; coxa 5, posterior lobe, anteroventral angle with 1 spine distinctly larger than adjacent marginal spines; urosome segment 3 with 0-1 spines on dorsal margin; uropod 2, marginal spines on outer ramus less than one and one-half times width of ramus *Americorchestia heardi*

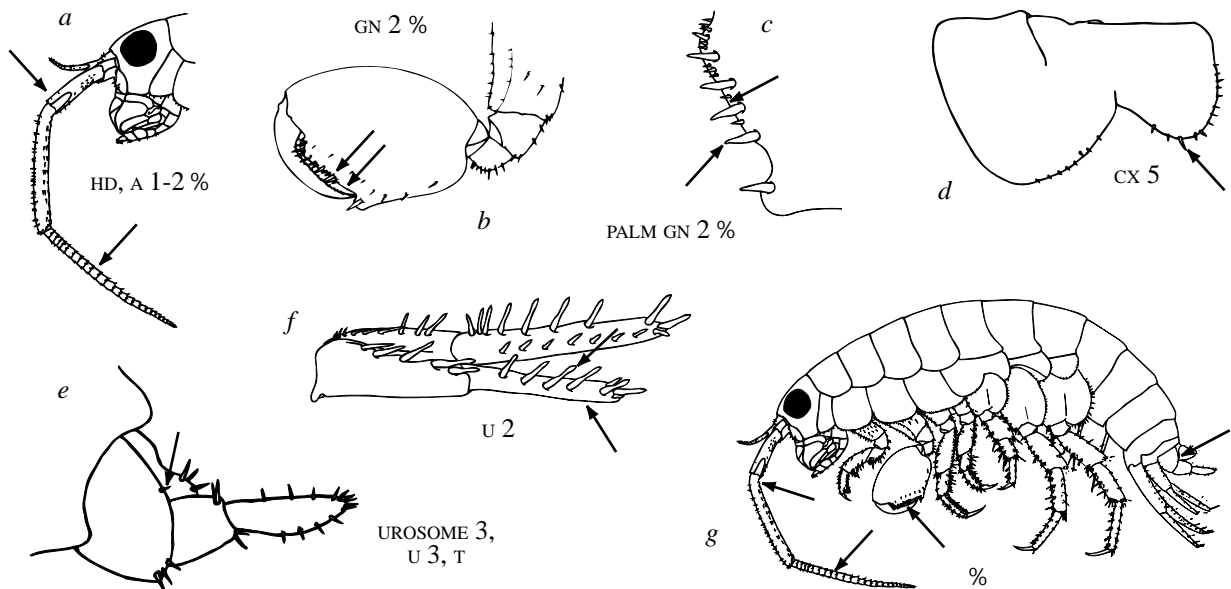


Figure 595.

- < Antenna 2 of adult male, flagellum longer than peduncle; gnathopod 2 of male, palmar margin convex (subadult) or sinuous (adult), lateral submarginal spines slender; coxa 5, posterior lobe, anteroventral angle with 2-3 spines distinctly larger than adjacent marginal spines; urosome segment 3 with 2-6 spines on dorsal margin; uropod 2, marginal spines on outer ramus at least twice width of ramus *Americorchestia longicornis*

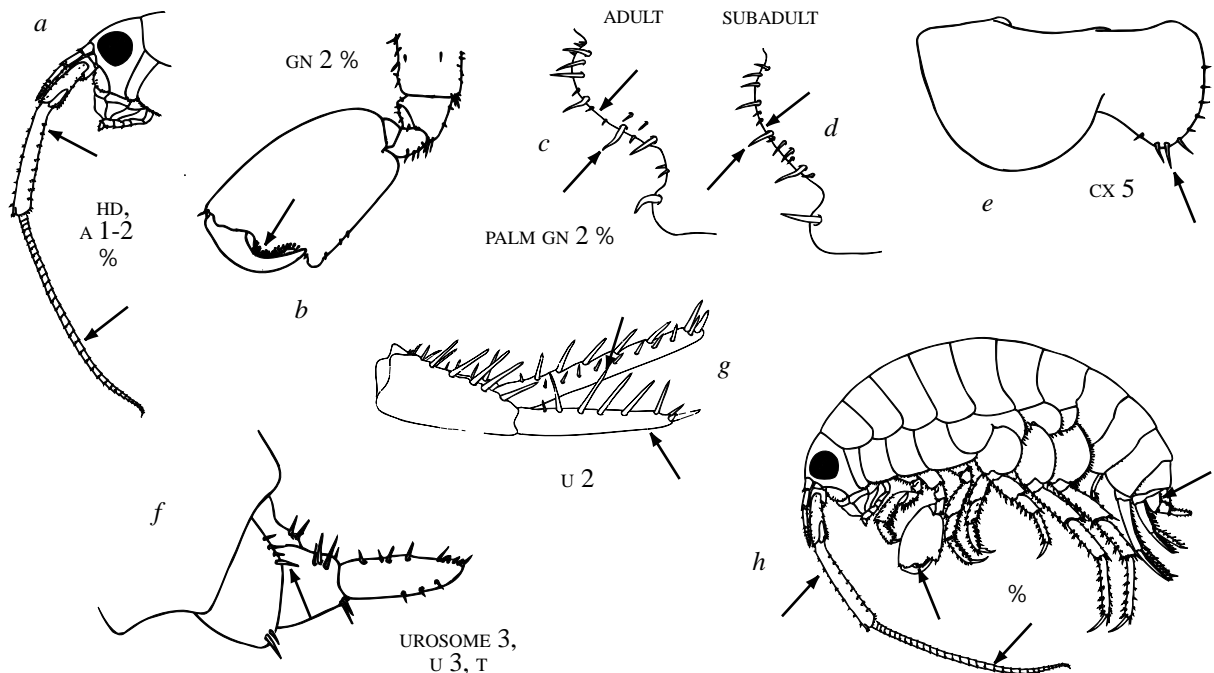


Figure 596.

***Americorchestia heardi* Bousfield, 1991**
(Figure 595)

Talorchestia sp.: Bousfield, 1970, pp. 150-151 (in part).

Americorchestia heardi Bousfield, 1991, pp. 280 and 282, figs. 5-6.

Regional diagnosis: Antenna 2 of adult male, flagellum slightly shorter than peduncle; head, lateral and anterior margins nearly straight in dorsal view, front subquadrate; eyes medium; coxa 5, posterior lobe, posterior margin lined with short spines, anteroventral angle with 1 spine distinctly larger than adjacent marginal spines; gnathopod 2 of male, palmar margin flattened, lateral submarginal spines stout, palmar angle slightly produced, with low, rounded process; peraeopod 5, carpus with spines on flexor margin acuminate, propodus distinctly longer than carpus; urosome segment 3 with 0-1 spines on dorsal margin; uropod 2, outer ramus without spines on inner margin, spines on outer margin less than one and one-half times width of ramus; uropod 3, ramus with spines on ventral margin.

Distribution: Cedar Key, Florida to Horn Island, Mississippi and Louisiana east of the Mississippi Delta (Bousfield, 1991).

Ecology: Supralittoral. This species is associated with lower salinities and occurs along the high water drift line of surf-protected beaches in fine, often somewhat muddy or silty, sand. It feeds nocturnally on decaying algae, seagrass and other plant material occurring in the wrack line and sometimes co-occurs with *Platorchestia*.

Remarks: *Americorchestia heardi* is very similar to *A. longicornis* from the east coast of the United States and the two species may be difficult to distinguish, particularly at the subadult and juvenile stages. Adult males of *A. heardi* may be readily separated from those of *A. longicornis* by the shape of the palm of gnathopod 2, which is flattened and bears a row of relatively stout lateral submarginal spines (palm sinuous, with a row of relatively slender lateral submarginal spines in *A. longicornis*). Both males and females of the two species differ in the spination of the anteroventral margin of the posterior lobe of coxa 5 (with 1 enlarged spine in *A. heardi* vs. 2-3 enlarged spines in *A. longicornis*), the number of spines on the dorsal margin of urosome segment 3 adjacent to the base of the telson (0-1 spines in *A. heardi* vs. 2-6 spines in *A. longicornis*) and the length of the spines on the outer ramus of uropod 2 (no more than one and one-half times the width of the ramus in *A. heardi* vs. at least twice the width of the ramus in *A. longicornis*). Subadults of *A. longicornis* will usually have at least 2 large spines on the anteroventral angle of the posterior lobe of coxa 5 compared to 0-1 large spines in *A. heardi*; however unlike adults, they may lack spines on the dorsal margin of urosome segment 3 and the spines on the outer ramus of uropod 2 are shorter, resembling those of *A. heardi*. Small subadults and juveniles of the two species are best distinguished by their association with adults.

The geographic distributions of *A. heardi* and *A. longicornis* have thus far not been found to overlap, with Florida populations of *A. heardi* restricted to the northwest part of the state and those of *A. longicornis* occurring only in northeast Florida. Although records of *A. heardi* exist from as far east as Cedar Key, the protected sand beaches of the Mississippi delta and the Florida panhandle are the primary habitat. The color in life is white with pale tan or brown dorsal markings on the peraeon and pleon, and similar spots on the coxae. Adult sizes for this species range from 11 to 16 mm.

See Bousfield, 1991.

***Americorchestia longicornis* (Say, 1818)**
(Figure 596)

Talitrus longicornis Say, 1818, p. 384.

Orchestia longicornis: Milne-Edwards, 1830, p. 361.

Talorchestia longicornis: Smith, 1873, p. 556.

Talorchestia sp.: Bousfield, 1970a, pp. 150-151 (in part).

Americorchestia longicornis: Bousfield, 1991, p. 282, fig. 7.

Regional diagnosis: Antenna 2 of adult male, flagellum longer than peduncle; head, lateral and anterior margins nearly straight in dorsal view, front subquadrate; eyes medium; coxa 5, posterior lobe, posterior margin lined with short spines, anteroventral angle with 2-4 spines distinctly larger than adjacent marginal spines; gnathopod 2 of male, palmar margin convex (subadult) or sinuous (adult), lateral submarginal spines slender, palmar angle slightly produced, with low, rounded process; pereopod 5, carpus with spines on flexor margin acuminate, propodus distinctly longer than carpus; urosome segment 3 with 2-6 spines on dorsal margin; uropod 2, outer ramus without spines on inner margin, spines on outer margin at least twice width of ramus; uropod 3, ramus with spines on ventral margin.

Distribution: Newfoundland, Canada, south to north Florida (Bousfield, 1973).

Ecology: Supralittoral. *Americorchestia longicornis* occurs in burrows on protected, fine sand beaches at or slightly above the high tide line, often under wood or other debris. As is true for other species of *Americorchestia*, it is mainly nocturnal, feeding on accumulated algae and other vegetation that washes into the beach. This species is strongly attracted to light and will congregate in large numbers around a light placed on the beach at night (Holmes, 1905; Kunkel, 1918).

Remarks: To date, *A. longicornis* is the only species of *Americorchestia* reported from the east coast of Florida; however, it is morphologically very close to *A. heardi* from the northeastern Gulf coast and the color in life for both species (white with pale tan or brown markings on the pereon, pleon and coxae) is quite similar as well. See the Remarks section for *A. heardi* for a comparison of the two species.

Americorchestia longicornis is a very large species, with specimens from New England beaches ranging from 19 to 27 mm. Although no Florida material was available for this study, individuals in more southern populations of many species are somewhat smaller than their northern counterparts and that may be the case for *A. longicornis* as well.

See Holmes, 1905 (as *Talorchestia longicornis*); Kunkel, 1918 (as *Talorchestia longicornis*); Bousfield, 1973 (as *Talorchestia longicornis*); 1991.

***Americorchestia salomani* Bousfield, 1991**
(Figure 594)

Talorchestia sp.: Bousfield, 1970a, pp. 150-151 (in part).

Americorchestia salomani Bousfield, 1991, pp. 273-276 and 278, figs. 1-2.

Regional diagnosis: Antenna 2 of adult male, flagellum longer than peduncle; head, lateral and anterior margins convex in dorsal view, front broadly rounded; eyes large; coxa 5, posterior lobe, posterior margin entire, without spines, anteroventral angle with 1 spine distinctly larger than adjacent marginal spines; gnathopod 2 of male, palmar margin flattened, lateral submarginal spines stout, palmar angle unproduced, without process; peraeopod 5, carpus with spines on flexor margin blunt-tipped, propodus shorter than carpus; urosome segment 3 without spines on dorsal margin; uropod 2, outer ramus with spines on inner margin, spines on outer margin less than one and one-half times width of ramus; uropod 3, ramus without spines on ventral margin.

Distribution: Appalachicola, Florida to the barrier islands of the Mississippi Delta (Bousfield, 1991).

Ecology: Supralittoral. *Americorchestia salomani* occurs on surf-exposed sand beaches at or near the high water level. During the day, this species is usually found just below the surface in shallow burrows; at night, however, it can often be observed hopping on the surface of the sand. Like other species of *Americorchestia*, *A. salomani* feeds mainly on dead algae and other plant material found in the drift line.

Remarks: *Americorchestia salomani* is most easily distinguished from its Florida congeners by the lack of spines on the posterior margin of the posterior lobe of coxa 5 (spines present in *A. heardi* and *A. longicornis*), having the propodus of peraeopod 5 distinctly shorter than the carpus (longer than the carpus in *A. heardi* and *A. longicornis*) and by the lack of spines on the ventral margin of the ramus of uropod 3 (spines present in *A. heardi* and *A. longicornis*). These differences are evident in subadults and juveniles as well as in adults. Live specimens are completely white or pale translucent grey, without any sort of markings. *Americorchestia salomani* is very common in the St. Andrew and St. Joseph Bay regions (J. Foster, pers. comm.) and also in the Destin area and on Horn Island, Mississippi (pers. obs.). Adult sizes range from 13 to 19 mm.

See Bousfield, 1991.

Genus *Chelorchestia* Bousfield, 1984

Regional diagnosis: Antenna 2 of male, peduncle slender, similar to that of female, slightly longer than flagellum; coxa 6, posterior lobe with anterodistal margin broadly rounded, unproduced, without spines; gnathopod 1 of male subchelate, propodus narrowly subtriangular, palmar angle rounded, posterior margin nearly straight, dactyl much shorter than palm, not reaching palmar angle; gnathopod 1 of female weakly subchelate, dactyl extending beyond palmar angle when closed; gnathopod 2 of male chelate, basis slender, with 1-3 tubercles on anteroproximal margin, palm and dactyl less than one-half to one-half length of propodus, dactyl with tooth on flexor margin; gnathopod 2 of female, basis sublinear, unexpanded, anterior margin straight; pereopod 7 of male, propodus without clusters of long, stiff, slightly medial setae on anterodistal and distal margins; uropod 1, peduncle with well-developed dorsolateral distal spine, outer ramus without marginal spines; uropod 2, outer ramus subequal to inner in length; uropod 3, peduncle with 1 dorsolateral distal spine, ramus stout, slightly longer than deep, cylindrical, not laterally compressed, tapering distally, tip subacute; telson subequal to uropod 3 in length, extending well beyond distal end of peduncle.

Florida species: *C. forceps*

Remarks: A second, undescribed form of *Chelorchestia* (*Chelorchestia* sp. B of Bousfield [1984]) has been reported to occur in high salinity mangrove areas in the Indian River Lagoon (Bousfield, 1984; Smith and Heard, 2001). No material of this species was available for examination during the preparation of this guide; however, Smith and Heard (2001) state that it differs from *C. forceps* in having 15 or more articles in the flagellum of antenna 2 (12 articles present in *C. forceps*) and by having low tubercles or shallow lobes extending almost to the anterodorsal margin of the basis of gnathopod 2 in the male (1-3 small proximal tubercles only in *C. forceps*). However, some characters overlap with those of *C. forceps* and the examination of additional material will be necessary to determine the status of Bousfield's (1984) form (Smith and Heard, 2001).

Chelorchestia forceps Smith and Heard, 2001 (Figure 585)

Orchestia cf. *costaricana*: Thomas, 1976, pp. 94-95.

Orchestia sp. (nr *O. costaricana*): Heard, 1982, pp. 42-43, fig. 48.

Chelorchestia sp. A: Bousfield, 1984

Chelorchestia forceps Smith and Heard, 2001, pp. 1032-1038, figs. 1-50.

Regional diagnosis: That of the genus.

Distribution: Gulf coast from the Florida Keys to North Padre Island, Texas (Smith and Heard, 2001).

Ecology: Supralittoral. This species occurs in fresh to low salinity *Spartina* and *Juncus* marshes (Smith and Heard, 2001) and has been found in muskrat burrows in Louisiana marshes (Thomas, 1976).

Remarks: *Chelorchestia forceps* is a highly variable species both individually and ontogenetically. The males in particular exhibit a large amount of variation in the morphology of the propodus of gnathopod 2, which changes during the developmental process from the small mitten-shaped propodus found in females and juveniles to the large, nearly chelate form found in terminal males. Smith and Heard (2001) illustrate and present a detailed discussion of this variation and the resulting taxonomic issues. Adult size ranges from 7 to 8.5 mm.

See Thomas, 1976 (as *O. cf costaricana*); Heard, 1982 (as *Orchestia* sp. nr *O. costaricana*); Bousfield, 1984 (as *Chelorchestia* sp. A); Smith and Heard, 2001.

Genus *Orchestia* Leach, 1814

Regional diagnosis: Antenna 2 of male, peduncle slender, similar to that of female, distinctly shorter than flagellum; coxa 6, posterior lobe with anterodistal margin broadly rounded, unproduced, without spines; gnathopod 1 of male subchelate, propodus narrowly subtriangular, palmar angle expanded to form slender lobe, posterior margin concave, dactyl subequal to palm in length; gnathopod 1 of female weakly subchelate, palm poorly developed, dactyl extending well beyond palmar angle when closed; gnathopod 2 of male subchelate, basis stout, without tubercles on anteroproximal margin, palm and dactyl extending one-half length of propodus, dactyl without tooth on flexor margin; gnathopod 2 of female, basis subovate, broadly expanded medially, anterior margin evenly convex; pereopod 7 of male, propodus without clusters of long, stiff, slightly medial setae on anterodistal and distal margins; uropod 1, peduncle without well-developed dorsolateral distal spine, outer ramus with marginal spines; uropod 2, outer ramus subequal to inner in length; uropod 3, peduncle with 3-4 dorsolateral distal spines, ramus elongate, at least twice as long as deep, cylindrical, not laterally compressed, tapering distally, tip subacute; telson distinctly shorter than uropod 3, at most extending slightly beyond distal end of peduncle.

Florida species: *O. grillus*

Remarks: Recent genetic and morphological work indicates that *O. grillus* may actually belong to a different genus than does the type species of *Orchestia*, *O. gamarellus* (A. Radulovici and D. Wildish, pers. com.) If this proves to be the case, then a new genus would have to be established to contain *O. grillus*.

Orchestia grillus (Bosc, 1802) (Figure 592)

Talitrus grillus Bosc, 1802, p.152, pl. 15, figs. 1-2 (as *Thalitre terrestre* on the plate).

Orchestia gryllus: Gould, 1841, p. 334.

Orchestia palustris Smith, 1873, p. 555.

Orchestia grillus: Stebbing, 1906, p. 540.

Regional diagnosis: That of the genus.

Distribution: Western Newfoundland and southern Canada south to northeast Florida (Bousfield, 1973); Gulf of Mexico from northwest Florida to south Texas (Bousfield, 1973; Heard, 1982; pers. obs.).

Ecology: Supralittoral. *Orchestia grillus* is a euryhaline species found in tidal marshes, where it occurs in both the intertidal and supratidal zones. It can be found among *Spartina* roots, under debris, driftwood, dead marsh grass and leaf litter and occasionally under gravel or shell on protected shores (Bousfield, 1973; Heard, 1982). It is a scavenger on decaying plant and animal matter and is eaten in turn by a number of shorebird species (Heard, 1982).

Remarks: *Orchestia grillus* has a distinctive pattern of dark brown or grey longitudinal dorsal stripes that are especially evident in fresh, formalin-preserved material, but fade rapidly in alcohol. In addition to being among the largest of the Gulf coast talitrids (species of *Americorchestia* are equally large, however), *O. grillus* is also one of the largest of all of the nearshore amphipods found in the region, with adult sizes reaching 20 mm for males and 16 mm for females. In addition to its large size and distinctive pigmentation pattern, *O. grillus* is readily recognized by a combination of the lack of a well-developed dorsolateral distal spine on the peduncle of uropod 1, the presence of marginal spines on the outer ramus of uropod 1 and the subequal rami of uropod 2.

See Bousfield, 1973; Thomas, 1976; Heard, 1982.

Genus *Platorchestia* Bousfield, 1982

Regional diagnosis: Antenna 2 of male, peduncle enlarged, much stouter than that of female, distinctly longer than flagellum; coxa 6, posterior lobe with anterodistal margin subquadrate, often slightly produced, without spines; gnathopod 1 of male subchelate, propodus narrowly subtriangular, palmar angle expanded to form slender lobe, posterior margin concave, dactyl not exceeding palmar angle; gnathopod 1 of female weakly subchelate, palm poorly developed, dactyl extending well beyond palmar angle when closed; gnathopod 2 of male subchelate, basis stout, without tubercles on anteroproximal margin, palm and dactyl extending one-half length of propodus, dactyl without tooth on flexor margin; gnathopod 2 of female, basis inverted pyriform, expanded proximally, anterior margin narrowing distally; peraeopod 7 of male, propodus without clusters of long, stiff, slightly medial setae on anterodistal and distal margins; uropod 1, peduncle without well-developed dorsolateral distal spine, outer ramus without marginal spines; uropod 2, outer ramus subequal to inner in length; uropod 3, peduncle with 2-3 dorsolateral distal spines, ramus elongate, at least twice as long as deep, cylindrical, not laterally compressed, tapering distally, tip subacute; telson distinctly shorter than uropod 3, only extending to distal end of peduncle.

Florida species: *P. cf monodi*, *P. cf platensis*

Remarks: The genus *Platorchestia* consists of only 16 described species worldwide (Serejo and Lowry, 2008) and two of these, *P. platensis* and *P. monodi*, have been reported from Florida waters (Bousfield, 1973; Heard, 1982; Garcés and Marsh, 1991; Stock and Biernbaum, 1994, as *P. platensis* forma *monodi*). The former species has a nearly cosmopolitan distribution, whereas the latter is known from the mid-Atlantic Islands, Brazil, Guadeloupe, Florida, South Carolina and Israel (Serejo, 2004; Serejo and Lowry, 2008). These two species are extremely close morphologically and developmental differences in morphology often mask specific differences, especially in subadults and juveniles. An additional complication is that *P. platensis* may actually represent a species complex and there may be additional undescribed species reported in the literature as that species (Serejo and Lowry, 2008). Although adult males of *P. platensis* are readily distinguished from adult males of *P. monodi* based upon the presence of an incrassate peraeopod 7 in the former species and adult females usually differ based upon the setation of oostegite 5 (fewer setae on the posterior margin than on the anterior margin in *P. platensis*; similar numbers of setae on anterior and posterior margins in *P. monodi*), subadults and juveniles appear to be virtually identical. They are quite variable morphologically and the range of developmental variation occurring within populations frequently encompasses many of the morphologies that have previously been considered to be distinct at the species level.

None of the hundreds of male specimens from Florida that were examined in the preparation of this guide were found to have the incrassate peraeopod 7 of the adult male *P. platensis*, although in a few of the largest the carpus was very slightly enlarged. Some specimens have the elongated dactyl of gnathopod 2 that has been considered characteristic of *P. monodi* and some have the double notch in the palm of gnathopod 2 that has been reported for *P. platensis* (Stock and Biernbaum, 1994). Others have a normal dactyl and a sinuous palm or single palmar notch. In addition, some specimens have the produced anteroventral angle of the posterior lobe of coxa 6 ascribed to *P. platensis*, while other specimens have an unproduced, subquadrate anteroventral angle more similar to that of *P. monodi*; this morphology appears to be unrelated to size or developmental stage, although smaller specimens are somewhat less likely to have a produced anteroventral angle. The material agrees fairly well with the description of *P. monodi* from Brazil by Serejo (2004) and it seems likely that material from Florida will prove to be referable to this species. However, because *P. platensis* has often been reported from Florida and because the exact extent of its distribution along the east coast of the United States is unclear, both species are included herein. A direct comparison of a good series of specimens from the type localities of the two species with material from other areas, as well as possible genetic studies, will be necessary to clarify the status and distribution of each. Preliminary genetic work does indicate a difference between northeastern U.S. and Canadian material and eastern Gulf of Mexico material (A. Radulovici, pers. com.)

KEY TO FLORIDA SPECIES OF *PLATORCHESTIA*

1. < Peraeopod 7 of adult male not incrassate, carpus subrectangular; oostegite 5 of female, anterior and posterior margins with similar numbers of setae *Platorchestia* cf *monodi*

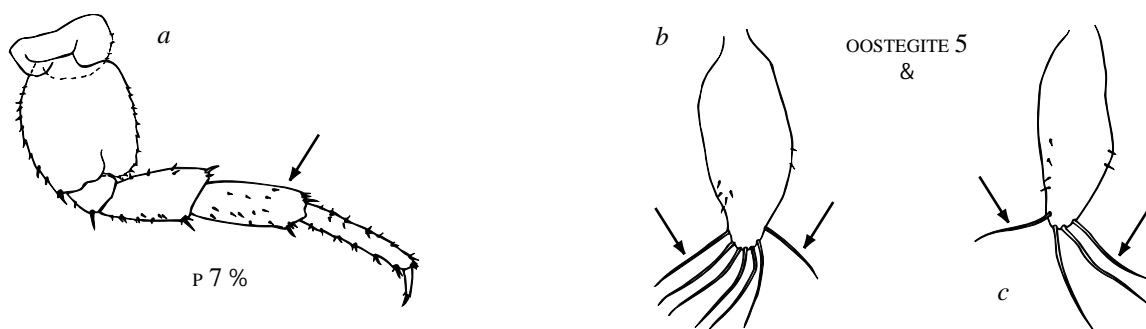


Figure 597.

- < Peraeopod 7 of adult male incrassate, carpus subovate; oostegite 5 of female, posterior margin with fewer setae than anterior margin *Platorchestia* cf *platensis*

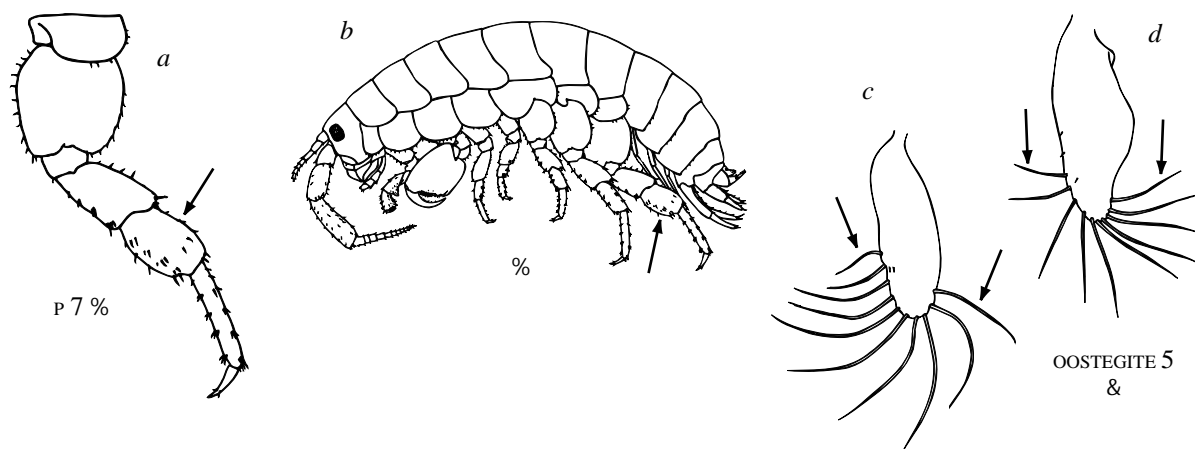


Figure 598.

***Platorchestia cf monodi* (Mateus, Mateus and Afonso, 1986)
(Figure 597)**

Orchestia monodi Mateus, Mateus and Afonso, 1986, pp. 100-110, figs. 1-7.

Platorchestia platensis forma *monodi*: Stock and Biernbaum, 1994, pp. 796-800, fig. 1.

Platorchestia monodi: Morino and Ortal, 1995, pp. 825-829, figs. 1-3.

Regional diagnosis: Oostegite 5 of adult female, anterior and posterior margins with similar numbers of setae; peraeopod 7 of adult male not incrassate, carpus subrectangular.

Distribution: Mid-Atlantic Islands (Azores, Ascension, Madeira) (Mateus et al., 1986; Stock and Biernbaum, 1994; Stock, 1996; Stock and Abreu, 1992); Guadeloupe (Ciavatti, 1989); Brazil (Serejo, 2004; Serejo and Lowry, 2008); Florida, South Carolina (Stock and Biernbaum, 1994); and Israel (Morino and Ortal, 1995).

Ecology: Supralittoral. *Platorchestia cf monodi* occurs under beach wrack (seagrass and marsh grass) and wood, in firm mud, sand or shell hash mixed with sand, under mangrove leaf litter and in detritus among rocks at or above the high tide line. Although it is usually found near water at a broad range of salinities (0 to 35 ppt), it has also been reported from fully terrestrial environments (Stock and Biernbaum, 1994). It is often quite abundant and large numbers of individuals will leap about frantically when their cover is disturbed. In addition to serving as prey for a variety of shorebirds (Heard, 1982, as *Orchestia platensis*), this species is also regularly eaten by earwigs (*Labiduria riparia*) in South Florida (Garcés and Marsh, 1991), as well as by juvenile blue crabs (*Callinectes sapidus*) in the St. Johns River (Tagatz, 1968, as *Talorchestia* sp.) Additional ecological information for this species is presented in an extensive study of its ecology at Lake Wyman, near Boca Raton, Florida, by Garcés and Marsh (1991, as *P. platensis*).

Remarks: *Platorchestia cf monodi* is a very variable species, as is its congener, *P. cf platensis*. The two species overlap morphologically to a large degree and can be very difficult to separate, especially as juveniles or subadults (see discussion under the Remarks section for the genus.) Very large adult males are fairly easy to distinguish, but they are much less common in most populations than are smaller individuals and are not always collected. Based on the morphology of peraeopod 7, all of the fully adult males from Florida examined during the preparation of this guide exhibited the *P. monodi* morphology; however it is certainly possible that *P. platensis* occurs here as well.

Platorchestia cf monodi is often collected with specimens of “*Tethorchestia*” sp. B, especially in habitats adjacent to waters of intermediate salinities. Adult specimens of the two species can be easily separated by the morphology of the male antenna 2 (incrassate in *P. cf monodi*; slender in “*Tethorchestia*” sp. B), the propodus of the male peraeopod 7 (without distal setal tufts in *P. cf monodi*; with setal tufts in “*Tethorchestia*” sp. B), and by the shape of the basis of gnathopod 2 in the female (inverted pyriform, narrowing distally in *P. cf monodi*; subovate, evenly expanded anteriorly in “*Tethorchestia*” species B). *Platorchestia cf monodi* and “*Tethorchestia*” sp. B also have distinctive color patterns that can be useful in separating them. The former species is a dark slate grey in life, but has very diffuse diagonal and vertical bands when preserved in formalin (these fade rapidly in alcohol); the latter has a grey, brown or brownish-orange and cream checker-back pattern in life that is usually retained as a strong reddish pattern in formalin, also fading in alcohol, but somewhat more slowly. Specimens of all sizes and stages, even very small juveniles, can be separated by the morphology of coxa 6, which has a subquadrate, often slightly produced, anteroventral angle on the posterior lobe in *P. cf monodi* and a rounded anteroventral angle on the posterior lobe in “*Tethorchestia*” sp. B.

Platorchestia cf monodi is a medium-sized species, with adult sizes ranging from 8 to 12 mm. The eggs carried by ovigerous females are dark violet in color when first placed in the brood pouch, fading as they develop. The spines on the peraeopods, especially those on the propodus, are longer in females and subadult males than in adult males. Note that Figure 49 in Heard (1982) was redrawn from Bousfield (1973) and represents New England material of *P. platensis* rather than *P. cf monodi*.

See Heard, 1982 (as *O. platensis*); Mateus, Mateus and Afonso, 1986 (as *Orchestia monodi*); Ciavatti, 1989 (as *P. platensis*); Stock and Abreu, 1992 (as *P. platensis*); Stock and Biernbaum, 1994 (as *P. platensis* forma *monodi*); Morino and Ortal, 1995; Stock, 1996; Serejo, 2004.

***Platorchestia* cf *platensis* (Krøyer, 1845)**

(Figure 598)

Orchestia platensis Krøyer, 1845, p. 304.

Orchestia agilis Smith, 1873, p. 555, pl.4, fig. 14.

Platorchestia platensis: Bousfield, 1982a, pp. 26-27, fig. 11

Regional diagnosis: Oostegite 5 of adult female, posterior margin with fewer setae than anterior margin; peraeopod 7 of adult male incrassate, carpus subovate.

Distribution: Nearly cosmopolitan on tropical and temperate shores, occurring in the Atlantic, western Pacific and Mediterranean, but not yet found in the eastern Pacific (Bousfield, 1982a; Serejo, 2004).

Ecology: Supralittoral. *Platorchestia* cf *platensis* is very common under beach wrack and decomposing vegetation at or just above the high tide line and is often present in extremely large numbers. It occurs in a variety of habitats, ranging from rocky shores to sandy or muddy beaches and salt marshes. This species is an omnivore, feeding on fresh and decomposing leaf tissue, detritus and algae, as well as on live oligochaetes, *Limulus* eggs and diatoms (Behbehani and Croker, 1982). In turn, it is important in the diet of many bird species (Dawn, 1957; Heard, 1982, as *O. platensis*) and is also eaten by green crabs (*Carcinus maenas*), wolf spiders (Lycosidae) and earwigs (*Anisolabis maritima*) in the northeastern United States (Behbehani, 1978; Behbehani and Croker, 1982, as *O. platensis*).

Remarks: Although *P. platensis* has frequently been reported from Florida, no material was found that could definitely be assigned to this species during the examination of specimens for the preparation of this guide. In particular, no adult males were encountered that had the diagnostic incrassate carpus on peraeopod 7 and material from Florida was identified as *P. cf monodi*. See the Remarks sections for the genus *Platorchestia* and for *P. cf monodi* for a comparison of the two species and a discussion of the problems associated with their identification.

Platorchestia cf *platensis* is a small to medium sized talitrid, with lengths ranging from 7-16 mm in males and 7.5-11 mm in females. As mentioned previously, it should be noted that Figure 49 in Heard (1982) was redrawn from Bousfield (1973) and represents New England material of *P. platensis* rather than Gulf coast material of *P. cf monodi*.

See Bousfield, 1973 (as *Orchestia platensis*), 1982a; Behbehani and Croker, 1982 (as *O. platensis*); Serejo, 2004; Serejo and Lowry, 2008.

Genus “*Tethorchestia*”

Regional diagnosis: Antenna 2 of male, peduncle slender, only slightly stouter than that of female, subequal to or shorter than flagellum; coxa 6, posterior lobe with anterodistal margin broadly rounded, unproduced, with short spines; gnathopod 1 of male subchelate, propodus broadly subtriangular, palmar angle expanded to form slender lobe, posterior margin concave, dactyl not exceeding palmar angle; gnathopod 1 of female weakly subchelate, palm poorly developed, dactyl extending well beyond palmar angle when closed; gnathopod 2 of male subchelate, basis stout, without tubercles on anteroproximal margin, palm extending one-half length of propodus, dactyl extending two-thirds length of propodus, without tooth on flexor margin; gnathopod 2 of female, basis subovate, expanded medially, anterior margin evenly convex; peraeopod 7 of male, propodus with 2-3 clusters of long, stiff, slightly medial setae on anterodistal and distal margins; uropod 1, peduncle without well-developed dorsolateral distal spine, outer ramus without marginal spines; uropod 2, outer ramus subequal to inner in length; uropod 3, peduncle with 3-6 (usually 4-5) dorso-lateral distal spines, ramus elongate, at least twice as long as deep, cylindrical, not laterally compressed, tapering distally, tip subacute; telson distinctly shorter than uropod 3, not extending beyond distal end of peduncle.

Florida species: “*Tethorchestia*” sp. B

Remarks: Although “*Tethorchestia*” sp. B was originally placed within the genus *Tethorchestia* by Bousfield (1984, as *Tethorchestia* sp. B), based at least in part upon the presence of distal clusters of long, stiff setae on the propodus of peraeopod 7 in the adult male, recent genetic work indicates that it is, in fact, distinct from members of that genus (A. Radulovici, pers. com.). This conclusion is supported by several morphological characters as well, the most distinctive of which are the shape of the basis of gnathopod 2 in the female (expanded anteroproximally in *Tethorchestia*, expanded anteromedially in “*Tethorchestia*”) and the absence of a large dorsolateral distal spine on the peduncle of uropod 1 in “*Tethorchestia*” (spine present in *Tethorchestia*). This latter character in particular has frequently been considered to be of diagnostic value at the generic level within the family Talitridae.

“*Tethorchestia*” sp. B
(Figure 590)

Tethorchestia sp. B: Bousfield, 1984, pp. 204-205.

Regional diagnosis: That of genus.

Distribution: Southeast Florida from Cape Canaveral to the Florida Keys; Gulf coast west to South Padre Island, Texas.

Ecology: Supralittoral. “*Tethorchestia*” sp. B occurs on semi-protected beaches under drifts composed of decaying *Thalassia* and other seagrasses, as well as more terrestrial salt marsh vegetation such as *Spartina*. It may also be found on somewhat more open beaches under *Sargassum* wrack. This species is often present in very large numbers, feeding on decaying plant material and playing an important role in the degradation of seagrass drift and the production of detritus.

Remarks: Subadult males of “*Tethorchestia*” sp. B do not have the distal clusters of stiff setae on the propodus of pereopod 7 that are present in the adult male. Live material has a grey, brown or brownish-orange and cream pattern on the dorsal surface of the peraeon and pleon which persists for a while in formalin, but fades fairly rapidly in alcohol. This distinctive pattern, although somewhat variable in intensity, gave rise to the common name of “checkerback beachflea” (Bousfield, 1984) for the species. Among the Florida coastal talitrid species, “*Tethorchestia*” sp. B most strongly resembles *Platorchestia* cf *monodi*, from which it can readily be distinguished at all stages by the shape of the posterior lobe of coxa 6 (anterodistal margin subquadrate, without spines in *P.* cf *monodi*; rounded, with spines in “*Tethorchestia*” sp. B). In fresh material, the color pattern also serves to distinguish the two species; *P.* cf *monodi* is a uniform slate grey in color. “*Tethorchestia*” sp. B also closely resembles *Tethorchestia antillensis*, but is easily separated from that species by color pattern in fresh material (*T. antillensis* has no dorsal markings) and by the absence of a well-developed, dorsolateral distal spine on the peduncle of uropod 1 (spine present in *T. antillensis*). “*Tethorchestia*” sp. B is a mid-sized talitrid species, with adults ranging from 6 to 11 mm in length. See Bousfield, 1984 (as *Tethorchestia* sp. B).

Genus *Tethorchestia* Bousfield, 1984

Regional diagnosis: Antenna 2 of male, peduncle slender, only slightly stouter than that of female, subequal to or shorter than flagellum; coxa 6, posterior lobe with anterodistal margin broadly rounded, unproduced, with short spines; gnathopod 1 of male subchelate, propodus narrowly subtriangular, palmar angle rounded, posterior margin nearly straight, dactyl not exceeding palmar angle; gnathopod 1 of female weakly subchelate, palm poorly developed, dactyl extending well beyond palmar angle when closed; gnathopod 2 of male subchelate, basis stout, without tubercles on anteroproximal margin, palm extending one-half length of propodus, dactyl extending two-thirds length of propodus, without tooth on flexor margin; gnathopod 2 of female, basis inverted pyriform, expanded proximally, anterior margin narrowing distally; peraeopod 7 of male, propodus with 5-6 clusters of long, stiff, slightly medial setae on anterodistal and distal margins; uropod 1, peduncle with well-developed dorsolateral distal spine, outer ramus without marginal spines; uropod 2, outer ramus subequal to inner in length; uropod 3, peduncle with 3-6 (usually 4-5) dorsolateral distal spines, ramus elongate, at least twice as long as deep, cylindrical, not laterally compressed, tapering distally, tip subacute; telson distinctly shorter than uropod 3, not extending beyond distal end of peduncle.

Florida species: *T. antillensis*

Remarks: According to Bousfield (1984), there are six undescribed species in this genus occurring throughout Florida, the Caribbean and the West Indies. One of these species, referred to in that paper as *Tethorchestia* sp. B from Florida, is included herein as “*Tethorchestia*” sp. B, a member of a new genus that is morphologically and genetically (A. Radulovici, pers. com.) distinct from *Tethorchestia*. A second species, *T. karukerae* Ciavatti, 1989, has been described from Guadeloupe (Ciavatti, 1989) and the remainder remain undescribed. One additional species in the genus, *Tethorchestia palaeorches* Bousfield and Poinar, 1995, is a fossil species described from Oligocene amber deposits in the Dominican Republic (Bousfield and Poinar, 1995).

Tethorchestia antillensis Bousfield, 1984 (Figure 589)

Tethorchestia antillensis Bousfield, 1984, p. 205.

Regional diagnosis: That of genus.

Distribution: ?Bahamas; Florida Keys to Marco Island, Florida; Cuba (Varela et al., 2003); Yucatan (Bousfield, 1984; Bousfield and Poinar, 1995); Guadeloupe and the Lesser Antilles (Ciavatti, 1989).

Ecology: Supralittoral. *Tethorchestia antillensis* occurs in relatively high salinity mangrove habitats, under the leaf litter.

Remarks: Adult males of this species are relatively easily identified by the presence of setal tufts on the distomedial margin of the propodus of peraeopod 7. They can be distinguished from males of “*Tethorchestia*” sp. B, the only other Florida species to possess these tufts, by the presence of a well-developed dorsolateral distal spine on the peduncle of uropod 1 (“*Tethorchestia*” sp. B lacks this spine). Females of the two species can be distinguished by the same uropod character and also by the shape of the basis of gnathopod 2 (inverted pyriform, anterior margin narrowing distally in *T. antillensis*; subovate, anterior margin evenly expanded in “*Tethorchestia*” sp. B). In addition to the morphological differences, live material of *T. antillensis* has virtually no color pattern, unlike “*Tethorchestia*” sp. B, which is strongly patterned (“checkerboard”). Subadult males do not have the stiff setae on the propodus of peraeopod 7, but can be distinguished from those of “*Tethorchestia*” sp. B by the other characters mentioned above. *Tethorchestia antillensis* is a medium to large talitrid species, ranging in length from 10 to 18 mm; males generally attain larger sizes than females in this species.

See Bousfield, 1984; Ciavatti, 1989; Bousfield and Poinar, 1995.

Genus *Uhlorchestia* Bousfield, 1984

Regional diagnosis: Antenna 2 of male, peduncle slender, similar to that of female, subequal to flagellum in length; coxa 6, posterior lobe with anterodistal margin broadly rounded, unproduced, without spines; gnathopod 1 of male subchelate, propodus narrowly subtriangular, palmar angle expanded to form slender lobe, posterior margin concave, dactyl not exceeding palmar angle; gnathopod 1 of female weakly subchelate, palm well-developed, dactyl not extending beyond palmar angle when closed; gnathopod 2 of male subchelate, basis stout, without tubercles on anteroproximal margin, palm and dactyl extending at least three-fourths length of propodus, dactyl with or without tooth on flexor margin; gnathopod 2 of female, basis subrectangular, unexpanded or slightly expanded proximally, anterior margin straight or narrowing distally, pereopod 7 of male, propodus without clusters of long, stiff, slightly medial setae on anterodistal and distal margins; uropod 1, peduncle with well-developed dorsolateral distal spine, outer ramus with marginal spines; uropod 2, outer ramus subequal to inner in length; uropod 3, peduncle with 1-2 dorsolateral distal spines, ramus elongate, at least twice as long as deep, cylindrical, not laterally compressed, tapering distally, tip subacute; telson distinctly shorter than uropod 3, only extending to distal end of peduncle.

Florida species: *U. spartinophila*, *U. uhleri*

Remarks: The genus *Uhlorchestia* occurs only in the marshes of the Atlantic and Gulf coasts of North America (Heard, 1982; Bousfield and Heard, 1986)

KEY TO FLORIDA SPECIES OF *UHLORCHESTIA*

1. < Antenna 1 relatively long, extending to distal end of antenna 2, peduncle article 4; gnathopod 2 of male, palm extending along entire length of propodus, with 2 blunt teeth near dactylar hinge, dactyl elongate, extending nearly to merus, with tooth on flexor margin; gnathopod 2 of female, basis slightly expanded proximally, anterior margin narrowing distally, propodus relatively broad, expanded distally; uropod 3, ramus subequal to peduncle in length, with marginal spines *U. uhleri*

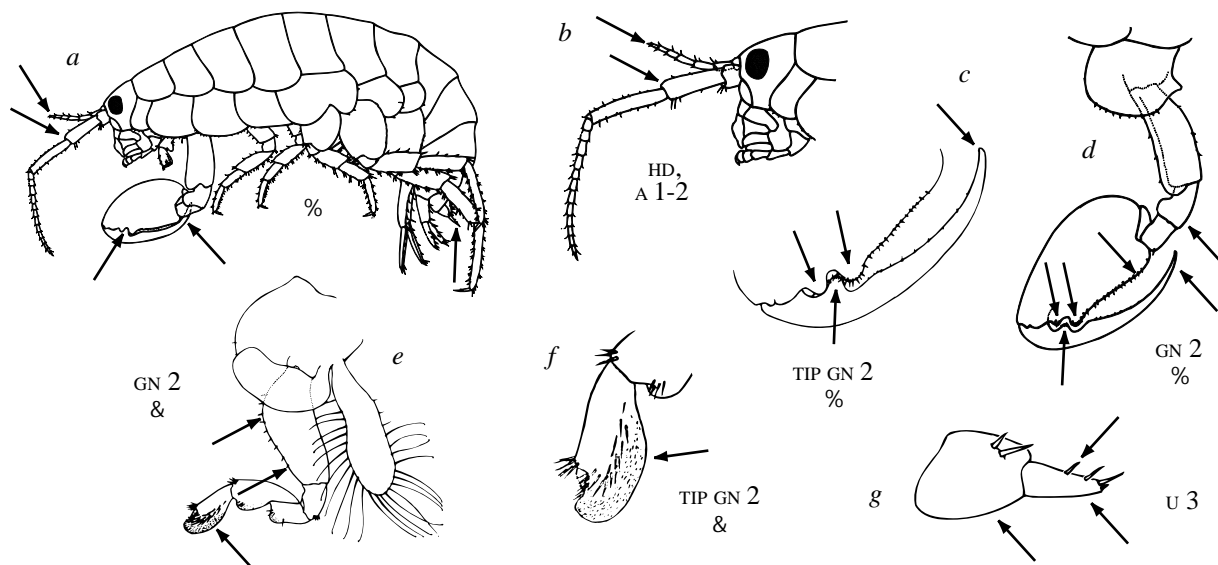


Figure 599.

- < Antenna 1 relatively short, extending slightly beyond midpoint of antenna 2, peduncle article 4; gnathopod 2 of male, palm extending three-fourths length of propodus, without teeth near dactylar hinge, dactyl normal, extending slightly beyond palmar angle on propodus, without tooth on flexor margin; gnathopod 2 of female, basis linear, not expanded proximally, anterior margin nearly straight, propodus relatively narrow, linear, not expanded distally; uropod 3, ramus distinctly shorter than peduncle, without marginal spines *U. spartinophila*

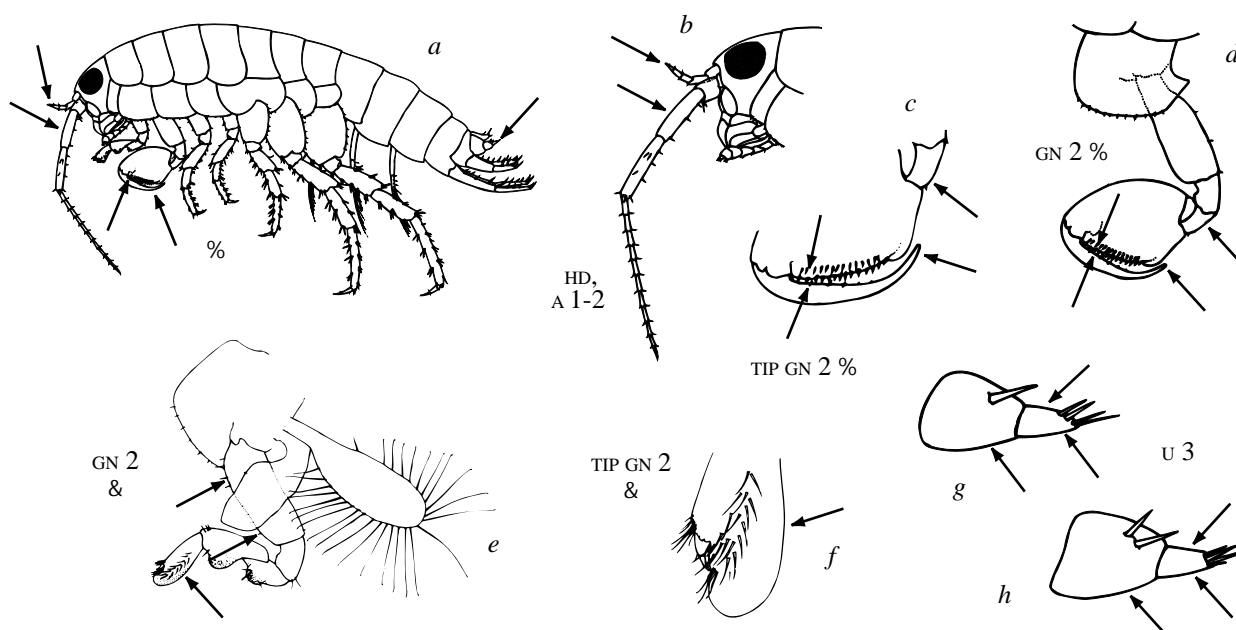


Figure 600.

***Uhlorchestia spartinophila* (Bousfield and Heard, 1986)**
(Figure 600)

Uhlorchestia spartinophila Bousfield and Heard, 1986, pp. 269-272, fig. 2.

Regional diagnosis: Antenna 1 relatively short, extending slightly beyond midpoint of antenna 2, peduncle article 4; gnathopod 2 of male, palm extending three-fourths length of propodus, without teeth near dactylar hinge, dactyl normal, extending slightly beyond palmar angle on propodus, without tooth on flexor margin; gnathopod 2 of female, basis linear, not expanded proximally, anterior margin nearly straight; uropod 3, ramus distinctly shorter than peduncle, without marginal spines.

Distribution: Atlantic coast of the U.S. from central Maine to Cape Canaveral, Florida (Bousfield and Heard, 1986).

Ecology: Intertidal to slightly subtidal. This species occurs in medium to high salinity (15-30 ppt) reaches of *Spartina alterniflora* marshes, near the bases of *Spartina* plants and on the marsh sediment. Its diet consists of detritus, decaying marsh grass and the associated microflora and fauna (Bousfield and Heard, 1986).

Remarks: *Uhlorchestia spartinophila* and its congener, *U. uhleri*, differ from all other Florida talitrid species in having both a large distolateral spine on the peduncle and marginal spines on the outer ramus of uropod 1 (other species have one or the other, but not both). It can be distinguished from *U. uhleri* by the linear, unexpanded basis of gnathopod 2 in the female, the relatively short dactyl of gnathopod 2 in the adult male and the ramus of uropod 3 without marginal spines (basis of female gnathopod 2 slightly expanded, dactyl of male gnathopod 2 extremely elongate and ramus of uropod 3 with marginal spines in *U. uhleri*).

In areas where the range of this species overlaps with that of *U. uhleri*, it is found in the higher salinity lower reaches of salt marshes, whereas *U. uhleri* is restricted to the lower salinity upper reaches of the marsh. However, in areas where *U. uhleri* does not occur (i.e. in the more northern parts of its range), *U. spartinophila* ranges throughout the marsh (Bousfield and Heard, 1986).

Uhlorchestia spartinophila is a smaller species than *U. uhleri*, ranging in size from 5 to 9 mm. See Bousfield and Heard, 1986.

***Uhlorchestia uhleri* (Shoemaker, 1930)**
(Figure 599)

Orchestia uhleri Shoemaker, 1930, pp. 108-111, figs. 1-2.

Uhlorchestia uhleri: Bousfield, 1984, p. 203.

Regional diagnosis: Antenna 1 relatively long, extending to distal end of antenna 2, peduncle article 4; gnathopod 2 of male, palm extending along entire length of propodus, with 2 blunt teeth near dactylar hinge, dactyl elongate, extending nearly to merus, with tooth on flexor margin; gnathopod 2 of female, basis slightly expanded proximally, anterior margin narrowing distally; uropod 3, ramus subequal to peduncle in length, with marginal spines.

Distribution: Pamlico Sound, North Carolina to Cape Canaveral, Florida; Tampa Bay, Florida to eastern Texas (Bousfield and Heard, 1986); ?states of Veracruz and Tabasco, Mexico (Velasco et al., 2005).

Ecology: Intertidal to slightly subtidal. *Uhlorchestia uhleri* occurs in low salinity and tidal fresh water (<10 ppt) marshes, associated with *Spartina patens*, *Juncus*, *Sagittaria*, *Cladium*, or other vegetation. It is frequently found among the bases of *Spartina* plants or under leaf litter, driftwood, bark and dead grasses at the high water drift line (Bousfield and Heard, 1986).

Remarks: Material of this species reported from the southwestern Gulf of Mexico (Velasco et al., 2005) differs from the material described by Shoemaker (1930) and Bousfield and Heard (1986) in several respects, most notably in the small size, the spination of the uropods and the length of the ramus of uropod 3. No males were collected and the examination of additional material that includes adult males will be necessary to determine if this record actually represents *U. uhleri*.

Adult males of *U. uhleri* can be distinguished from males of all other talitrid species in Florida by the unique morphology of gnathopod 2. It is the only species in which the dactyl is elongate, extending well beyond the proximal end of the propodus and often reaching the merus. Subadult males, females and juveniles may be separated from all other Florida talitrid species except *U. spartinophila* by the combined presence of a large distolateral spine on the peduncle of uropod 1 and marginal spines on the outer ramus of uropod 1. Other species may have one or the other of these conditions, but not both. *Uhlorchestia uhleri* differs from *U. spartinophila* in the slightly expanded basis of gnathopod 2 in the female (linear in *U. spartinophila*) and the longer, marginally spinose ramus of uropod 3 (short and without spines in *U. spartinophila*).

Uhlorchestia uhleri is often found associated with *Orchestia grillus* in marshes, but usually occupies somewhat wetter parts of the marsh and is more common in lower salinities (Heard, 1982). Live material is mottled dorsally in grey or brownish grey, with a lateral row of spots above the coxal plates and a second row below that one consisting of a spot at the base of each coxal plate. Adults of this species are 8 to 15 mm in length, with males attaining a larger size than females.

See Shoemaker, 1930 (as *Orchestia uhleri*); Bousfield, 1973 (as *Orchestia uhleri*); Heard, 1982 (as *Orchestia uhleri*); Bousfield and Heard, 1986.

GLOSSARY

A1-2 - antennae 1-2.

Abdomen - the posterior six body segments, consisting of three anterior pleon segments and three posterior urosome segments.

Accessory claw - small curved subapical process on the extensor margin of the dactyl.

Accessory eye - small cluster of one to several ommatidia located adjacent to the primary eye.

Accessory flagellum - small secondary ramus of antenna 1, attached to the distomedial margin of peduncle article 3; may be vestigial or lacking, rarely as long as the primary flagellum.

Acuminate - produced into a sharp point; acute.

Acute - sharply pointed.

Aesthetascs - Specialized sensory setae located on the antennae of some species of amphipods and other crustaceans. They are usually elongate and flattened, with parallel sides and rounded ends, giving them a somewhat strap-like appearance.

Anchialine - pertaining to coastal marine or brackish water habitats that lack a surface connection to the sea. They are often connected to the sea via subterranean passageways and may exhibit a tidal influence.

Antenna - one of two paired, multi-articulate appendages attached to the anterodorsal margin of the head, anterior to the mouthparts. In amphipods, these appendages are referred to as antenna 1 (anterior pair) and antenna 2 (posterior pair). In most other crustacean groups, however, the term antenna refers only to the second, or posterior, pair of these appendages, with the first being referred to as the antennule.

Antennal sinus - one of two emarginations of the anterior margin of the head, separated by the cephalic or ocular lobe, that allow the sideways rotation of the antennae. The superior antennal sinus lies at the base of antenna 1; the inferior antennal sinus lies at the base of antenna 2.

Anterior - front end; towards the front.

Anthropogenic - caused or generated by man.

Apical - at the apex, tip or distal end; terminal.

Article - individual unit or subdivision of an appendage.

Attenuate - very slender, weak.

Basis - article 2 of a gnathopod or peraeopod.

Basofacial spine - stout spine located on the proximolateral surface of the peduncle of uropod 1 in some amphipod groups.

Benthic - pertaining to the bed (bottom) of an ocean, lake, river or other body of water; inhabiting the bottom.

Beveled - diagonally truncated; oblique.

Biarticulate - composed of two articles.

Bifurcate - divided into two non-articulating branches; forked.

Biramous - having two articulating branches (rami).

Brood plate - see **oostegite**.

Brood pouch - see **marsupium**.

Buccal mass - conical, subquadrate or styliform bundle made up of closely appressed mouthparts, located on the ventral surface of the head.

Calceoli - small disk-like, rounded or oblong articulated sensory structures attached to the segments of the antennal peduncle and flagellum.

Callynophore - A sensory structure located on antenna 1 and formed by the fusion of the proximal articles of the flagellum. There is an accompanying increase in the number of aesthetascs, which are inserted in rows on this fused section (callynophore = “brush carrier”.) This structure is usually found only in adult males, but in certain species it occurs in both sexes.

Carapace - cuticular layer attached to the posterior margin of the head and extending anteriorly and posteriorly, often covering the entire head and thorax; present in many crustaceans, but not found in amphipods.

Carinate - having at least one laterally compressed, acute ridge, carina, or keel; usually dorsal.

Carpal lobe - expansion or elongation of the posterior margin of the carpus, often extending distally along the posterior margin of the propodus.

Carpochelate - condition of a prehensile appendage, usually a gnathopod, in which it is formed by the closure of the dactylus (article 7) on a fixed projection of the carpus (article 5).

Carpus - article 5 of a gnathopod or peraeopod.

Castellate - lined with short, closely-set, distally truncate processes.

Castelloserrate - lined with short, closely-set blunt serrations or teeth.

Cephalic lobe - forward expansion of the anterolateral margin of the head between the bases of the peduncles of antennae 1-2; often bearing the eyes and referred to as the ocular lobe.

Chelate - condition of a prehensile appendage, usually a gnathopod, in which it is formed by the closure of the dactylus (article 7) on a subequal, parallel, fixed, distally directed subterminal projection of the propodus (article 6); pincer-like. Propodus usually linear.

Circumtropical - distributed throughout the tropics.

Clavate - club-shaped; broadened distally.

Cleft - split or divided; often used to describe a telson that is separated into two lobes by a narrow incision or gap.

Comb row - a row of short, stiff, straight or slightly curved setae resembling the teeth of a comb.

Comb setae - the setae making up a comb row.

Commensal - an organism that derives a benefit (food, shelter, etc.) from its association with another organism but does no harm to its host.

Complexly subchelate - see **subchelate**.

Compound seta - a morphologically complex seta bearing setules, serrations, nodules, etc.

Compressed - flattened laterally; usually refers to body shape.

Congener - belonging to the same genus.

Conjoint - a condition in which several smaller articles are fused to form a single larger article.

Conspecific - belonging to the same species.

Cosmopolitan - having a worldwide distribution; ubiquitous.

Cotype - syntype; each specimen of a type series for which no holotype has been designated.

Couplet - numbered section of a dichotomous key, consisting of a pair of contrasting descriptions.

Coupling hooks - small distomedial hooked spines on the peduncle of the pleopod; used to hook left and right pleopods of a pair together to enhance synchronous beating.

Coxa - article 1 of a gnathopod or peraeopod.

Coxal gill - a respiratory structure attached to the posteromedial surface of the coxa of gnathopod 2 and peraeopods 3-6 or 7.

Coxal plate - a flattened lateral expansion of the coxa of a peraeon appendage, often forming a shield for the gills and oostegites and providing a chamber through which the respiratory current can be drawn by the beating of the pleopods.

Crenulate - lined with small bumps, tubercles or rounded teeth.

Cryptic - hidden, camouflaged.

Cusp - small tooth or process.

CX1-7 - coxae 1-7.

Dactyl - terminal article of a gnathopod or peraeopod (article 7), or of the maxillipedal palp (article 3 or 4).

Dactylar hinge tooth - process on palmar margin of propodus adjacent to articulation with dactyl.

Deflexed - downturned.

Dendritic - branching.

Dentate - toothed.

Denticulate - with small, sharp teeth or denticles.

Depressed - flattened dorsoventrally; usually refers to body shape.

Dichotomous - divided into two parts; used to describe a taxonomic key made up of pairs of contrasting descriptions, each of which serves to divide the larger group of organisms being identified into two, mutually exclusive smaller groups.

Dimorphic - having two forms or shapes.

Distal - located away from the body or point of attachment.

Domicolous - living in a nest, tube or other refuge (a domicile).

Dorsal - pertaining to the back; in amphipods refers to the upper or top surface or margin.

Ectocommensal - a commensal organism that resides on the outer surface of its host.

Emarginate - having a shallow marginal depression; slightly concave, hollowed out or indented.

Endocommensal - a commensal organism that resides inside of its host.

Ensiform - narrowly produced, sword-like.

Entire - complete; having a simple, smooth, unmodified margin; not cleft (telson), serrate, crenulate, or incised.

Epibiont - An organism that lives on the surface of another organism.

Epimeral plate - see **epimeron**.

Epimeron (epimera) - ventrolateral, laminar extension(s) of pleonal segments 1-3 enclosing the peduncles of the pleopods.

Epistome - front of head just dorsal to upper lip.

Estuarine - referring to shallow, often partially enclosed, coastal waters that have a variable salinity regime caused by the mixing of fresh and salt water; usually found adjacent to river mouths.

Euryhaline - referring to organisms that are tolerant of a wide range of salinities.

Excavate - having a deep marginal depression, strongly emarginate, deeply concave.

Extensor margin - the margin of an article on the side away from the direction of flexion ("on the outside of the bend"), the side on which the extensor muscles are located.

Facial - on a flat surface; not marginal.

Flagellum - the multiarticulate distal part of the antenna, exclusive of the peduncle; begins distal to peduncle article 3 for antenna 1 and distal to peduncle article 5 for antenna 2.

Falcate - strongly curved and tapering distally; sickle-shaped.

Filiform - elongate, very slender; thread-like.

Flexor margin - the margin of an article on the side towards the direction of flexion ("on the inside of the bend"), the side on which the flexor muscles are located.

Foliaceous - broad and flat, leaf-like, often with marginal setae.

Fossorial - adapted for digging.

Geniculate - bent and fixed at a right angle; knee-like.

Gland cone - conical distoventral process on peduncle article 2 of antenna 2; contains duct and opening of antennal gland.

Globular - round, bulbous, globe-like.

GN1-2 - gnathopods 1-2.

Gnathopod - a paired uniramous appendage attached to one of the first 2 pereon segments; usually subchelate or otherwise dissimilar to the remaining 5 paired pereonal appendages (peraeopods).

HD - head.

Hind margin - the posterior margin of the propodus of gnathopods 1 or 2, proximal to the palm; usually distinguished from the palm by a distinct angle or tooth, but sometimes continuous with the palmar margin.

Hyperadult - unusually large and well-developed adult individual.

Incised - with narrow slit or notch, usually marginal.

Incisor - the distal, often toothed, cutting edge of the mandible.

Incrassate - enlarged, thickened or swollen, powerful. Often refers to the condition of the antennae or peraeopods.

Inquilinous - living within the burrow, nest, tube or domicile of another species; living within a host organism of another species without causing any harm to that host

Interantennal plate - anterior margin of the head expanded as a vertical plate extending forward between the right and left antennae and below the rostrum.

Ischium - article 3 of a gnathopod or peraeopod.

Labium - see **lower lip**.

Labrum - see **upper lip**.

Lacinia mobilis - small articulated plate located on the mandible at the base of the incisor, just distal to the spine row.

Laminar - thin, flat, plate-like.

Lanceolate - tapering distally to an acute or subacute tip; lance-shaped.

Lateral - outer; towards the outside.

Laterally compressed - flattened from side to side.

Linear - with parallel margins; slender, rod-shaped or subrectangular.

Linguiform - tongue-shaped.

Littoral zone - nearshore beach habitat, including both the intertidal zone (eulittoral) and the spray or splash zone (supralittoral).

LL - lower lip; labium.

Locking spine - large spine on the distal flexor margin of the peraeopod propodus.

Lower lip - a fleshy, bilobed plate located on the posterior margin of the mouth.

Mandible - one of the first, or most anterior, pair of articulated mouthparts, located on either side of the mouth; typically composed of a base or body, molar, incisor, spine row, lacinia mobilis and 3-articulate palp.

Marsupium - chamber for holding eggs or recently hatched juveniles; formed by overlapping oostegites and located ventrally, between the bases of the gnathopods and peraeopods; brood pouch.

Maxilla 1 - one of the second pair of articulated mouthparts; typically composed of a basal article, inner plate, outer plate, and 2-articulate palp.

Maxilla 2 - one of the third pair of articulated mouthparts, immediately posterior to maxilla 1; typically composed of a basal article, inner plate, and outer plate.

Maxilliped - most posterior pair of mouthparts, derived from the first thoracic segment which, in amphipods, is fused with the head; fused basally and typically composed of an inner plate, outer plate, and 4-articulate palp.

MD - mandible.

Medial - inner; towards the middle.

Median - central, on the mid-line or at the mid-point.

Mediofacial setal row - row of setae on the medial surface of the propodus in leucothoid amphipods. The primary mediofacial setal row is the most anterior row, approximately paralleling the anterior margin of the propodus; the secondary mediofacial setal row is located on the proximal part of the medial face of the propodus, posterior to the primary row.

Merus - article 4 of a gnathopod or peraeopod.

Midventral keel - keel located below the rostrum on the front and ventral margins of the head in leucothoid amphipods, often extending anteriorly between the antennae.

Molar - medial process on the mandible, normally subcylindrical with a distally flattened grinding surface, but often reduced or modified.

Monotypic - describes a taxon containing only one taxon at the next lowest level in the taxonomic hierarchy (e.g. a family containing one genus; a genus containing one species).

Morphology - shape, form.

Mouthpart bundle - see **buccal mass**.

Multiarticulate - composed of many articles.

MX1-2 - maxillae 1-2.

MXPD - maxilliped.

Nail - stout, partially embedded spine.

Natatory - used for swimming.

Oblique - angled; not perpendicular to the vertical axis of the article.

Ocular lobe - see **cephalic lobe**.

Oligohaline - (1) referring to organisms that are only tolerant of low salinities; (2) referring to low salinity or brackish waters (0.5-3.0 ppt).

Ommatidia - individual facets of the subintegumentary compound eye.

Oostegite - thin, flat plate lined with setae, attached to the posteromedial margin of the coxa of gnathopod 2 and peraeopods 3-5 in females, just proximal to the coxal gill. In adult females, these plates interlock and overlap, forming the marsupium for holding eggs and newly hatched juveniles; in subadult females, they are more sac-like and lack setae.

Oostegite bud - sac-like developing oostegite found in subadult female amphipods.

Ovate - oval-shaped.

P1-7 - peraeopods 1-7.

Palm - portion of the posterior margin of the gnathopod upon which the dactyl closes for grasping; usually delimited distally by the dactylar articulation and proximally by a change in the curvature of the margin or by the presence of spines or setae.

Palmar angle - proximal end of the palm where the curvature of the posterior margin of the propodus changes.

Palp - small, uniramous, articulated appendage found on the lateral margin of the mandible, maxilla 1, and maxilliped.

Parachelate - condition of a prehensile appendage, usually a gnathopod, occasionally a peraeopod, in which it is formed by the closure of the dactylus (article 7) on a very short, parallel or subparallel, fixed, distally directed, subterminal projection of the propodus (article 6); dactyl may overlap tip of projection. Propodus usually linear.

Peduncle - combined, typically robust, proximal or basal articles of the antennae, pleopods and uropods; 3-articulate in antenna 1, 5-articulate in antenna 2, 1-2 (usually 1)-articulate in the pleopods, 1-articulate in the uropods.

Pelagic - pertaining to the open water column of an ocean or lake; inhabiting the water column.

Pelagont - coxal plate morphology wherein coxa 3 is much larger than coxa 4 and is often expanded posteroventrally, enclosing coxa 4.

Penes - small, paired genital processes located on the ventral surface of the peraeon just medial to the coxa of peraeopod 7 in males, through which the sperm is released.

Peraeon - combined 7 free thoracic segments of the body, located immediately behind the head and bearing the gnathopods and peraeopods.

Peraeopod - a paired, uniramous thoracic appendage attached to each peraeon segment; typically 7-articulate. The anterior 2 pairs, called gnathopods, are usually modified and morphologically distinct from the posterior 5 pairs.

Pleon - combined anterior 3 abdominal segments, located just posterior to the peraeon, bearing the paired, biramous pleopods (occasionally used to refer to the entire 6 segments of the abdomen).

Pleopod - a paired, biramous appendage attached to each pleon segment; typically composed of a uniarticulate basal peduncle and marginally setose, multiarticulate rami. Used in swimming and in the creation of water currents for respiration.

PLPD1-3 - pleopods 1-3.

Plumose - feather-like; lined with very fine microsetae.

Polytypic - describes a taxon containing more than one taxon at the next lowest level in the taxonomic hierarchy (e.g. a family containing more than one genus; a genus containing more than one species).

Posterior - back end; towards the rear.

Ppt - parts per thousand.

Preamplexing notch - indentation in the anterodistal or anterodorsal margin of a peraeon segment used by the male for grasping the female with the gnathopods during precopulatory mate carrying behavior.

Prehensile - modified for grasping.

Produced - narrowly expanded.

Propodus - article 6 of a gnathopod or peraeopod.

Proximal - located close to the body or point of attachment.

Pyriform - broadest at the base; pear-shaped.

Raker row - see **spine row**.

Ramus (rami) - branch(es) of an appendage.

Recurved - curved back on itself.

Reniform - kidney-shaped.

Rostrum - forward projection of the anterodorsal margin of the head between the peduncles of antenna 1.

Segment - individual unit or subdivision of the body.

Sensu lato - in the broad sense (Latin); usually used to refer to a taxon as it was defined before a revision restricted its definition (e.g. *Amphilocheus sensu lato*).

Sensu stricto - in the strict or narrow sense (Latin); usually used to refer to a taxon as it is defined after a revision has restricted its definition (e.g. *Amphilocheus sensu stricto*).

Serrate - with a series of saw-like teeth or sharp processes.

Seta - bristle or hair; a slender, flexible chitinous extension of the cuticle, articulated with the surface of the body or appendage.

Setose - having setae.

Sexually dimorphic - having a different form or appearance in males and females.

Sibling species - two or more closely related, often sympatric, species that are morphologically indistinguishable, but are reproductively isolated.

Simple - condition of a prehensile appendage, usually a gnathopod, in which none of the articles are expanded to meet the dactylus (article 7) when closed (articles usually linear).

Simple seta - an unmodified seta with entire margins.

Sinuuous - s-shaped, with both convex and concave portions.

Spine - a stout, inflexible seta.

Spine row (mandibular) - row of small spinules located on the mandible between the base of the incisor and the molar.

Spinose - having spines.

Splayed - flared or extended laterally.

Spur - a sharp process.

Sternal gill - a slender, unstalked structure, presumed to be respiratory or osmoregulatory in nature, located ventrally just medial to the coxa on peraeon segments 2- or 3-7.

Sternal processes - processes located mid-ventrally on peraeon segments 1-7.

Sternite - ventral surface of peraeon segment.

Stridulating ridges - small ridges usually found in rows on the ventral margins of the coxae and the lateral or anterior margins of the gnathopod or peraeopod bases. These ridges function in sound production when two opposing rows are rubbed together.

Styliform - very slender, elongate and sharply pointed at the tip.

Subacute - nearly acute.

Subapical - nearly at the apex or tip; subterminal.

Subchelate - condition of a prehensile appendage, usually a gnathopod, occasionally a peraeopod or palp, in which it is formed by the closure of the dactylus (article 7) on the oblique or transverse (non-parallel) expanded distal margin (palm) of the propodus (article 6). The term *complexly subchelate* is sometimes used to refer to a prehensile appendage formed by the closure of the dactylus on a non-parallel fixed process of any article other than the propodus (eg. carpocheate, merocheate).

Subconical - nearly conical.

Subcylindrical - nearly cylindrical.

Subequal - nearly equal.

Submarginal - nearly on the margin.

Subovate - nearly oval.

Subquadrate - nearly square.

Subrectangular - nearly rectangular.

Subround - nearly round.

Subterminal - nearly at the apex or tip; subapical.

Supralittoral zone - spray or splash zone above the high tide line on a beach.

Sympatric - occurring in the same geographic area.

Synanthropic - with man; pertains to organisms that are transported by man to other regions or those that live in or near human dwellings.

Systematics - the study of the evolutionary relationships among organisms.

T - telson.

Taxonomy - the identification and classification of organisms.

Telson - a small flap attached to the posterior margin of urosome segment 3, just above the anus; may be cleft, entire, laminar, fleshy, emarginate or otherwise modified, but always present in amphipods.

Terminal - at the tip or distal end.

Terminal adult - an individual with fully adult morphology.

Tooth - an acute, non-articulated process.

Transverse - perpendicular to the long axis of an article.

Triturative - having a ridged surface used for grinding or crushing.

Truncate - with distal margin transverse, quadrate, cut-off.

Tuberculate - with small rounded processes; bumpy.

U1-3 - uropods 1-3.

UL - upper lip; labrum.

Unguiform - claw-like.

Unguis - terminal claw-like seta or nail on the palp of the maxilliped or the dactyl of the gnathopods and peraeopods.

Uniarticulate - composed of one article.

Uniramous - having one branch (ramus).

Upper lip - a fleshy plate or lobe located on the anterior margin of the mouth; distal margin may be entire, incised or emarginate, usually minutely setose or pilose.

Uropod - a paired, typically biramous, appendage attached to each urosome segment; usually composed of a peduncle and 2 uniarticulate rami, but may be uniramous, without rami or completely absent.

Urosome - combined posterior 3 abdominal segments (sometimes referred to as pleon segments 4-6), located just posterior to the pleon and bearing the paired, typically biramous uropods and the telson.

Ventral - pertaining to the abdomen; in amphipods refers to the lower or bottom surface or margin.

Vermiform - elongate, slender and cylindrical; worm-like.

Vestigial - very reduced, degenerate, poorly developed.

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APPENDIX I: FIGURE SOURCES

The illustrations used in this document were obtained from a variety of sources and include both published figures and original drawings. In many cases, the illustrations have been modified from the original, to better illustrate the character being described. Sources for all illustrations are listed below and published sources are cited in full in the Literature Cited section. Illustrations that have been noticeably changed from the original are listed as being “modified from” the original source, while those that have not been changed (other than by removing labels or adjusting positioning) are referred to as being “from” the original source. Permission has been obtained for the use of those illustrations obtained from copyrighted publications and this copyrighted material is credited as follows:

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Figure 503a-b from Thomas and Klebba, 2007, Figure 5; *c* from LeCroy, unpublished drawing.

Figure 504a from Thomas and Klebba, 2006, Figure 1; *b-c* from Thomas and Klebba, 2007, Figures 2 and 15, respectively; *d* modified from Thomas and Ortiz, 1995, Figure 2.

Figure 505a-f from Thomas and Klebba, 2007 (*a-b* from Figure 4; *c-d* from Figure 5; *e* modified from Figure 5; *f* from Figure 6).

Figure 506a-e from LeCroy, unpublished drawings.

Figure 507a from LeCroy, unpublished drawing; *b-h* from Thomas and Ortiz, 1995 (*b, d-e, h* from Figure 1; *c, g* modified from Figure 2; *f* from Figure 2).

Figure 508a, e-f from Thomas and Klebba, 2006, Figures 4, 1 and 2, respectively; *b, d, g-h* from Thomas and Klebba, 2007 (*b* from Figure 10; *d, g* from Figure 2; *h* from Figure 19); *c, i* from LeCroy, unpublished drawings.

Figure 509a-g from Thomas and Klebba, 2006 (*a* modified from Figure 4; *b-c* from Figure 4; *d, f-g* from Figure 5; *e* modified from Figure 5).

Figure 510a-b, e-j, l-m from Thomas and Klebba, 2007 (*a, e, f, h* from Figures 1, 20, 8 and 3, respectively; *b, g, j, l* modified from Figures 19, 10, 1 and 8, respectively; *i, m* from Figure 19); *c-d, k* from LeCroy, unpublished drawings.

Figure 511a modified from Thomas and Klebba, 2007, Figure 19; *b* modified from Thomas and Klebba, 2006, Figure 1.

Figure 512a, c from Thomas and Klebba, 2007, Figures 1 and 8, respectively; *b* from LeCroy, unpublished drawing.

Figure 513a-g from Thomas and Klebba, 2007 (*a, c* from Figure 20; *b, d-f* from Figure 19; *g* from Figure 21).

Figure 514a, d, h-i from LeCroy, unpublished drawings; *b-c, e, g* from Thomas and Klebba, 2006 (*b-c* from Figure 1; *e, g* from Figure 2).

Figure 515a-i from Thomas and Klebba, 2006 (*a, d* from Figure 1; *b-c, e* modified from Figure 1; *f, i* from Figure 2; *g-h* modified from Figure 2).

Figure 516a-i from LeCroy, unpublished drawings.

Figure 517a-d from Thomas and Klebba, 2007 (*a, d* from Figure 8; *b* from Figure 9; *c* from Figure 1).

Figure 518a-b, d from Thomas and Klebba, 2007 (*a-b* from Figure 15; *d* from Figure 16); *c* from LeCroy, unpublished drawings.

Figure 519a-i from Thomas and Klebba, 2007 (*a, f* modified from Figure 2; *b, g* from Figure 2; *c-e* modified from Figure 1; *h-i* modified from Figure 3).

Figure 520a-j from Thomas and Klebba, 2007 (*a, g-h* from Figures 10, 9 and 8, respectively; *b, i-j* modified from Figure 10; *c-d, f* modified from Figure 8; *e* modified from Figure 9).

Figure 521a-g from Thomas and Klebba, 2007 (*a-b, g* modified from Figure 17; *c-e* from Figure 16; *f* from Figure 17).

Figure 522a-g from LeCroy, unpublished drawings.

Figure 523a, c, e-g from LeCroy, unpublished drawings; *b, d* modified from McKinney, 1979, Figure 1.

Figure 524a modified from McKinney, 1979, Figure 5; *b-g* from LeCroy, unpublished drawings.

Figure 525a-i from McKinney, 1979 (*a* modified from Figure 1, *b-i* modified from Figure 2).

Figure 526a-i from LeCroy, unpublished drawings.

Figure 527a, d-f, j from McKinney, 1979 (*a, d-e* modified from Figure 5, *f, j* modified from Figure 6); *b, g-h* from LeCroy, unpublished drawings; *c, i* modified from Mills, 1962, Figures 1 and 2, respectively.

Figure 528a, j modified from Bousfield, 1973, Plate XII 2; *b-i, k-s* from LeCroy, unpublished drawings.

Figure 529a-d modified from McKinney, 1979, Figure 5.

Figure 530a-b, d-e, g modified from Bousfield, 1973, Plate XII 1; *c, f* modified from Mills, 1962, Figure 1.

Figure 531a-d, f from LeCroy, unpublished drawings; *e, g* modified from Bousfield, unpublished illustrations.

Figure 532a-f, h-j from LeCroy, unpublished drawings; *g* modified from Bousfield, 1973, Plate XII 2.

Figure 533a, k modified from Bousfield, 1973, Plate XII 2; *b-i, l-m* from LeCroy, unpublished drawings; *j* modified from Bousfield, unpublished illustration.

Figure 534a-j from LeCroy, unpublished drawings.

Figure 535a-k from LeCroy, unpublished drawings; *l* modified from Bousfield, unpublished illustration.

Figure 536a-k from LeCroy, unpublished drawings.

Figure 537a-e from LeCroy, unpublished drawings.

Figure 538a, c from Thomas, 1993, Figure 31; *b, d-g* from Barnard and Thomas, 1993 (*b, f* modified from Figure 6; *d-e* modified from Figure 2; *g* modified from Figure 3).

Figure 539a-b, e from Barnard, 1970 (*a-b* modified from Figure 35; *e* from Figure 34); *c-d* from Thomas 1993, Figure 31.

Figure 540a-h from Barnard and Thomas, 1987 (*a, c-d* modified from Figure 1; *b* modified from Figure 5; *e* modified from Figure 2; *f-g* modified from Figure 6; *h* modified from Figure 3).

Figure 541a-f from Barnard and Thomas, 1987 (*a-b, f* modified from Figure 1; *c-e* modified from Figure 2).

Figure 542a-f from Barnard and Thomas, 1987 (*a-b* modified from Figure 5; *c-d* modified from Figure 6; *e-f* from Figure 6).

Figure 543a-j from LeCroy, unpublished drawings; *k-l* from Shoemaker, 1933b (*k* modified from Figure 4; *l* from Figure 4).

Figure 544a-i from LeCroy, unpublished drawings.

Figure 545a, e, g, i from LeCroy, unpublished drawings; *b-d, h* modified from Bousfield, 1973, PlateXXXIV 1; *f* modified from Ledoyer, 1986, Figure 14.

Figure 546a, c, j modified from Bousfield, 1973, Plate XXXIV 2; *b, d-f, h-i* from Shoemaker, 1933 (*b, d-e* modified from Figure 3; *f, h-i* modified from Figure 4); *g* modified from Shoemaker, 1938, Figure 1.

Figure 547a, g modified from Bousfield, 1973, Plate XXXIV 1; *b* from Barnard, 1960, Plate 29; *c* from Holmes, 1905, text figure, page 478; *d* modified from Ledoyer, 1986, Figure 14; *e-f* from Kunkel, 1918, Figure 13.

Figure 548a-h from LeCroy, unpublished drawings.

Figure 549a-b from LeCroy, unpublished drawings; *c-e* from Shoemaker, 1933 (*c* modified from Figure 3; *d-e* modified from Figure 4); *f-h* modified from Barnard, 1980, Figure 5.

Figure 550a, f modified from Shoemaker, 1938, Figure 1; *b, g-i* modified from Barnard and Barnard, 1982a, Figure 2; *c, e* modified from Bousfield, 1973, Plate XXXIV 2; *d* from LeCroy, unpublished drawings.

Figure 551a modified from Bousfield, 1973, Plate XXXIV 2; *b-d* from LeCroy, unpublished drawings; *e* from Barnard and Barnard, 1982a, Figure 3.

Figure 552a modified from Shoemaker, 1938, Figure 1; *b-e* from Barnard and Barnard, 1982a (*b, e* from Figure 1; *c-d* modified from Figure 1); *f* from LeCroy, unpublished drawing.

Figure 553a-d from Shoemaker, 1938 (*a, c-d* modified from Figure 1; *b* from Figure 1); *e* modified from Barnard and Barnard, 1982a.

Figure 554a-e from LeCroy, unpublished drawings.

Figure 555a-b, f from LeCroy, unpublished drawings; *c-d* modified from Thomas and Barnard, 1992a, Figures 2 and 1, respectively; *e, h* modified from Baldinger and Gable, 2002, Figures 6 and 11, respectively; *g* modified from Barnard, 1971, Figure 58.

Figure 556a-b, e from LeCroy, unpublished drawings; *c-d, f-g* from Thomas and Barnard, 1992b (*c-d, f* modified from Figure 1; *g* modified from Figure 3).

Figure 557a modified from Baldinger and Gable, 2002, Figure 9; *b-c, e* modified from Thomas and Barnard, 1992a, Figure 1; *d, f* from LeCroy, unpublished drawings.

Figure 558a, c modified from Barnard, 1971, Figure 58; *b, d* from LeCroy, unpublished drawings.

Figure 559a, c-g, i modified from Thomas and Barnard, 1992a, Figure 1; *b, h* modified from Baldinger, 2000, Figures 4 and 3, respectively.

Figure 560a-g from Baldinger and Gable, 2002 (*a-b* modified from Figure 7; *c-d* modified from Figure 6; *e-f* modified from Figure 9; *g* from Figure 9); *h-i* from LeCroy, unpublished drawings.

Figure 561a, c, e-f from McKinney et al., 1978 (*a* modified from Figure 7; *c, e-f* modified from Figure 6); *b, d* modified from Bousfield, 1973, Plate XVII 2.

Figure 562a-c from LeCroy, unpublished drawings; *d-f* modified from Bousfield, 1973, Plate XVII 2.

Figure 563a modified from Bousfield, 1973, Plate XVII 2; *b-i* from LeCroy, unpublished drawings.

Figure 564a, c, e, h, k from McKinney et al., 1978 (*a, h, k* modified from Figure 6; *c, e* modified from Figure 7); *b, d, f-g, i-j* from Watling, 1976 (*b* from Figure 1; *d, g, j* modified from Figure 2; *f, i* modified from Figure 1).

Figure 565a-g from Watling, 1976 (*a-b* from Figure 1; *c-d, g* modified from Figure 1; *e* from Figure 2; *f* modified from Figure 2).

Figure 566a-g modified from McKinney et al., 1978, Figure 1.

Figure 567a-m from LeCroy, unpublished drawings.

Figure 568a-k from LeCroy, unpublished drawings.

Figure 569a-n from LeCroy, unpublished drawings.

Figure 570a-n from LeCroy, unpublished drawings.

Figure 571a-n from LeCroy, unpublished drawings.

Figure 572a-n from LeCroy, unpublished drawings.

Figure 573a, d, f, h-i, k, m, o from Barnard, 1972 (*a, d, f, m, o* modified from Figure 45; *h-i* modified from Figure 46; *k* from Figure 45); *b* modified from Goeke, 1982, Figure 1; *c, e, g, j, l, n* from Barnard and Thomas, 1989 (*c* modified from Figure 2; *e, l, n* modified from Figure 1; *g, j* modified from Figure 3); *p* from LeCroy, unpublished drawings.

Figure 574a, e, g modified from Barnard, 1962, Figure 1; *b-d, f, h-j* from Barnard and Thomas, 1989 (*b-d, h-j* modified from Figure 5; *f* modified from Figure 6); *k* from LeCroy, unpublished drawings.

Figure 575a, c-f, h, j-m from Barnard, 1972 (*a* from Figure 46; *c-d, h, k-m* modified from Figure 45; *e-f, j* modified from Figure 46); *b, n* modified from Just, 1981, Figure 1; *g, i* modified from Goeke, 1982, Figure 2.

Figure 576a-j from Barnard and Thomas, 1989 (*a* from Figure 1; *b-c, f-g, j* modified from Figure 1; *d-e, h-i* modified from Figure 3).

Figure 577a-h from Barnard, 1972 (*a-c, f-g* modified from Figure 45; *d-e, h* from Figure 46).

Figure 578a-b modified from Goeke, 1982, Figure 1; *c, f, h* from Just, 1981 (*c, f* modified from Figure 1; *h* modified from Figure 2); *d-e, g* from LeCroy, unpublished drawings.

Figure 579a-d modified from Just, 1981, Figure 1.

Figure 580a-d modified from Goeke, 1982, Figure 1.

Figure 581a-c, e-f from Bousfield, 1991 (*a-b* modified from Figures 1 and 2, respectively; *c, e* modified from Figure 6; *f* from Figure 4); *d* from LeCroy, unpublished drawing.

Figure 582a modified from Heard, 1982; *b, e* from Bousfield and Heard, 1986 (*b* modified from Figure 1; *e* from Figure 1); *c-d* modified from Smith and Heard, 2001, Figures 13 and 20, respectively; *f* modified from Stock, 1996, Figure 2; *g-i* from LeCroy, unpublished drawings.

Figure 583a-b from LeCroy, unpublished drawings.

Figure 584a-b from LeCroy, unpublished drawings.

Figure 585a, e modified from Heard, 1982, Figure 48; *b, g* modified from Smith and Heard, 2001, Figures 43 and 31, respectively; *c-d, f* from LeCroy, unpublished drawings.

Figure 586a-d, f-h from LeCroy, unpublished drawings; *e* from Heard, 1982, Figure 49.

Figure 587a-h from LeCroy, unpublished drawings.

Figure 588a-g from LeCroy, unpublished drawings.

Figure 589a-f from LeCroy, unpublished drawings.

Figure 590a-f from LeCroy, unpublished drawings.

Figure 591a from Heard, 1982, Figure 47; *b-f* from Bousfield and Heard, 1986 (*b, d-e* modified from Figure 1; *c, f* modified from Figure 2); *g-h* from LeCroy, unpublished drawings.

Figure 592a, c-d, g from Heard, 1982 (*a* from Figure 46; *c-d, g* modified from Figure 46); *b, e-f* from LeCroy, unpublished drawings.

Figure 593a, c, f-g, i from LeCroy, unpublished drawings; *b, d-e, h, j* from Bousfield, 1991 (*b, e* modified from Figure 5; *d, h* modified from Figure 7; *j* modified from Figure 6).

Figure 594a, c, e-f, h from LeCroy, unpublished drawings; *b, d, g, i* from Bousfield, 1991 (*b, d, g* modified from Figure 1; *i* from Figure 2).

Figure 595a-b, g modified from Bousfield, 1991, Figure 5; *c-f* from LeCroy, unpublished drawings.

Figure 596a, h modified from Bousfield, 1973, Plate XLVII 2; *b* modified from Bousfield, 1991, Figure 7; *c-g* from LeCroy, unpublished drawings.

Figure 597a-c from LeCroy, unpublished drawings.

Figure 598a-b modified from Heard, 1982, Figure 49; *c-d* from LeCroy, unpublished drawings.

Figure 599a-b modified from Bousfield, 1973, Plate XLVI 1; *c-e, g* from Bousfield and Heard, 1986 (*c-e* modified from Figure 1; *g* from Figure 1); *f* modified from Shoemaker, 1930, Figure 2.

Figure 600a-h from Bousfield and Heard, 1986 (*a-e* modified from Figure 2; *f-h* from Figure 2).

APPENDIX II: REVISED CLASSIFICATION OF THE COROPHIIDEA

In a recent publication, Myers and Lowry (2003) present a revised higher level classification of the corophiidean amphipods based upon a phylogenetic analysis of the infraorders Corophiida and Caprellida, originally placed in the suborder Corophiidea Leach, 1814 by Barnard and Karaman (1983). Although the classification of Barnard and Karaman (1983) did not gain general acceptance at the time, the analysis of Myers and Lowry (2003) supports the retention of the suborder Corophiidea as a monophyletic group containing the infraorders Corophiida and Caprellida and also results in the realignment of a number of taxa formerly placed in the suborder Gammaridea. In addition, several new families are erected and the placement of many genera within other previously recognized families is changed. The classification of the suborders Hyperiidea and Ingolfiellidea is not considered in their revision and remains unchanged.

Although the new classification affects many of the taxa presented in this guide, it is not followed herein for two reasons. The first is that it is not practical to reorganize the format of the guide in midstream and keys designed for the system of classification currently in use (e.g. the family key in Volume 1) will no longer function properly under that of Myers and Lowry (2003). The second is that, although the proposed classification has had a favorable reception, it is too early to determine whether or not it will be generally accepted. However, the new higher level classification is presented below (Table 1) and a table indicating how the proposed changes affect the taxa covered in this guide is also included (Table 2).

Table 1. Suprafamilial corophiidean classification of Myers and Lowry (2003).

Suborder Hyperiidea
Suborder Ingolfiellidea
Suborder Gammaridea
Suborder Corophiidea
Infraorder Corophiida
Superfamily Aoroidea
Family Aoridae Stebbing, 1899
Family Unciolidae Myers and Lowry, 2003
Superfamily Cheluroidea
Family Cheluridae Allman, 1847
Superfamily Chevalioidea
Family Chevaliidae Myers and Lowry, 2003
Superfamily Corophioidea
Family Ampithoidae Boeck, 1871
Family Corophiidae Leach, 1814
Infraorder Caprellida
Superfamily Aetiopedesoidea
Family Aetiopedesidae Myers and Lowry, 2003
Family Paragammaropsidae Myers and Lowry, 2003
Superfamily Caprelloidea
Family Caprellidae Leach, 1814
Family Caprogammaridae Kudrjaschov and Vassilenko, 1966
Family Cyamidae Rafinesque, 1815
Family Dulichiidae Dana, 1849
Family Podoceridae Leach, 1814

Superfamily Isaeoidea
 Family Isaeidae Dana, 1852
Superfamily Microtopoidea
 Family Microtopidae Myers and Lowry, 2003
Superfamily Neomegamphoidea
 Family Neomegamphopidae Myers, 1981
 Family Priscomitariidae Hirayama, 1988
Superfamily Photoidea
 Family Ischyroceridae Stebbing, 1899
 Family Kamakidae Myers and Lowry, 2003
 Family Photidae Boeck, 1871
Superfamily Rakirooidea
 Family Rakiroidae Myers and Lowry, 2003

Table 2. Family level classification of Florida coropliidean genera.

Coropliidean family level classification used in this guide		Revised coropliidean family level classification based on Myers and Lowry (2003)	
Family	Regional Genera	Family	Regional Genera
Ampithoidae	<i>Ampithoe</i> <i>Cymadusa</i> <i>Peramphithoe</i> <i>Sunamphitoe</i>	Ampithoidae	<i>Ampithoe</i> <i>Cymadusa</i> <i>Peramphithoe</i> <i>Sunamphitoe</i>
Aoridae	<i>Bemlos</i> <i>Globosolembos</i> <i>Grandidierella</i> <i>Lembos</i> <i>Leptocheirus</i> <i>Paramicrodeutopus</i> <i>Pediorophium</i> <i>Plesiolembos</i> <i>Rudilemboides</i> <i>Uncia</i>	Aoridae	<i>Bemlos</i> <i>Globosolembos</i> <i>Grandidierella</i> <i>Lembos</i> <i>Paramicrodeutopus</i> <i>Plesiolembos</i>
		Coropliidae	<i>Leptocheirus</i>
		Unciaidae	<i>Pediorophium</i> <i>Rudilemboides</i> <i>Uncia</i>
Cheluridae	<i>Chelura</i> <i>Tropichelura</i>	Cheluridae	<i>Chelura</i> <i>Tropichelura</i>
Coropliidae	<i>Americorophium</i> <i>Apocorophium</i> <i>Laticorophium</i> <i>Monocorophium</i>	Coropliidae	<i>Americorophium</i> <i>Apocorophium</i> <i>Laticorophium</i> <i>Monocorophium</i>
Isaeidae	<i>Audulla</i> <i>Chevalia</i> <i>Gammaropsis</i> <i>Microprotopus</i> <i>Photis</i>	Chevaliidae	<i>Chevalia</i>
		Microprotopidae	<i>Microprotopus</i>
		Photidae	<i>Audulla</i> <i>Gammaropsis</i> <i>Photis</i>
Ischyroceridae	<i>Carriboecetes</i> <i>Cerapus</i> <i>Erichthonius</i> <i>Jassa</i>	Ischyroceridae	<i>Carriboecetes</i> <i>Cerapus</i> <i>Erichthonius</i> <i>Jassa</i>
Neomegamphopidae	<i>Konatopus</i> <i>Neomegamphopus</i> <i>Varohios</i>	Neomegamphopidae	<i>Konatopus</i> <i>Neomegamphopus</i> <i>Varohios</i>
Podoceridae	<i>Podocerus</i>	Podoceridae	<i>Podocerus</i>

APPENDIX III: COMPLETE TAXONOMIC LISTING OF FLORIDA AMPHIPOD SPECIES INCLUDED IN VOLUMES 1-5: ORIGINAL TAXONOMY

The following list contains all species included in volumes 1-5 of this guide, under the names originally used in the text, and indicates the volume number in which each family-level taxon was presented. Taxa are listed alphabetically by family and species. However, because the production of the five volumes has spanned a period of approximately 11 years, many changes in the taxonomy of these species have occurred and a number of names in the following list are now outdated. Species which have undergone a change, either in name or in taxonomic placement, because of revisionary or descriptive works published in the years since Volume 1 was produced are marked with an asterisk (*). The current taxonomic status of each of these species is presented in Appendix IV, along with references to the literature in which the indicated changes are documented. Appendix V presents an updated taxonomic listing of these same species.

Suborder Gammaridea

Family Ampeliscidae Costa, 1957 (Volume 2)

- Ampelisca abdita* Mills, 1964
- Ampelisca agassizi* (Judd, 1896)
- Ampelisca bicarinata* Goeke and Heard, 1983
- Ampelisca burkei* Barnard and Thomas, 1989
- Ampelisca cristata* forma *microdentata* Barnard, 1954
- Ampelisca holmesi* Pearse, 1908
- Ampelisca schellenbergi* Shoemaker, 1933
- Ampelisca vadorum* Mills, 1963
- Ampelisca verrilli* Mills, 1967
- Ampelisca* sp. A
- Ampelisca* sp. B
- Ampelisca* sp. C
- Byblis* sp. A

Family Amphilochidae Boeck, 1871 (Volume 2)

- Apolochus casahoya* (McKinney, 1978)
- Apolochus delacaya* (McKinney, 1978)
- Apolochus pillaii* (Barnard and Thomas, 1983)
- Apolochus* sp. A
- Gitana* cf *dominica* Thomas and Barnard, 1990
- Hourstonius laguna* (McKinney, 1978)
- Hourstonius tortugae* (Shoemaker, 1933)
- Hourstonius* sp. B

Family Ampithoidae Stebbing, 1899 (Volume 2)

- Ampithoe longimana* Smith, 1873 *
- Ampithoe* cf *marcuzzii* Ruffo, 1954 *
- Ampithoe pollex* Kunkel, 1910 *
- Ampithoe ramondi* Audouin, 1826 *
- Ampithoe valida* Smith, 1873 *
- Ampithoe* sp. A *
- Cymadusa compta* (Smith, 1873) *
- Cymadusa filosa* Savigny, 1816 *

Peramphithoe sp. A *

Sunamphitoe pelagica (Milne-Edwards, 1830) *

Family Anamixidae Stebbing, 1897 (Volume 4)

Anamixis cavatura Thomas, 1997 *

Anamixis vanga Thomas, 1997 *

Family Aoridae Stebbing, 1899 (Volume 2)

Bemlos brunneomaculatus (Myers, 1977) *

Bemlos dentischium (Myers, 1977) *

Bemlos kunkleae (Myers, 1977) *

Bemlos cf *longicornis* (Myers, 1978) *

Bemlos mackinneyi (Myers, 1978) *

Bemlos minimus (Myers, 1977) *

Bemlos setosus (Myers, 1978) *

Bemlos spinicarpus inermis (Myers, 1979)

Bemlos spinicarpus spinicarpus (Pearse, 1912) *

Bemlos unicornis (Bynum and Fox, 1977) *

Globosolembos francanni (Reid, 1951) *

Globosolembos smithi (Holmes, 1905) *

Grandidierella bonnieroides Stephensen, 1948 *

Lembos hypacanthus K.H. Barnard, 1916 *

Lembos unifasciatus reductus Myers, 1979 *

Lembos unifasciatus unifasciatus Myers, 1977 *

Lembos websteri Bate, 1857 *

Leptocheirus plumulosus Shoemaker, 1932 *

Paramicrodeutopus myersi (Bynum and Fox, 1977) *

Pediorophium laminosum (Pearse, 1912) *

Plesiolembos ovalipes (Myers, 1979) *

Plesiolembos rectangulatus (Myers, 1977) *

Rudilemboides naglei Bousfield, 1973 *

Unciola dissimilis Shoemaker, 1945 *

Unciola serrata Shoemaker, 1945 *

Unciola sp. C *

Family Argissidae Walker, 1904 (Volume 2)

Argissa hamatipes (Norman, 1869)

Family Bateidae Stebbing, 1906 (Volume 3)

Batea campi (Ortiz, 1991)

Batea carinata (Shoemaker, 1926)

Batea catharinensis Müller, 1865

Batea cuspidata (Shoemaker, 1926)

Family Biancolinidae Barnard, 1972 (Volume 3)

Biancolina brassicacephala Lowry, 1974

Family Cheluridae Allman, 1847 (Volume 3)

Chelura terebrans Philippi, 1839 *

Tropichelura gomezi Ortiz, 1976 *

Family Colomastigidae Chevreux, 1899 (Volume 3)

Colomastix bousfieldi LeCroy, 1995
Colomastix falcirama LeCroy, 1995
Colomastix gibbosa LeCroy, 1995
Colomastix halichondriae Bousfield, 1973
Colomastix heardi LeCroy, 1995
Colomastix irciniae LeCroy, 1995
Colomastix janiceae Heard and Perlmutter, 1977
Colomastix tridentata LeCroy, 1995

Family Corophiidae Leach, 1814 (Volume 3)

Americorophium aquafuscum (Sikora and Heard, 1972) *
Americorophium ellisi (Shoemaker, 1943) *
Americorophium sp. A *
Apocorophium acutum (Chevreux, 1908) *
Apocorophium lacustre (Vanhöffen, 1911) *
Apocorophium louisianum (Shoemaker, 1934) *
Apocorophium simile (Shoemaker, 1934) *
Laticorophium baconi (Shoemaker, 1934) *
Monocorophium acherusicum (Costa, 1851) *
Monocorophium insidiosum (Crawford, 1934) *
Monocorophium tuberculatum (Shoemaker, 1934) *
Monocorophium sp. A *

Family Cyproideidae Barnard, 1974 (Volume 3)

Hoplopheonoides obesa Shoemaker, 1956

Family Dexaminidae Leach, 1814 (Volume 3)

Dexaminella sp. A
Nototropis minikoi (Walker, 1905)
Nototropis urocarinatus (McKinney, 1980)
Polycheria sp. A

Family Eusiridae Stebbing, 1888 (Volume 4)

Eusiroides sp. A
Nasageneia bacescui Ortiz and Lalana, 1994
Tethygeneia longleyi (Shoemaker, 1933)

Family Gammaridae Leach, 1814 (Volume 1)

Anamaera hixonii Thomas and Barnard, 1985 *
Gammarus mucronatus Say, 1818
Gammarus palustris Bousfield, 1969
Gammarus cf *tigrinus* Sexton, 1939
Gammarus sp. B *
Spathiopus looensis Thomas and Barnard, 1985 *

Family Hadziidae Karaman, 1943 (Volume 1)

Protohadzia schoenerae (Fox, 1973) *

Family Haustoriidae Stebbing, 1906 (Volume 2)

Acanthohaustorius bousfieldi Frame, 1980
Acanthohaustorius cf *intermedius* Bousfield, 1965
Acanthohaustorius millsii Bousfield, 1965

Acanthohaustorius pansus Thomas and Barnard, 1984
Acanthohaustorius shoemakeri Bousfield, 1965
Acanthohaustorius similis Frame, 1980
Acanthohaustorius uncinus Foster, 1989
Acanthohaustorius sp. A
Acanthohaustorius sp. C
Haustorius canadensis Bousfield, 1962
Haustorius jayneae Foster and LeCroy, 1991
Haustorius sp. D
Lepidactylus dytiscus Say, 1818
Lepidactylus cf *triarticulatus* Robertson and Shelton, 1980
Neohaustorius schmitzi Bousfield, 1965
Parahaustorius holmesi Bousfield, 1965
Parahaustorius longimerus Bousfield, 1965
Parahaustorius obliquus Robertson and Shelton, 1980
Protohaustorius cf *bousfieldi* Robertson and Shelton, 1978
Protohaustorius cf *deichmannae* Bousfield, 1965
Protohaustorius cf *wigleyi* Bousfield, 1965
Pseudohaustorius americanus (Pearse, 1908)
Pseudohaustorius carolinensis Bousfield, 1965
Pseudohaustorius sp. B

Family Hyalellidae Bulycheva, 1957 (Volume 4)

Hyalella sp. C *
Hyalella sp. D *
Parhyalella whelpleyi (Shoemaker, 1933) *
Parhyalella sp. A *

Family Hyalidae Bulycheva, 1957 (Volume 4)

Apohyale media (Dana, 1853)
Parhyale fascigera Stebbing, 1897
Parhyale hawaiiensis (Dana, 1853)
Protohyale sp. A
Protohyale sp. B
Protohyale sp. D

Family Iphimediidae Boeck, 1871 (Volume 4)

Iphimedia zora (Thomas and Barnard, 1991)

Family Isaeidae Dana, 1855 (Volume 1)

Audulla chelifera Chevreux, 1901 *
Chevalia carpenteri Barnard and Thomas, 1987 *
Chevalia mexicana Pearse, 1912 *
Chevalia sp. B *
Gammaropsis atlantica Stebbing, 1888 *
Gammaropsis sutherlandi Nelson, 1980
Gammaropsis togoensis (Schellenberg, 1925) *
Gammaropsis sp. A *
Gammaropsis sp. B *
Gammaropsis sp. C *

Microprotopus raneyi Wigley, 1966 *
Microprotopus shoemakeri Lowry, 1972 *
Photis longicaudata (Bate and Westwood, 1863) *
Photis macromana McKinney, Kalke and Holland, 1978 *
Photis melanica McKinney, 1980 *
Photis pugnator Shoemaker, 1945 *
Photis trapherus Thomas and Barnard, 1991 *
Photis sp. C *
Photis sp. D *
Photis sp. E *
Photis sp. F *

Family Ischyroceridae Stebbing, 1899 (Volume 4)

Caribboecetes sp. A *
Cerapus benthophilus Thomas and Heard, 1979 *
Cerapus cudjoe Lowry and Thomas, 1991 *
Cerapus tubularis Say, 1817 *
Cerapus sp. B *
Cerapus sp. C *
Erichthonius brasiliensis (Dana, 1853) *
Erichthonius sp. A *
Jassa marmorata Holmes, 1903 *
Jassa sp. A *

Family Leucothoidae Dana, 1852 (Volume 5)

Leucothoe ashleyae Thomas and Klebba, 2006
Leucothoe barana Thomas and Klebba, 2007
Leucothoe flammosa Thomas and Klebba, 2007
Leucothoe garifunae Thomas and Klebba, 2007
Leucothoe kensleyi Thomas and Klebba, 2006
Leucothoe laurensi Thomas and Ortiz, 1995
Leucothoe ubouhu Thomas and Klebba, 2007
Leucothoe wuriti Thomas and Klebba, 2007
Leucothoe sp. B
Leucothoe sp. D
Leucothoe sp. F

Family Liljeborgiidae Stebbing, 1899 (Volume 5)

Liljeborgia bousfieldi McKinney, 1979
Liljeborgia sp. A
Listriella bahia McKinney, 1979
Listriella cf *barnardi* Wigley, 1966
Listriella clymenellae Mills, 1962
Listriella kensleyi Ortiz and Lalana, 1996
Listriella sp. B
Listriella sp. C

Family Lysianassidae Dana, 1849 (Volume 4)

Aruga holmesi Barnard, 1955
Concarnes concavus (Shoemaker, 1933)

Hippomedon pensacola Lowry and Stoddart, 1997
Hippomedon sp. B
Lepidepecreum cf *magdalenensis* (Shoemaker, 1942)
Lysianopsis alba Holmes, 1903
Orchomenella perdido Lowry and Stoddart, 1997
Orchomenella thomasi Lowry and Stoddart, 1997
Shoemakerella cubensis (Stebbing, 1897)

Family Megaluropidae Thomas and Barnard, 1986 (Volume 4)

Gibberosus myersi (McKinney, 1980)

Family Melitidae Bousfield, 1973 (Volume 1)

Ceradocus sheardi Shoemaker, 1948 *
Ceradocus shoemakeri Fox, 1973 *
Ceradocus sp. B *
Dulichella appendiculata (Say, 1818)
Dulichella sp. A *
Dumosus atari Thomas and Barnard, 1985 *
Elasmopus balkomanus Thomas and Barnard, 1988 *
Elasmopus levis (Smith, 1873) *
Elasmopus pectinicus (Bate, 1862) *
Elasmopus pocillimanus (Bate, 1862) *
Elasmopus cf *rapax* Costa, 1853 *
Elasmopus sp. A *
Elasmopus sp. B *
Maera caroliniana Bynum and Fox, 1977 *
Maera miranda Ruffo, Krapp and Gable, 2000 *
Maera quadrimana (Dana, 1853) *
Maera williamsi Bynum and Fox, 1977 *
Maera sp. B *
Maera sp. C *
Melita elongata Sheridan, 1980
Melita intermedia Sheridan, 1980
Melita longisetosa Sheridan, 1980
Melita nitida Smith, 1873
Melita planaterga Kunkel, 1910
Melita sp. C
Netamelita brocha Thomas and Barnard, 1991
Tabatzius muelleri (Ortiz, 1976) *
Melitidae sp. B

Family Melphidippidae Stebbing, 1899 (Volume 4)

Hornellia tequestae Thomas and Barnard, 1986

Family Neomegamphopidae Myers, 1981 (Volume 5)

Konatopus sp. A *
Neomegamphopus hiatus Barnard and Thomas, 1987 *
Neomegamphopus kalanii Barnard and Thomas, 1987 *
Varohios sp. A *

- Family Ochlesidae** Stebbing, 1910 (Volume 5)
Curidia debrogania Thomas, 1983
- Family Oedicerotidae** Liljeborg, 1865 (Volume 1)
Americhelidium americanum (Bousfield, 1973)
Americhelidium sp. A
Ameroculodes sp. A *
Deflexilodes? sp. A
Hartmanodes nyei (Shoemaker, 1933)
Periculodes cerasinus Thomas and Barnard, 1985
- Family Phliantidae** Stebbing, 1899 (Volume 5)
Pariphinotus seclusus (Shoemaker, 1933)
Pariphinotus seticoxus (Ortiz, 1976)
- Family Phoxocephalidae** Sars, 1895 (Volume 5)
Eobrolgus spinosus (Holmes, 1905)
Harpinia sp. A
Metharpinia floridana (Shoemaker, 1933)
Rhepoxynius epistomus (Shoemaker, 1938)
Rhepoxynius hudsoni Barnard and Barnard, 1982
Rhepoxynius sp. A
- Family Platyschnopidae** Barnard and Drummond, 1979 (Volume 5)
Eudevenopus honduranus Thomas and Barnard, 1983
- Family Pleustidae** Buchholz, 1874 (Volume 5)
Incisocalliope aestuarius (Watling and Maurer, 1973)
- Family Podoceridae** Leach, 1814 (Volume 5)
Podocerus brasiliensis (Dana, 1853) *
Podocerus chelonophilus (Chevreux and de Guerne, 1888) *
Podocerus fissipes Serejo, 1996 *
Podocerus kleidus Thomas and Barnard, 1992 *
- Family Pontoporeiidae** Dana, 1855 (Volume 5)
Bathyporeia parkeri Bousfield, 1973 *
- Family Sebidae** Walker, 1907 (Volume 5)
Seba tropica McKinney, 1980
- Family Stenothoidae** Boeck, 1871 (Volume 5)
Parametopella cypris (Holmes, 1903)
Parametopella inquilinus Watling, 1976
Parametopella texensis McKinney, Kalke and Holland, 1978
Stenothoe gallensis Walker, 1904
Stenothoe georgiana Bynum and Fox, 1977
Stenothoe minuta Holmes, 1903
Stenothoe valida Dana, 1853
- Family Synopiidae** Dana, 1855 (Volume 5)
Garosyrrhoë cf bigarra (Barnard, 1962)
Metatiron bellairisi (Just, 1981)
Metatiron triocellatus (Goeke, 1982)
Metatiron tropakis (Barnard, 1972)
Synopia ultramarina Dana, 1853

Family Talitridae Bulycheva, 1957 (Volume 5)

Americorchestia heardi Bousfield, 1991

Americorchestia longicornis (Say, 1818)

Americorchestia salomani Bousfield, 1991

Chelorchestia forceps Smith and Heard, 2001

Orchestia grillus (Bosc, 1802)

Platorchestia cf *monodi* (Mateus, Mateus and Afonso, 1986)

Platorchestia cf *platensis* (Krøyer, 1845)

“*Tethorchestia*” sp. B

Tethorchestia antillensis Bousfield, 1984

Uhlorchestia spartinophila (Bousfield and Heard, 1986)

Uhlorchestia uhleri (Shoemaker, 1930)

APPENDIX IV: UPDATED TAXONOMIC STATUS OF FLORIDA AMPHIPOD SPECIES INCLUDED IN VOLUMES 1-5

The following table lists all species included in Volumes 1-5 of this guide for which the name and/or classification has changed since Volume 1 was produced. The original name and classification are indicated in column 1, the current name and classification are in column 2 and references to the literature in which these changes are documented are provided in column 3. Taxa are listed in alphabetical order by original species name and the changes are highlighted in boldface type.

ORIGINAL TAXON (SUBORDER: FAMILY)	CURRENT TAXON (SUBORDER: FAMILY)	REFERENCES
<i>Americorophium aquafuscum</i> (Gammaridea: Corophiidae)	<i>Americorophium aquafuscum</i> (Corophiidea : Corophiidae)	Myers and Lowry, 2003
<i>Americorophium ellisi</i> (Gammaridea: Corophiidae)	<i>Americorophium ellisi</i> (Corophiidea : Corophiidae)	Myers and Lowry, 2003
<i>Americorophium</i> sp. A (Gammaridea: Corophiidae)	<i>Americorophium</i> sp. A (Corophiidea : Corophiidae)	Myers and Lowry, 2003
<i>Ameroculodes</i> sp. A (Gammaridea: Oedicerotidae)	<i>Ameroculodes</i> miltoni (Gammaridea: Oedicerotidae)	Foster and Heard, 2002
<i>Ampithoe longimana</i> (Gammaridea: Ampithoidae)	<i>Ampithoe longimana</i> (Corophiidea : Ampithoidae)	Myers and Lowry, 2003
<i>Ampithoe</i> cf <i>marcuzzi</i> (Gammaridea: Ampithoidae)	<i>Ampithoe</i> cf <i>marcuzzi</i> (Corophiidea : Ampithoidae)	Myers and Lowry, 2003
<i>Ampithoe pollex</i> (Gammaridea: Ampithoidae)	<i>Ampithoe pollex</i> (Corophiidea : Ampithoidae)	Myers and Lowry, 2003
<i>Ampithoe ramondi</i> (Gammaridea: Ampithoidae)	<i>Ampithoe ramondi</i> (Corophiidea : Ampithoidae)	Myers and Lowry, 2003
<i>Ampithoe</i> sp. A (Gammaridea: Ampithoidae)	<i>Ampithoe</i> sp. A (Corophiidea : Ampithoidae)	Myers and Lowry, 2003
<i>Anamaera hixoni</i> (Gammaridea: Gammaridae)	<i>Anamaera hixoni</i> (Gammaridea: Maeridae)	Krapp-Schickel, 2008a; Lowry and Hughes, 2009
<i>Anamixis cavatura</i> (Gammaridea: Anamixidae)	<i>Anamixis cavatura</i> (Gammaridea: Leucothoidae)	Lowry et al., 2000; Lowry and Stoddart, 2003
<i>Anamixis vanga</i> (Gammaridea: Anamixidae)	<i>Anamixis vanga</i> (Gammaridea: Leucothoidae)	Lowry et al., 2000; Lowry and Stoddart, 2003
<i>Apocorophium acutum</i> (Gammaridea: Corophiidae)	<i>Apocorophium acutum</i> (Corophiidea : Corophiidae)	Myers and Lowry, 2003
<i>Apocorophium lacustre</i> (Gammaridea: Corophiidae)	<i>Apocorophium lacustre</i> (Corophiidea : Corophiidae)	Myers and Lowry, 2003
<i>Apocorophium louisianum</i> (Gammaridea: Corophiidae)	<i>Apocorophium louisianum</i> (Corophiidea : Corophiidae)	Myers and Lowry, 2003
<i>Apocorophium simile</i> (Gammaridea: Corophiidae)	<i>Apocorophium simile</i> (Corophiidea : Corophiidae)	Myers and Lowry, 2003
<i>Audulla chelifera</i> (Gammaridea: Isaeidae)	<i>Audulla chelifera</i> (Corophiidea : Photidae)	Myers and Lowry, 2003
<i>Bathyporeia parkeri</i> (Gammaridea: Pontoporeiidae)	<i>Bathyporeia parkeri</i> (Gammaridea: Bathyporeiidae)	Udekem d'Acoz, 2006

ORIGINAL TAXON (SUBORDER: FAMILY)	CURRENT TAXON (SUBORDER: FAMILY)	REFERENCES
<i>Bemlos brunneomaculatus</i> (Gammaridea: Aoridae)	<i>Bemlos brunneomaculatus</i> (Corophiidea : Aoridae)	Myers and Lowry, 2003
<i>Bemlos dentischium</i> (Gammaridea: Aoridae)	<i>Bemlos dentischium</i> (Corophiidea : Aoridae)	Myers and Lowry, 2003
<i>Bemlos kunkleae</i> (Gammaridea: Aoridae)	<i>Bemlos kunkleae</i> (Corophiidea : Aoridae)	Myers and Lowry, 2003
<i>Bemlos cf longicornis</i> (Gammaridea: Aoridae)	<i>Bemlos cf longicornis</i> (Corophiidea : Aoridae)	Myers and Lowry, 2003
<i>Bemlos mackinneyi</i> (Gammaridea: Aoridae)	<i>Bemlos mackinneyi</i> (Corophiidea : Aoridae)	Myers and Lowry, 2003
<i>Bemlos minimus</i> (Gammaridea: Aoridae)	<i>Bemlos minimus</i> (Corophiidea : Aoridae)	Myers and Lowry, 2003
<i>Bemlos setosus</i> (Gammaridea: Aoridae)	<i>Bemlos setosus</i> (Corophiidea : Aoridae)	Myers and Lowry, 2003
<i>Bemlos spinicarpus imermis</i> (Gammaridea: Aoridae)	<i>Bemlos spinicarpus inermis</i> (Corophiidea : Aoridae)	Myers and Lowry, 2003
<i>Bemlos spinicarpus spinicarpus</i> (Gammaridea: Aoridae)	<i>Bemlos spinicarpus spinicarpus</i> (Corophiidea : Aoridae)	Myers and Lowry, 2003
<i>Bemlos unicornis</i> (Gammaridea: Aoridae)	<i>Bemlos unicornis</i> (Corophiidea : Aoridae)	Myers and Lowry, 2003
<i>Caribboecetes</i> sp. A (Gammaridea: Ischyroceridae)	<i>Caribboecetes</i> sp. A (Corophiidea : Ischyroceridae)	Myers and Lowry, 2003
<i>Ceradocus sheardi</i> (Gammaridea: Melitidae)	<i>Ceradocus sheardi</i> (Gammaridea: Maeridae)	Krapp-Schickel, 2008a; Lowry and Hughes, 2009
<i>Ceradocus shoemakeri</i> (Gammaridea: Melitidae)	<i>Ceradocus shoemakeri</i> (Gammaridea: Maeridae)	Krapp-Schickel, 2008a; Lowry and Hughes, 2009
<i>Ceradocus</i> sp. B (Gammaridea: Melitidae)	<i>Ceradocus</i> sp. B (Gammaridea: Maeridae)	Krapp-Schickel, 2008a; Lowry and Hughes, 2009
<i>Cerapus benthophilus</i> (Gammaridea: Ischyroceridae)	<i>Cerapus benthophilus</i> (Corophiidea : Ischyroceridae)	Myers and Lowry, 2003
<i>Cerapus cudjoe</i> (Gammaridea: Ischyroceridae)	<i>Cerapus cudjoe</i> (Corophiidea : Ischyroceridae)	Myers and Lowry, 2003
<i>Cerapus tubularis</i> (Gammaridea: Ischyroceridae)	<i>Cerapus tubularis</i> (Corophiidea : Ischyroceridae)	Myers and Lowry, 2003
<i>Cerapus</i> sp. B (Gammaridea: Ischyroceridae)	<i>Cerapus</i> sp. B (Corophiidea : Ischyroceridae)	Myers and Lowry, 2003
<i>Cerapus</i> sp. C (Gammaridea: Ischyroceridae)	<i>Cerapus</i> sp. C (Corophiidea : Ischyroceridae)	Myers and Lowry, 2003
<i>Chelura terebrans</i> (Gammaridea: Cheluridae)	<i>Chelura terebrans</i> (Corophiidea : Cheluridae)	Myers and Lowry, 2003
<i>Chevalia carpenteri</i> (Gammaridea: Isaeidae)	<i>Chevalia carpenteri</i> (Corophiidea : Chevaliidae)	Myers and Lowry, 2003
<i>Chevalia mexicana</i> (Gammaridea: Isaeidae)	<i>Chevalia mexicana</i> (Corophiidea : Chevaliidae)	Myers and Lowry, 2003
<i>Chevalia</i> sp. B (Gammaridea: Isaeidae)	<i>Chevalia</i> sp. B (Corophiidea : Chevaliidae)	Myers and Lowry, 2003

ORIGINAL TAXON (SUBORDER: FAMILY)	CURRENT TAXON (SUBORDER: FAMILY)	REFERENCES
<i>Cymadusa compta</i> (Gammaridea: Ampithoidae)	<i>Cymadusa compta</i> (Corophiidea : Ampithoidae)	Myers and Lowry, 2003
<i>Cymadusa filosa</i> (Gammaridea: Ampithoidae)	<i>Cymadusa filosa</i> (Corophiidea : Ampithoidae)	Myers and Lowry, 2003
<i>Dulichhiella</i> sp. A (Gammaridea: Melitidae)	<i>Dulichhiella lecrovae</i> (Gammaridea: Melitidae)	Lowry and Springthorpe, 2007
<i>Dumosus atari</i> (Gammaridea: Melitidae)	<i>Dumosus atari</i> (Gammaridea: Maeridae)	Krapp-Schickel, 2008a; Lowry and Hughes, 2009
<i>Elasmopus balkomanus</i> (Gammaridea: Melitidae)	<i>Elasmopus balkomanus</i> (Gammaridea: Maeridae)	Krapp-Schickel, 2008a; Lowry and Hughes, 2009
<i>Elasmopus levis</i> (Gammaridea: Melitidae)	<i>Elasmopus levis</i> (Gammaridea: Maeridae)	Krapp-Schickel, 2008a; Lowry and Hughes, 2009
<i>Elasmopus pecteniscus</i> (Gammaridea: Melitidae)	<i>Elasmopus pecteniscus</i> (Gammaridea: Maeridae)	Krapp-Schickel, 2008a; Lowry and Hughes, 2009
<i>Elasmopus pocillimanus</i> (Gammaridea: Melitidae)	<i>Elasmopus pocillimanus</i> (Gammaridea: Maeridae)	Krapp-Schickel, 2008a; Lowry and Hughes, 2009
<i>Elasmopus</i> cf <i>rapax</i> (Gammaridea: Melitidae)	<i>Elasmopus</i> cf <i>rapax</i> (Gammaridea: Maeridae)	Krapp-Schickel, 2008a; Lowry and Hughes, 2009
<i>Elasmopus</i> sp. A (Gammaridea: Melitidae)	<i>Elasmopus</i> sp. A (Gammaridea: Maeridae)	Krapp-Schickel, 2008a; Lowry and Hughes, 2009
<i>Elasmopus</i> sp. B (Gammaridea: Melitidae)	<i>Elasmopus</i> sp. B (Gammaridea: Maeridae)	Krapp-Schickel, 2008a; Lowry and Hughes, 2009
<i>Erichthonius brasiliensis</i> (Gammaridea: Ischyroceridae)	<i>Erichthonius brasiliensis</i> (Corophiidea : Ischyroceridae)	Myers and Lowry, 2003
<i>Erichthonius</i> sp. A (Gammaridea: Ischyroceridae)	<i>Erichthonius</i> sp. A (Corophiidea : Ischyroceridae)	Myers and Lowry, 2003
<i>Gammaropsis atlantica</i> (Gammaridea: Isaeidae)	<i>Latigammaropsis atlantica</i> (Corophiidea : Photidae)	Myers and Lowry, 2003; Myers, 2009
<i>Gammaropsis sutherlandi</i> (Gammaridea: Isaeidae)	<i>Gammaropsis sutherlandi</i> (Corophiidea : Photidae)	Myers and Lowry, 2003
<i>Gammaropsis togoensis</i> (Gammaridea: Isaeidae)	<i>Latigammaropsis togoensis</i> (Corophiidea : Photidae)	Myers and Lowry, 2003; Myers, 2009
<i>Gammaropsis</i> sp. A (Gammaridea: Isaeidae)	<i>Gammaropsis</i> sp. A (Corophiidea : Photidae)	Myers and Lowry, 2003
<i>Gammaropsis</i> sp. B (Gammaridea: Isaeidae)	<i>Gammaropsis</i> sp. B (Corophiidea : Photidae)	Myers and Lowry, 2003
<i>Gammaropsis</i> sp. C (Gammaridea: Isaeidae)	<i>Gammaropsis</i> sp. C (Corophiidea : Photidae)	Myers and Lowry, 2003
<i>Gammarus</i> sp. B (Gammaridea: Gammaridae)	<i>Gammarus lecrovae</i> (Gammaridea: Gammaridae)	Thoma and Heard, 2009
<i>Globosolembos francanni</i> (Gammaridea: Aoridae)	<i>Globosolembos francanni</i> (Corophiidea : Aoridae)	Myers and Lowry, 2003
<i>Globosolembos smithi</i> (Gammaridea: Aoridae)	<i>Globosolembos smithi</i> (Corophiidea : Aoridae)	Myers and Lowry, 2003
<i>Grandidierella bonnieroides</i> (Gammaridea: Aoridae)	<i>Grandidierella bonnieroides</i> (Corophiidea : Aoridae)	Myers and Lowry, 2003

ORIGINAL TAXON (SUBORDER: FAMILY)	CURRENT TAXON (SUBORDER: FAMILY)	REFERENCES
<i>Hyalella</i> sp. C (Gammaridea: Hyalellidae)	<i>Hyalella</i> sp. C (Gammaridea: Dogielinotidae)	Serejo, 2004
<i>Hyalella</i> sp. D (Gammaridea: Hyalellidae)	<i>Hyalella</i> sp. D (Gammaridea: Dogielinotidae)	Serejo, 2004
<i>Jassa marmorata</i> (Gammaridea: Ischyroceridae)	<i>Jassa marmorata</i> (Corophiidea : Ischyroceridae)	Myers and Lowry, 2003
<i>Jassa</i> sp. A (Gammaridea: Ischyroceridae)	<i>Jassa</i> sp. A (Corophiidea : Ischyroceridae)	Myers and Lowry, 2003
<i>Konatopus</i> sp. A (Gammaridea: Neomegamphopidae)	<i>Konatopus</i> sp. A (Corophiidea : Neomegamphopidae)	Myers and Lowry, 2003
<i>Laticorophium baconi</i> (Gammaridea: Corophiidae)	<i>Laticorophium baconi</i> (Corophiidea : Corophiidae)	Myers and Lowry, 2003
<i>Lembos hypacanthus</i> (Gammaridea: Aoridae)	<i>Lembos hypacanthus</i> (Corophiidea : Aoridae)	Myers and Lowry, 2003
<i>Lembos unifasciatus reductus</i> (Gammaridea: Aoridae)	<i>Lembos unifasciatus reductus</i> (Corophiidea : Aoridae)	Myers and Lowry, 2003
<i>Lembos unifasciatus unifasciatus</i> (Gammaridea: Aoridae)	<i>Lembos unifasciatus unifasciatus</i> (Corophiidea : Aoridae)	Myers and Lowry, 2003
<i>Lembos websteri</i> (Gammaridea: Aoridae)	<i>Lembos websteri</i> (Corophiidea : Aoridae)	Myers and Lowry, 2003
<i>Leptocheirus plumulosus</i> (Gammaridea: Aoridae)	<i>Leptocheirus plumulosus</i> (Corophiidea : Aoridae)	Myers and Lowry, 2003
<i>Maera caroliniana</i> (Gammaridea: Melitidae)	<i>Meximaera diffidentia</i> (Gammaridea: Maeridae)	Krapp-Schickel, 2008a,b; Lowry and Hughes, 2009
<i>Maera miranda</i> (Gammaridea: Melitidae)	<i>Quadrimaera miranda</i> (Gammaridea: Maeridae)	Krapp-Schickel and Ruffo, 2000; Krapp- Schickel, 2008a; Lowry and Hughes, 2009
<i>Maera quadrimana</i> (Gammaridea: Melitidae)	<i>Quadrimaera quadrimana</i> (Gammaridea: Maeridae)	Krapp-Schickel and Ruffo, 2000; Krapp- Schickel, 2008a; Lowry and Hughes, 2009
<i>Maera williamsi</i> (Gammaridea: Melitidae)	<i>Ruffomaera williamsi</i> (Gammaridea: Maeridae)	Krapp-Schickel, 2008b; Lowry and Hughes, 2009
<i>Maera</i> sp. B (Gammaridea: Melitidae)	<i>Ruffomaera</i> sp. B (Gammaridea: Maeridae)	Krapp-Schickel, 2008b; Lowry and Hughes, 2009
<i>Maera</i> sp. C (Gammaridea: Melitidae)	<i>Maera</i> sp. C (Gammaridea: Maeridae)	Krapp-Schickel, 2008a; Lowry and Hughes, 2009
<i>Microprotopus raneyi</i> (Gammaridea: Isaeidae)	<i>Microprotopus raneyi</i> (Corophiidea : Microprotopidae)	Myers and Lowry, 2003
<i>Microprotopus shoemakeri</i> (Gammaridea: Isaeidae)	<i>Microprotopus shoemakeri</i> (Corophiidea : Microprotopidae)	Myers and Lowry, 2003
<i>Monocorophium acherusicum</i> (Gammaridea: Corophiidae)	<i>Monocorophium acherusicum</i> (Corophiidea : Corophiidae)	Myers and Lowry, 2003
<i>Monocorophium insidiosum</i> (Gammaridea: Corophiidae)	<i>Monocorophium insidiosum</i> (Corophiidea : Corophiidae)	Myers and Lowry, 2003

ORIGINAL TAXON (SUBORDER: FAMILY)	CURRENT TAXON (SUBORDER: FAMILY)	REFERENCES
<i>Monocorophium tuberculatum</i> (Gammaridea: Corophiidae)	<i>Monocorophium tuberculatum</i> (Corophiidea : Corophiidae)	Myers and Lowry, 2003
<i>Monocorophium</i> sp. A (Gammaridea: Corophiidae)	<i>Monocorophium</i> sp. A (Corophiidea : Corophiidae)	Myers and Lowry, 2003
<i>Neomegamphopus kalanii</i> (Gammaridea: Neomegamphopidae)	<i>Neomegamphopus kalanii</i> (Corophiidea : Neomegamphopidae)	Myers and Lowry, 2003
<i>Neomegamphopus hiatus</i> (Gammaridea: Neomegamphopidae)	<i>Neomegamphopus hiatus</i> (Corophiidea : Neomegamphopidae)	Myers and Lowry, 2003
<i>Paramicrodeutopus myersi</i> (Gammaridea: Aoridae)	<i>Paramicrodeutopus myersi</i> (Corophiidea : Aoridae)	Myers and Lowry, 2003
<i>Parhyalella whelpleyi</i> (Gammaridea: Hyalellidae)	<i>Parhyalella whelpleyi</i> (Gammaridea: Dogielinotidae)	Serejo, 2004
<i>Parhyalella</i> sp. A (Gammaridea: Hyalellidae)	<i>Parhyalella</i> sp. A (Gammaridea: Dogielinotidae)	Serejo, 2004
<i>Pediorophium laminosum</i> (Gammaridea: Aoridae)	<i>Pediorophium laminosum</i> (Corophiidea : Aoridae)	Myers and Lowry, 2003
<i>Peramphithoe</i> sp. A (Gammaridea: Ampithoidae)	<i>Peramphithoe</i> sp. A (Corophiidea : Ampithoidae)	Myers and Lowry, 2003
<i>Photis longicaudata</i> (Gammaridea: Isaeidae)	<i>Photis longicaudata</i> (Corophiidea : Photidae)	Myers and Lowry, 2003
<i>Photis macromana</i> (Gammaridea: Isaeidae)	<i>Photis macromana</i> (Corophiidea : Photidae)	Myers and Lowry, 2003
<i>Photis melanica</i> (Gammaridea: Isaeidae)	<i>Photis melanica</i> (Corophiidea : Photidae)	Myers and Lowry, 2003
<i>Photis pugnator</i> (Gammaridea: Isaeidae)	<i>Photis pugnator</i> (Corophiidea : Photidae)	Myers and Lowry, 2003
<i>Photis trapherus</i> (Gammaridea: Isaeidae)	<i>Photis trapherus</i> (Corophiidea : Photidae)	Myers and Lowry, 2003
<i>Photis</i> sp. C (Gammaridea: Isaeidae)	<i>Photis</i> sp. C (Corophiidea : Photidae)	Myers and Lowry, 2003
<i>Photis</i> sp. D (Gammaridea: Isaeidae)	<i>Photis</i> sp. D (Corophiidea : Photidae)	Myers and Lowry, 2003
<i>Photis</i> sp. E (Gammaridea: Isaeidae)	<i>Rocasphotis</i> sp. E (Corophiidea : Photidae)	Myers and Lowry, 2003; Souza-Filho and Serejo, 2010
<i>Photis</i> sp. F (Gammaridea: Isaeidae)	<i>Photis</i> sp. F (Corophiidea : Photidae)	Myers and Lowry, 2003
<i>Plesiolembos ovalipes</i> (Gammaridea: Aoridae)	<i>Plesiolembos ovalipes</i> (Corophiidea : Aoridae)	Myers and Lowry, 2003
<i>Plesiolembos rectangulatus</i> (Gammaridea: Aoridae)	<i>Plesiolembos rectangulatus</i> (Corophiidea : Aoridae)	Myers and Lowry, 2003
<i>Podocerus brasiliensis</i> (Gammaridea: Podoceridae)	<i>Podocerus brasiliensis</i> (Corophiidea : Podoceridae)	Myers and Lowry, 2003
<i>Podocerus chelonophilus</i> (Gammaridea: Podoceridae)	<i>Podocerus chelonophilus</i> (Corophiidea : Podoceridae)	Myers and Lowry, 2003

ORIGINAL TAXON (SUBORDER: FAMILY)	CURRENT TAXON (SUBORDER: FAMILY)	REFERENCES
<i>Podocerus fissipes</i> (Gammaridea: Podoceridae)	<i>Podocerus fissipes</i> (Corophiidea : Podoceridae)	Myers and Lowry, 2003
<i>Podocerus kleidus</i> (Gammaridea: Podoceridae)	<i>Podocerus kleidus</i> (Corophiidea : Podoceridae)	Myers and Lowry, 2003
<i>Protohadzia schoenerae</i> (Gammaridea: Hadziidae)	<i>Dulzura schoenerae</i> (Gammaridea: Hadziidae)	Springthorpe and Lowry, 2009
<i>Rudilemboides naglei</i> (Gammaridea: Aoridae)	<i>Rudilemboides naglei</i> (Corophiidea : Aoridae)	Myers and Lowry, 2003
<i>Spathiopus looensis</i> (Gammaridea: Gammaridae)	<i>Spathiopus looensis</i> (Gammaridea: Maeridae)	Krapp-Schickel, 2008a; Lowry and Hughes, 2009
<i>Sunamphitoe pelagica</i> (Gammaridea: Ampithoidae)	<i>Sunamphitoe pelagica</i> (Corophiidea : Ampithoidae)	Myers and Lowry, 2003
<i>Tabatzius muelleri</i> (Gammaridea: Melitidae)	<i>Nuuanu muelleri</i> (Gammaridea: Melitidae)	Lowry and Watson, 2002
<i>Tropichelura gomezi</i> (Gammaridea: Cheluridae)	<i>Tropichelura gomezi</i> (Corophiidea : Cheluridae)	Myers and Lowry, 2003
<i>Unciola dissimilis</i> (Gammaridea: Aoridae)	<i>Unciola dissimilis</i> (Corophiidea : Aoridae)	Myers and Lowry, 2003
<i>Unciola serrata</i> (Gammaridea: Aoridae)	<i>Unciola serrata</i> (Corophiidea : Aoridae)	Myers and Lowry, 2003
<i>Unciola</i> sp. C (Gammaridea: Aoridae)	<i>Unciola</i> sp. C (Corophiidea : Aoridae)	Myers and Lowry, 2003
<i>Varohios</i> sp. A (Gammaridea: Neomegamphopidae)	<i>Varohios</i> sp. A (Corophiidea : Neomegamphopidae)	Myers and Lowry, 2003

APPENDIX V: COMPLETE TAXONOMIC LISTING OF FLORIDA AMPHIPOD SPECIES INCLUDED IN VOLUMES 1-5: UPDATED TAXONOMY

The following list contains all species included in volumes 1-5 of this guide based on their current taxonomic status, which may differ from that originally used in earlier volumes of the guide. Taxa are listed alphabetically by family and species within the suborders Corophiidea and Gammaridea. For any family or species that has undergone a change in name or taxonomic placement over the years since Volume 1 was produced, the original name or placement is indicated in parentheses following the appropriate current name in the list. Appendix III presents a taxonomic listing of these same species based upon the names originally used in the text and Appendix IV lists both the original and current taxonomic status of each species, along with references to the literature in which any indicated changes are documented.

Suborder Corophiidea Leach, 1814

Family Ampithoidae Stebbing, 1899 (from Gammaridea)

Ampithoe longimana Smith, 1873
Ampithoe cf *marcuzzii* Ruffo, 1954
Ampithoe pollex Kunkel, 1910
Ampithoe ramondi Audouin, 1826
Ampithoe valida Smith, 1873
Ampithoe sp. A
Cymadusa compta (Smith, 1873)
Cymadusa filosa Savigny, 1816
Peramphithoe sp. A
Sunamphithoe pelagica (Milne-Edwards, 1830)

Family Aoridae Stebbing, 1899 (from Gammaridea)

Bemlos brunneomaculatus (Myers, 1977)
Bemlos dentischium (Myers, 1977)
Bemlos kunkleae (Myers, 1977)
Bemlos cf *longicornis* (Myers, 1978)
Bemlos mackinneyi (Myers, 1978)
Bemlos minimus (Myers, 1977)
Bemlos setosus (Myers, 1978)
Bemlos spinicarpus inermis (Myers, 1979)
Bemlos spinicarpus spinicarpus (Pearse, 1912)
Bemlos unicornis (Bynum and Fox, 1977)
Globosolembos francanni (Reid, 1951)
Globosolembos smithi (Holmes, 1905)
Grandidierella bonnieroides Stephensen, 1948
Lembos hypacanthus K.H. Barnard, 1916
Lembos unifasciatus reductus Myers, 1979
Lembos unifasciatus unifasciatus Myers, 1977
Lembos websteri Bate, 1857
Paramicrodeutopus myersi (Bynum and Fox, 1977)
Plesiolembos ovalipes (Myers, 1979)
Plesiolembos rectangulatus (Myers, 1977)

Family Cheluridae Allman, 1847 (from Gammaridea)

Chelura terebrans Philippi, 1839

Tropichelura gomezi Ortiz, 1976

Family Chevaliidae Myers and Lowry, 2003

Chevalia carpenteri Barnard and Thomas, 1987 (from Isaeidae)

Chevalia mexicana Pearse, 1912 (from Isaeidae)

Chevalia sp. B (from Isaeidae)

Family Corophiidae Leach, 1814 (from Gammaridea)

Americorophium aquafuscum (Sikora and Heard, 1972)

Americorophium ellisi (Shoemaker, 1943)

Americorophium sp. A

Apocorophium acutum (Chevreux, 1908)

Apocorophium lacustre (Vanhöffen, 1911)

Apocorophium louisianum (Shoemaker, 1934)

Apocorophium simile (Shoemaker, 1934)

Laticorophium baconi (Shoemaker, 1934)

Leptocheirus plumulosus Shoemaker, 1932

Monocorophium acherusicum (Costa, 1851)

Monocorophium insidiosum (Crawford, 1934)

Monocorophium tuberculatum (Shoemaker, 1934)

Monocorophium sp. A

Family Ischyroceridae Stebbing, 1899 (from Gammaridea)

Caribboecetes sp. A

Cerapus benthophilus Thomas and Heard, 1979

Cerapus cudjoe Lowry and Thomas, 1991

Cerapus tubularis Say, 1817

Cerapus sp. B

Cerapus sp. C

Erichthonius brasiliensis (Dana, 1853)

Erichthonius sp. A

Jassa marmorata Holmes, 1903

Jassa sp. A

Family Microtopidae Myers and Lowry, 2003

Microtopus raneyi Wigley, 1966 (from Isaeidae)

Microtopus shoemakeri Lowry, 1972 (from Isaeidae)

Family Neomegamphopidae Myers, 1981 (from Gammaridea)

Konatopus sp. A

Neomegamphopus hiatus Barnard and Thomas, 1987

Neomegamphopus kalanii Barnard and Thomas, 1987

Varohios sp. A

Family Photidae Boeck, 1871

Audulla chelifera Chevreux, 1901 (from Isaeidae)

Gammaropsis sutherlandi Nelson, 1980 (from Isaeidae)

Gammaropsis sp. A (from Isaeidae)

Gammaropsis sp. B (from Isaeidae)

Gammaropsis sp. C (from Isaeidae)

- Latigammaropsis atlantica* (Stebbing, 1888) (= *Gammaropsis atlantica*; from Isaeidae)
Latigammaropsis togoensis (Schellenberg, 1925) (= *Gammaropsis togoensis*; from Isaeidae)
Photis longicaudata (Bate and Westwood, 1863) (from Isaeidae)
Photis macromana McKinney, Kalke and Holland, 1978 (from Isaeidae)
Photis melanica McKinney, 1980 (from Isaeidae)
Photis pugnator Shoemaker, 1945 (from Isaeidae)
Photis trapherus Thomas and Barnard, 1991 (from Isaeidae)
Photis sp. C (from Isaeidae)
Photis sp. D (from Isaeidae)
Photis sp. F (from Isaeidae)
Rocasphotis sp. E (= *Photis* sp. E; from Isaeidae)
- Family** Podoceridae Leach, 1814 (from Gammaridea)
Podocerus brasiliensis (Dana, 1853)
Podocerus chelonophilus (Chevreux and de Guerne, 1888)
Podocerus fissipes Serejo, 1996
Podocerus kleidus Thomas and Barnard, 1992
- Family** Unciolidae Myers and Lowry, 2003
Pedicatorophium laminosum (Pearse, 1912) (from Aoridae)
Rudilemboides naglei Bousfield, 1973 (from Aoridae)
Unciola dissimilis Shoemaker, 1945 (from Aoridae)
Unciola serrata Shoemaker, 1945 (from Aoridae)
Unciola sp. C (from Aoridae)
- Suborder** Gammaridea Latreille, 1802
- Family** Ampeliscidae Costa, 1957
Ampelisca abdita Mills, 1964
Ampelisca agassizi (Judd, 1896)
Ampelisca bicarinata Goeke and Heard, 1983
Ampelisca burkei Barnard and Thomas, 1989
Ampelisca cristata forma *microdentata* Barnard, 1954
Ampelisca holmesi Pearse, 1908
Ampelisca schellenbergi Shoemaker, 1933
Ampelisca vadorum Mills, 1963
Ampelisca verrilli Mills, 1967
Ampelisca sp. A
Ampelisca sp. B
Ampelisca sp. C
Byblis sp. A
- Family** Amphilochidae Boeck, 1871
Apolochus casahoya (McKinney, 1978)
Apolochus delacaya (McKinney, 1978)
Apolochus pillaii (Barnard and Thomas, 1983)
Apolochus sp. A
Gitana cf *dominica* Thomas and Barnard, 1990
Hourstonius laguna (McKinney, 1978)
Hourstonius tortugae (Shoemaker, 1933)
Hourstonius sp. B

- Family Argissidae** Walker, 1904
Argissa hamatipes (Norman, 1869)
- Family Bateidae** Stebbing, 1906
Batea campi (Ortiz, 1991)
Batea carinata (Shoemaker, 1926)
Batea catharinensis Müller, 1865
Batea cuspidata (Shoemaker, 1926)
- Family Bathyporeiidae** Bousfield and Shih, 1994
Bathyporeia parkeri Bousfield, 1973 (from Pontoporeiidae)
- Family Biancolinidae** Barnard, 1972
Biancolina brassicacephala Lowry, 1974
- Family Colomastigidae** Chevreux, 1899
Colomastix bousfieldi LeCroy, 1995
Colomastix falcirama LeCroy, 1995
Colomastix gibbosa LeCroy, 1995
Colomastix halichondriae Bousfield, 1973
Colomastix heardi LeCroy, 1995
Colomastix irciniae LeCroy, 1995
Colomastix janiceae Heard and Perlmutter, 1977
Colomastix tridentata LeCroy, 1995
- Family Cyproideidae** Barnard, 1974
Hoplopheonoides obesa Shoemaker, 1956
- Family Dexaminidae** Leach, 1814
Dexaminella sp. A
Nototropis minikoi (Walker, 1905)
Nototropis urocarinatus (McKinney, 1980)
Polycheria sp. A
- Family Dogielinotidae** Gurjanova, 1953
Hyaella sp. C (from Hyaellidae)
Hyaella sp. D (from Hyaellidae)
Parhyaella whelpleyi (Shoemaker, 1933) (from Hyaellidae)
Parhyaella sp. A (from Hyaellidae)
- Family Eusiridae** Stebbing, 1888
Eusiroides sp. A
Nasageneia bacescui Ortiz and Lalana, 1994
Tethygeneia longleyi (Shoemaker, 1933)
- Family Gammaridae** Leach, 1814
Gammarus mucronatus Say, 1818
Gammarus palustris Bousfield, 1969
Gammarus cf *tigrinus* Sexton, 1939
Gammarus lecroyae Thoma and Heard, 2009 (= *Gammarus* sp. B)
- Family Hadziidae** Karaman, 1943
Dulzura schoenerae (Fox, 1973) (= *Protohadzia schoenerae*)
- Family Haustoriidae** Stebbing, 1906
Acanthohaustorius bousfieldi Frame, 1980
Acanthohaustorius cf *intermedius* Bousfield, 1965

Acanthohaustorius millsii Bousfield, 1965
Acanthohaustorius pansus Thomas and Barnard, 1984
Acanthohaustorius shoemakeri Bousfield, 1965
Acanthohaustorius similis Frame, 1980
Acanthohaustorius uncinus Foster, 1989
Acanthohaustorius sp. A
Acanthohaustorius sp. C
Haustorius canadensis Bousfield, 1962
Haustorius jayneae Foster and LeCroy, 1991
Haustorius sp. D
Lepidactylus dytiscus Say, 1818
Lepidactylus cf *triarticulatus* Robertson and Shelton, 1980
Neohaustorius schmitzi Bousfield, 1965
Parahaustorius holmesi Bousfield, 1965
Parahaustorius longimerus Bousfield, 1965
Parahaustorius obliquus Robertson and Shelton, 1980
Protohaustorius cf *bousfieldi* Robertson and Shelton, 1978
Protohaustorius cf *deichmannae* Bousfield, 1965
Protohaustorius cf *wigleyi* Bousfield, 1965
Pseudohaustorius americanus (Pearse, 1908)
Pseudohaustorius carolinensis Bousfield, 1965
Pseudohaustorius sp. B
Family Hyalidae Bulycheva, 1957
Apohyale media (Dana, 1853)
Parhyale fascigera Stebbing, 1897
Parhyale hawaiiensis (Dana, 1853)
Protohyale sp. A
Protohyale sp. B
Protohyale sp. D
Family Iphimediidae Boeck, 1871
Iphimedia zora (Thomas and Barnard, 1991)
Family Leucothoidae Dana, 1852
Anamixis cavatura Thomas, 1997 (from Anamixidae)
Anamixis vanga Thomas, 1997 (from Anamixidae)
Leucothoe ashleyae Thomas and Klebba, 2006
Leucothoe barana Thomas and Klebba, 2007
Leucothoe flammosa Thomas and Klebba, 2007
Leucothoe garifunae Thomas and Klebba, 2007
Leucothoe kensleyi Thomas and Klebba, 2006
Leucothoe laurensi Thomas and Ortiz, 1995
Leucothoe ubouhu Thomas and Klebba, 2007
Leucothoe wuriti Thomas and Klebba, 2007
Leucothoe sp. B
Leucothoe sp. D
Leucothoe sp. F

Family Liljeborgiidae Stebbing, 1899

Liljeborgia bousfieldi McKinney, 1979

Liljeborgia sp. A

Listriella bahia McKinney, 1979

Listriella cf *barnardi* Wigley, 1966

Listriella clymenellae Mills, 1962

Listriella kensleyi Ortiz and Lalana, 1996

Listriella sp. B

Listriella sp. C

Family Lysianassidae Dana, 1849

Aruga holmesi Barnard, 1955

Concarnes concavus (Shoemaker, 1933)

Hippomedon pensacola Lowry and Stoddart, 1997

Hippomedon sp. B

Lepidepcreum cf *magdalenensis* (Shoemaker, 1942)

Lysianopsis alba Holmes, 1903

Orchomenella perdido Lowry and Stoddart, 1997

Orchomenella thomasi Lowry and Stoddart, 1997

Shoemakerella cubensis (Stebbing, 1897)

Family Maeridae Krapp-Schickel, 2008

Anamaera hixonii Thomas and Barnard, 1985 (from Gammaridae)

Ceradocus sheardi Shoemaker, 1948 (from Melitidae)

Ceradocus shoemakeri Fox, 1973 (from Melitidae)

Ceradocus sp. B (from Melitidae)

Dumosus atari Thomas and Barnard, 1985 (from Melitidae)

Elasmopus balkomanus Thomas and Barnard, 1988 (from Melitidae)

Elasmopus levis (Smith, 1873) (from Melitidae)

Elasmopus pectinicus (Bate, 1862) (from Melitidae)

Elasmopus pocillimanus (Bate, 1862) (from Melitidae)

Elasmopus cf *rapax* Costa, 1853 (from Melitidae)

Elasmopus sp. A (from Melitidae)

Elasmopus sp. B (from Melitidae)

Maera sp. C (from Melitidae)

Meximaera diffidentia Barnard, 1969 (= *Maera caroliniana*; from Melitidae)

Quadrimaera miranda (Ruffo, Krapp and Gable, 2000) (= *Maera miranda*; from Melitidae)

Quadrimaera quadrimana (Dana, 1853) (= *Maera quadrimana*; from Melitidae)

Ruffomaera williamsi (Bynum and Fox, 1977) (= *Maera williamsi*; from Melitidae)

Ruffomaera sp. B (= *Maera* sp. B; from Melitidae)

Spathiopus looensis Thomas and Barnard, 1985 (from Gammaridae)

Family Megalurotidae Thomas and Barnard, 1986

Gibberosus myersi (McKinney, 1980)

Family Melitidae Bousfield, 1973

Dulichchiella appendiculata (Say, 1818)

Dulichchiella lecrovayae Lowry and Springthorpe, 2007 (= *Dulichchiella* sp. A)

Melita elongata Sheridan, 1980

Melita intermedia Sheridan, 1980

- Melita longisetosa* Sheridan, 1980
Melita nitida Smith, 1873
Melita planaterga Kunkel, 1910
Melita sp. C
Netamelita brocha Thomas and Barnard, 1991
Nuuanu muelleri Ortiz, 1976 (= *Tabatzius muelleri*)
 Melitidae sp. B
- Family** Melphidippidae Stebbing, 1899
Hornellia tequestae Thomas and Barnard, 1986
- Family** Ochlesidae Stebbing, 1910
Curidia debrogania Thomas, 1983
- Family** Oedicerotidae Liljeborg, 1865
Americhelidium americanum (Bousfield, 1973)
Americhelidium sp. A
Ameroculodes miltoni Foster and Heard, 2002 (= *Ameroculodes* sp. A)
Deflexilodes? sp. A
Hartmanodes nyei (Shoemaker, 1933)
Perioculodes cerasinus Thomas and Barnard, 1985
- Family** Phliantidae Stebbing, 1899
Pariphinotus seclusus (Shoemaker, 1933)
Pariphinotus seticoxus (Ortiz, 1976)
- Family** Phoxocephalidae Sars, 1895
Eobrologus spinosus (Holmes, 1905)
Harpinia sp. A
Metharpinia floridana (Shoemaker, 1933)
Rhepoxynius epistomus (Shoemaker, 1938)
Rhepoxynius hudsoni Barnard and Barnard, 1982
Rhepoxynius sp. A
- Family** Platyschnopidae Barnard and Drummond, 1979
Eudevenopus honduranus Thomas and Barnard, 1983
- Family** Pleustidae Buchholz, 1874
Incisocalliope aestuarius (Watling and Maurer, 1973)
- Family** Sebiidae Walker, 1907
Seba tropica McKinney, 1980
- Family** Stenothoidae Boeck, 1871
Parametopella cypris (Holmes, 1903)
Parametopella inquilinus Watling, 1976
Parametopella texensis McKinney, Kalke and Holland, 1978
Stenothoe gallensis Walker, 1904
Stenothoe georgiana Bynum and Fox, 1977
Stenothoe minuta Holmes, 1903
Stenothoe valida Dana, 1853
- Family** Synopiidae Dana, 1855
Garosyrrhoë cf bigarra (Barnard, 1962)
Metatiron bellairi (Just, 1981)
Metatiron triocellatus (Goeke, 1982)

Metatiron tropakis (Barnard, 1972)

Synopia ultramarina Dana, 1853

Family Talitridae Bulycheva, 1957

Americorchestia heardi Bousfield, 1991

Americorchestia longicornis (Say, 1818)

Americorchestia salomani Bousfield, 1991

Chelorchestia forceps Smith and Heard, 2001

Orchestia grillus (Bosc, 1802)

Platorchestia cf *monodi* (Mateus, Mateus and Afonso, 1986)

Platorchestia cf *platensis* (Krøyer, 1845)

“*Tethorchestia*” sp. B

Tethorchestia antillensis Bousfield, 1984

Uhlorchestia spartinophila (Bousfield and Heard, 1986)

Uhlorchestia uhleri (Shoemaker, 1930)