Key to the Families of Amphipods Reported in the Southern California Bight & Nearby Environs

Dean Pasko, 29-Sep-2023

1. Pleon and urosome (abdomen) vestigial; pereonites typically elongate, cylindrical in free-living forms; pereonite 1 fused to head; gills three or fewer pairs; female brood plates two pairs (**Figure 1**).....**Caprellida**

— Abdomen prominent; pereonites generally laterally compressed; pereonite 1 and head separate; more than three pairs of gills and brood plates 2

2. Body vermiform, without coxal or epimeral plates; gnathopods represented by compound claw ("dactyl") formed of propodus and dactyl closing carpus; living interstitially or within crevices (**Figure 2**).....**Ingolfiellidea**[i]

— Body typically not vermiform, coxal and epimeral plates well developed, visible; gnathopod l formed of dactyl closing against propodusm when not vestigial..... Gammaridea….3

3. Telson fleshy, thick, short, minute or indistinct, not readily articulated at junction with urosomites, sometimes difficult to discern; rami of uropod 3 (if present) shorter than peduncle (with numerous exceptions) (**Figure 4**) 4

— Telson flat, laminar, and moveable, usually distinct and readily visible; uncleft or deeply cleft; rami of uropod 3 always present and usually longer than the peduncle (**Figures 27 & 29**) .....
.....26

4. Aantennae and appendages strongly fossorial (densely spinose and setose); peduncular segments of antenna 2 posteriorly expanded; body broadened through pleon while urosome is much reduced **and** strongly reflexed (bent downward), positioned ventral to pleon; articles 2–4 of pereopods 5–7 strongly expanded (**Figure 3**) .....**Haustoriidae**

— Above character states not combined: appendages and uropods not strongly fossorial; peduncular articles of antennae and articles 2–4 of pereopods 5–7 not strongly expanded urosome normally aligned, not ventral to pleon 5

5. Antenna 1 no longer than the head, much shorter than antenna 2; telson with 10 or more irregularly distributed stout spines; pereopods particularly heavy; terrestrial or semi-terrestrial (**Figure 4**)..... **Talitridae**[ii]

— Antenna 1 significantly longer than the head, subequal to or larger than antenna 2; telson with six or less irregularly spaced stout spines (not counting long spines or setae); entirely aquatic or intertidal.....6

6. Uropod 3 indistinct or absent (**Figures 7 & 8**) 7

— Uropod 3 large and readily visible (**Figures 9–12**) 10

7. Body dorsoventrally flattened, coxae 1–4 deeper than broad and splayed outward; rostrum spatulate; antenna 1 peduncular articles with distinct ventral processes (**Figure 5**) .....
.....**Phliantidae** (*Pariphinotus escabrosus*)

— Body laterally compressed or tubular; coxae 1-4 not splayed outward; rostrum small or absent
.....8

NOTE: This Key was built upon previous works of Chapman (2007) and Cadien's Amphipoda of the Northeast Pacific: 1–XXIX, the latter of which is available at the SCAMIT Website (https://scamit.org/tools/. Users are welcome to contact the author at deanpasko@yahoo.com to suggest corrections and make suggestions for improvement.

8. Telson fused to urosome, and urosomites 2 and 3 fused; coxae 1–4 small, rounded; coxa 5–7 smaller, rectangular, distinctly wider than deep; burrows into kelp (**Figure 6**) ..... **Eophliantidae** (*Lignophliantis pyrifera*)

— Telson separate from urosome; body laterally compressed; other characters not combined.....9

9. Pereonites 6 and 7 fused; gills absent from pereonite 6; urosomite 1 greatly elongated (>2x longer than wide) (**Figure 7**) ..... **Dulichiidae**

— Pereonites 6 and 7 not fused together, independent; gills present on pereonite 6; urosomite 1 relatively short, length ≤2x width (**Figure 8**) .....**Podoceridae**

10. Pleonite 3 with immense posteriorly projecting dorsal tooth; uropod 2 peduncle greatly expanded, uropods 2 and 3 enormous (**Figure 9**).....**Cheluridae** (*Chelura terebrans*)

— Pleonite 3 without posteriorly projecting dorsal tooth; uropod 2 without greatly expanded peduncle. 11

11. Uropod 3 biramus, rami generally prominent (short or long), inner ramus not scale-like (**Figures 10, 12, 15**) 12

— Uropod 3 uniramus (**Figure 21**) or with minute, scale-like inner ramus this is indistinct and difficult to observe 19

12. Uropod 3 outer ramus bearing conspicuous hooks (**Figure 10**) or small denticles, the latter of which may only be visible under high magnification 13

— Uropod 3 rami with setae or short, straight spines but not hooks or denticles (**Figures 14–15**)... 14

13. Outer ramus of uropod 3 stout, with two heavy, hooked spines and inner ramus flat and apically setose (**Figure 10**) .....**Ampithoidae**

— Outer ramus of uropod 3 apically stout and bearing a single large hook or relatively slender and either denticulate or unornamented (**Figure 11**) (**Note**: two exceptions, *Ericthonius* and *Notopma*, both of which have uniramus uropod 3)..... **Ischyroceridae** (in part)

14. Eyes completely enclosed on produced ocular lobes that extend about one-half way along the first article of antenna 1 (best viewed from dorsal perspective); uropod 3 biramus, peduncle much shorter than rami, without disto-ventral corona of fine spines; male gnathopod 1 carpochelate (**Figure 12**) .....**Kamakidae** (*Amphideutopus oculatus*)

— These character states not combined.....15

15. Gnathopod 2 more robust than gnathopod 1—compare article 6 of gnathopods 1 and 2 (**Figures 13–15**) 16

— Gnathopod 1 larger, more robust than gnathopod 2 (less so in females) (**Figure 16**).....18

16. Urosomites 1 and 2 fused; pereopods 5–7 progress from very short to long: pereopod 5 being much shorter than 6, which is much shorter than 7; pereopod dactyls 5–7 strong, heavy, bifurcate (**Figure 13**) .....**Chevaliidae** (*Chevalia inaequalis*)

— Urosomites 1 and 2 free; pereopods 5–7 follow normal, gradual elongation; dactyls simple...17

17. Coxa 1 larger than coxa 2; uropod 3 inner ramus between one-third to two-thirds of outer ramus (**Figure 14**) ..... **Corophiidae (**in part: Protomedeiinae)[iii]

— Coxa 1 smaller than coxa 2; uropod 3 rami either subequal (*Gammaropsis*) or less than one-third of outer ramus (*Photis*) (**Figure 15**) ..... **Photidae** (in part)

18. Head lobe acute; pereopod 7 not very elongate, article 6 not extending beyond pereopod 6 (**Figure 16**) ..... **Unciolidae**

— Head lobe blunt or rounded; pereopod 7 article 6 extends beyond pereopod 6 (**Figure 17**) ..... **Aoridae**

19. Ocular (head) lobe immense, extending beyond first article of antenna 1 (best viewed dorsally); uropod 3 peduncle short, slightly longer than broad (**Figure 18**) ..... **Photidae** (in part: *Ampelisciphotis podopthalma*)

— Ocular lobe not immense, not extending beyond first article of antenna 1; uropod 3 peduncle long, twice as long as broad 20

20. Combined lengths of urosomites 2 and 3 greater than one-half of urosomite 1 or urosomites 1–3 fused (**Figures 19–20**); mandibular palp present (**Figure 32**); oöstegites lined with evenly curved or straight setae 21

— Urosomites 2 and 3 combined lengths less than one-half of urosomite 1 (**Figures 22–23**); mandibular palp absent (**Figure 33**); oöstegites lined with distally curled setae 23

21. Male gnathopod 1 or gnathopod 2 carpochelate; pereonite 2 with coxal gill 22

— Male and female gnathopod 2 merochelate or simple (not carpochelate), ventrally lined with long pinnate setae, and larger than gnathopod 1; pereonite 2 lacking coxal gill (**Figure 19**) ..... **Corophiidae** (in part: Corophiinae)

22. Male gnathopod 1 carpochelate (**Figure 20**) ..... **Aoridae** (in part: *Grandidierella japonica*)

— Male gnathopod 2 carpochelate (**Figure 21**) ..... **Ischyroceridae** (in part: *Ericthonius* and *Notopoma* sp A)

23. Head anteriorly decurved, antenna 1 insertion ventral to the eye; uropod 3 ramus indistinct; mandibular molar indistinct flat plate; restricted to algal habitats (**Figure 22**) ..... **Najnidae** (*Carinonajna kitamati*)

— Head anteriorly square, antenna 1 insertion dorsal to the eye; uropod 3 ramus short, readily apparent; mandibular molar prominent 24

24. Telson uncleft; pleonites 1 and 2 postero-dorsal margin acutely produced (**Figure 23**) ..... **Hyalellidae** (*Hyalella azteca*)

— Telson cleft one-third or more its length 25

25. Telson cleft one-third its length; uropod 3 ramus with terminal spines only, margins naked; maxilla 1 palp extremely reduced or absent (**Figure 24**) ..... **Dogielinotidae**

— Telson cleft one-half or more its length; uropod 3 ramus with short stout marginal and terminal spines; maxilla 1 palp extending to distal end of outer plate (**Figure 25**) ..... **Hyalidae**

26. Body elongate, subcylindrical, thin; flagellum of antennae 1 and 2 strongly reduced (one to few segments); coxae minute, very short, and overlapping (**Figure 26**) ..... **Colomastigidae** (*Colomastix* sp A)

— Body laterally compressed, not notably elongate or cylindrical; flagellum of antennae not reduced, normal with multiple segments; coxae of varying lengths, not uniformly short 27

27. Gnathopod 1 vestigial, reduced to two articles (coxa plus linear basis); telson laminar and deeply cleft (**Figure 27**) ..... **Bateidae**

— Gnathopod 1 normally articulated; telson cleft or uncleft 28

28. Coxa 1 small, often less than one-half of coxa 2, and obscured by coxa 2; coxae 2–4 often enlarged 29

— Coxa 1 at least half as large as coxa 2; coxae 2–4 progressing normally 31

29. Gnathopod 1 carpochelate (**Figure 28**) ..... **Leucothoidae** (In part: Anamixinae, *Anamixis pacifica*)

— Gnathopod 1 simple, transverse or subchelate, not carpochelate (**Figures 28–29**) 30

30. Uropod 3 biramous, rami uniarticulate; uropod 2 not reaching distal end of uropod 3; article 5 of gnathopods 1 and 2 extend along the posterior edge of article 6 (**Figure 29**) ..... **Amphilochidae**

— Uropod 3 uniramus, ramus biarticulate; uropod 2 terminating with uropods 1 and 3; article 5 of gnathopod 2 short, not extending along posterior edge of article 6 (**Figure 30**) ..... **Stenothoidae**

31. Urosomites 2 and 3 fused (**Figure 31**) 32

— Urosomites separate - interpret carefully as some taxa (e.g., Pardaliscidae and Platyischnopidae) have a narrowed urosomite 2 (**Figures 48, 51**) 34

32. When present, with four eyes (two per side), consisting of a anterodorsol and anteroventral cuticular lens; pereopod 3 and 4 dactyls as long as or longer than articles 5 and 6 combined; pereopods 6 and 7 dissimilar (**Figure 31**) ..... **Ampeliscidae**

— With one pair of normal, multifaceted eyes; pereopods 3 and 4 dactyls shorter than articles 5 and 6 combined; pereopods 6 and 7 similar; 33

33. Multi-articulate mandibular palp present (**Figure 32**) ..... **Atylidae** (*Atylus tridens*)

— Mandibular palp absent or vestigial (**Figure 33**) ..... **Dexaminidae**

34. Gnathopod 2 with article 3 elongate, at least 1.5 times longer than wide 35

— Gnathopod 2 with article 3 normal, not markedly elongate 41

35. Gnathopod 2 minutely subchelate ("mitten-shaped," dactyl minute, concealed by dense setae); antenna 1, article 1 squat, thickened, depth usually half or more of length; body typically white, compact, shiny and densely calcified (**Figure 34**) ..... **Lysianassoidea**[iv]

— Gnathopod 2 not "mitten-shaped", dactyl typically prominent but never concealed by dense setate; antenna 1, article 1 not exceptionally thickened, usually longer than deep 36

36. Pereonites smooth, without dorsal or dorsolateral crests or processes 37
— Pereonites with dorsal or dorsolateral crest(s) or processes 39
37. Rostrum and eyes present; obligate fish parasite (**Figure 35**) ..... **Lafystiidae**
— Rostrum and eyes absent 38
38. Gnathopods 1 and 2 nearly simple; gnathopod 2 propod elongate, narrow (**Figure 36**) ..... **Stegocephalidae** (*Alania hancocki*)
— Gnathopods 1 and 2 subchelate (**Figure 37**) ..... **Valettiopsidae** (*Valettiopsis dentatus*, *Valettiopsis* sp DC1)
39. Rostrum and eyes absent (Channel Islands) (**Figure 38**) ..... **Amathillopsidae** (*Amathillopsis annectens*)
— Rostrum and eyes present 40
40. Pereonites and pleonites strongly cuspidate; mandibular palp well-developed, article 3 not reduced; telson short, laminar, weakly cleft to weakly emarginated (**Figure 39**) .. **Iphimediidae**
— Pereonites 7 and pleonites 1 and 2 weakly cuspidate; article 3 of mandibular palp much reduced; telson elongate, deeply cleft (**Figure 40**) ..... **Synopiidae** (In part: *Garosyrrhoe bigarra*)
41. Rostrum strongly decurved, often helmet-shaped; eyes, when present, frequently positioned dorsally, sometimes coalesced (**Figures 41–42**) 42
— Rostrum present or absent, rarely strongly decurved or helmet-shaped; eyes typically positioned laterally on head 43
42. Telson short, evenly rounded or emarginate; urosome dorsally unarmed; gnathopod 1 article 6 normally robust (**Figure 41**) ..... **Oedicerotidae** (In part)
— Telson long, deeply cleft; urosomites 1 and 2 dorsally toothed; gnathopod 1 article 6 weak (**Figure 42**) ..... **Synopiidae**
43. Gnathopod 1 carpochelate (**Figure 43**) ..... **Leucothoidae** (In part, Leucothoinae)
— Gnathopod 1 not carpochelate 44
44. Coxa 4 deeper than coxa 3 by nearly 50% or more 45
— Coxae 3 and 4 of the same depth 46
45. Eye composed of four distinct, round ommatidia; coxae 1–3 become progressively smaller, coxa 3 the smallest; coxa 4 much enlarged (**Figure 44**) ..... **Argissidae** (*Argissa hamatipes*)
— Eye variously shaped, multifaceted; coxa 2 larger than coxae 1 or 3 (**Figure 45**) ..... **Megaluropidae**
46. Fossorial—antennae 2 peduncle and articles 4–6 of pereopod 5 lined with stout spines (**Figures 46–49**); body often white, shiny and strongly calcified 47
— Nonfossorial—antennae 2 and articles 4–6 or pereopod 5 weakly setose or, if densely setose or spinose, setae and spines thin, not stout (**Figures 50–52**) 50

47. Rostrum present; coxal gills on pereonites 2–7 48

— Rostrum absent; coxal gills on pereonites 2–6; entirely freshwater or low-salinity estuary (**Figure 46**)..... **Pontoporeiidae**[v]

48. Head truncated, short, with rostrum weak or absent; anteroventral cephalic margin extended downward; antenna 1 peduncular articles elongate (**Figure 47**) .... **Urothoidae:** (*Urothoe elegans* Cmplx)[vi]

— Head typically elongate, rostrum strong, occasionally weak or narrowed in front of eyes; ventral cephalic margin poorly developed, not ventrally produced; antenna 1 articles compact 49

49. Rostrum strong, cylindrical, with subapical ventral process directed posteriorly between antennae; pereopods 6 and 7 subsimilar, pereopod 7 slightly longer (**Figure 48**) .... **Platyischnopidae** (*Tiburonella viscana*)

— Rostrum visor-like or narrowed anterior to eyes, not cylindrical and without ventral process; pereopod 7 different in form and ≥40% shorter than pereopod 6 (**Figure 49**)..... ..... **Phoxocephalidae**

50. Coxae 1–4 short (i.e., shallow); coxae 3 and 4 subequal, posterior margin of coxa 4 not excavate nor concave **and** uropod 3 rami or telson never lined with robust spines 51

— Coxae 1–4 of varying sizes and shape (usually deeper than long); coxae 3 and 4 typically different, posterior margin of coxa 4 often slightly concave, proximally excavate, or lobed [**NOTE** uropod 3 rami and/or telson of Melitidae, Maeridae, and Horneillidae are lined with robust spines even if coxa 4 does not appear excavate or concave] 52

51. Eyes laterally bulging; pleonites strongly toothed, epimera posterior margins serrate; telson short and emarginated (**Figure 50**) ..... **Melphidippidae** (*Melphisana bola* Cmplx)[vii]

— Eyes absent or normal, not bulging laterally; pleonites weakly toothed, posterior margins not serrate; telson frequently elongate and deeply cleft (**Figure 51**)..... **Pardaliscidae**

52. Accessory flagellum of two or more articles, apparent at magnifications of 40x or less; telson cleft **with** prominent distal setae or spines 57

— Accessory flagellum absent or of single article; telson cleft or uncleft **without** prominent, stout, distal setae or spines..... 53

53. Telson evenly rounded or emarginated (**Figures 52–53**) 54

— Telson cleft more than one-quarter length or elongate and notched (**Figures 55–56**) 56

54. Pereopods 6 and 7 of similar length and shape; coxa 4 excavate proximally; dactyls of pereopods often short and/or falcate 55

— Pereopod 7 much longer than pereopod 6; dactyls of pereopods elongate, nearly straight; coxa 4 not excavate proximally, posterior margin straight or weakly concave (**Figure 52**) .... **Oedicerotidate** (in part)

55. Gnathopod 2 with articles 5 and 6 much elongated (length ≥5x width); inner and outer lobes of lower lip not pillow shaped, outer lobes bearing large extensions (**Figure 53**) ..... **Calliopiidae** (*Oradarea longimana*)

— Gnathopods with article 5 or 6 normally proportioned (never over 3x width); lower lip with inwardly tilting pillow shaped inner and outer lobes (**Figure 54**) ..... **Pleustidae**

56. Telson broad, relatively short, barely reaching beyond uropod 3 peduncle, each lobe typically rounded or squared (**Figure 55**) ..... **Pontogeneiidae**

— Telson tapering, elongate, often reaching to mid-point of uropod 3 rami (**Figure 56**) ..... **Eusiridae**

57. Mandibular molar reduced, palp article 1 elongate (nearly one-half article 2); pereopod 7 longer and stronger than pereopod 6 (**Figure 57**) ..... **Liljeborgiidae**

— Mandibular molar prominent, palp article 1 short (≤1/4 of article 2); pereopods 6 and 7 subequal or pereopod 7 shorter than 6 58

58. Antenna 1 accessory flagellum with 3 or more segments; pereopod 7 subequal to or longer than pereopod 6 59

— Antenna 1 accessory flagellum with 2 segments, terminal segment much reduced; pereopod 6 longer pereopod 7 (**Figure 58**) ..... **Crangonyctidae**[viii]

59. Gnathopod 1 subequal to, and sometimes larger than gnathopod 2; all urosomal segments with dorsal and dorsolateral clusters of stout spines or setae (**Figure 59**) ..... **Gammaroidea** (Gammaridae/Anisogammaridae)[ix]

— Gnathopod 1 distinctly smaller than gnathopod 2; urosome dorsum bare or variously toothed but without clusters of spines, if spines present, inserted singly among serrations of abdominal segments 60

60. Antenna 2 longer than antenna 1; antenna 1 accessory flagellum long, from five to seven segments; eye large, reniform; gnathopod 2 article 5 narrow, elongate (**Figure 60**) ..... **Hornellidae** (*Hornellia occidentalis*)

— Antenna 1 longer than antenna 2; accessory flagellum short; eye typically round, relatively small; gnathopod 2 article 5 typically short and more or less ventrally lobate 61

61. Inner ramus of uropod 3 strongly reduced, less than one-fifth as long as outer ramus (**Figure 61**) ..... **Melitidae**[x]

— Ramus of uropod 3 similar in length (**Figure 62**) ..... **Maeridae**[ix]

ENDOTES

[i] The one record from the SCB came from the Northern Channel Islands collected during the 2008 Regional Monitoring Program

[ii] See Cadien, DB (2015) [Amphipoda of the Northeast Pacific (Equator to Aleutians, intertidal to abyss): II. Talitroidea - a review. Donald B. Cadien 24March2006 (revised 27Mar2015)] for a listing of species found in the NEP and Bousfield, EL (1982) for a key to the species. [The Amphipod Superfamily Talitroidea in the Northeastern Pacific Region. 1. Family Talitridae: Systematics and Distributional Ecology. Publications in Biological Oceanography 11: 1-73.]

[iii] Note that *Cheiropohotis* has a short uropod 3 inner ramus like *Photis*, just different in structure.

[iv] A Key to North Eastern Pacific Lysianassoid genera can be found in Cadien, (2015). Cadien, D.B. 2015. Amphipoda of the Northeast Pacific (Equator to Aleutians, intertidal to abyss): XV. Lysianassoidea – an updated and revised review Donald B. Cadien, LACSD 15Feb2007 (Revised 29Mar2015), which can be found in the SCAMIT toolbox http://www.scamit.org/taxontools/toolbox. D Pasko produced a key restricted to species from the Southern California Bight: Artificial Key to the Lysianassoidea Reported from the Southern California Bight, SCAMIT Ed 14 (Rev20June2023).

[v] Pontoporeiidae are a primarily freshwater family. The family is included here because some members may be found in low salinity environments encountered during some regional sampling efforts.

[vi] *Urothoe elegans* Bate 1857, a north Atlantic species, and *U. varvarini* Gurjanova 1953 are very similar and may represent the same species. SCAMIT has not been able to adequately resolve the two species and reports them as a species complex, *Urothoe elegans* Cmplx.

[vii] Due to considerable variability in the telson of specimens from the Northeastern Pacific, there is insufficient information to separate *Melphidippa amorita* and *Melphisana bola*, which led to the adoption of *Melphisana bola* Cmplx designation by SCAMIT.

[viii] Crangonyctidae are a primarily freshwater family. The family is included here because some members may be found in low salinity environments encountered during some regional sampling efforts.

[ix] Members of the superfamily Gammaroidea (Anisogammaridae and Gammaridae) are found along shorelines in estuaries, tidal creeks, and freshwater environments.

[x] These two families remain difficult to distinguish, even with the revision of Lowry and Myers (2013). The following comparison was excerpted directly from their publication. "*Maeridae is also very similar to Melitidae. They are separated by the head shape of lateral cephalic lobe* [not described]*; gnathopod 1 with robust setae along palm; the form of the first and second uropods and the inner ramus of uropod 3." The latter is the only valid character.*" A key to the genera representing these two families can be found in Cadien (2015). Cadien, D.B. 2015. Amphipoda of the Northeast Pacific (Equator to Aleutians, intertidal to abyss): X. Hadzioidea – an expanded and updated review Donald B. Cadien, LACSD 31Aug2005 (revised 8Mar2015), which can be found in the SCAMIT toolbox http://www.scamit.org/taxontools/toolbox.

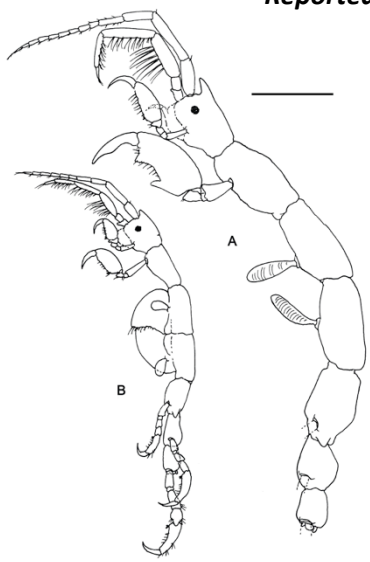

Figure 1. Caprellida: **Caprelllidae** *Caprella penantis.*

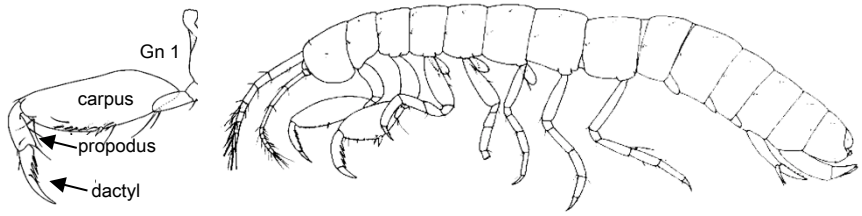

Figure 2. **Ingolfiellidea**: *Ingolfiella fuscina*.

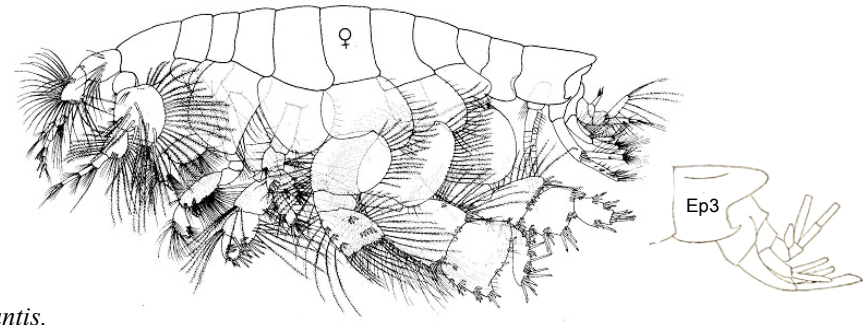

Figure 3. Haustoridae: *Eohaustorius washingtonianus.*

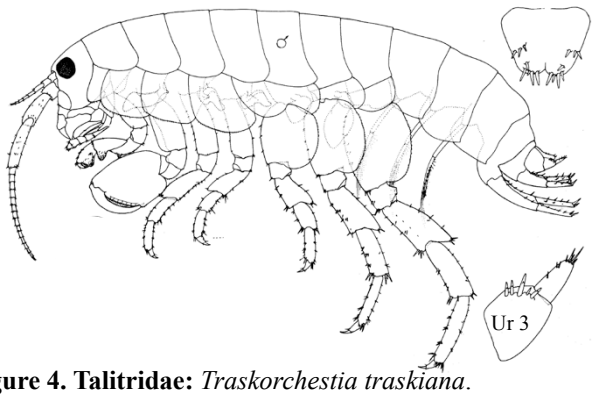

Figure 4. Talitridae: *Traskorchestia traskiana*.

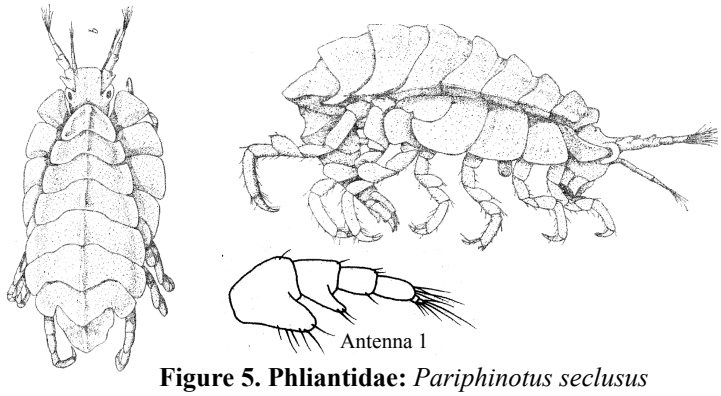

Figure 5. Phliantidae: *Pariphinotus seclusus* (lateral and dorsal views); *Pariphinotus escabrosus,* antenna 1.

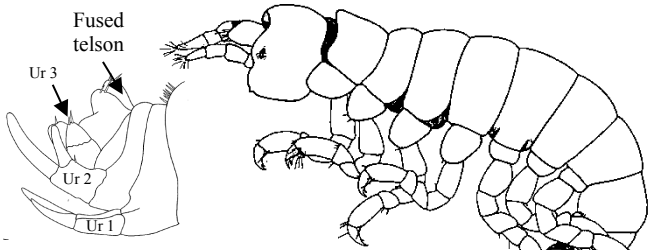

Figure 6. **Eophliantidae:** *Lignophliantis pyrifera, lateral view; Eophliantis tindalei* urosome.

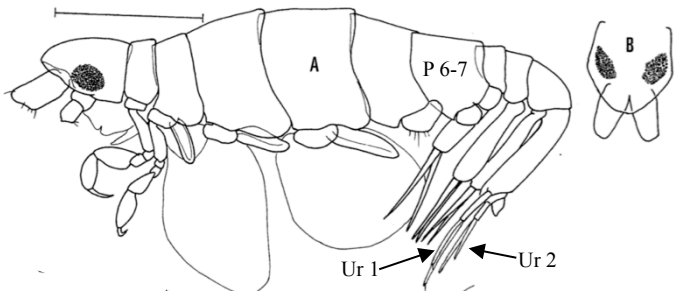

Figure 7. **Dulichiidae:** *Dulichia rhabdoplastis,* head dorsal view.

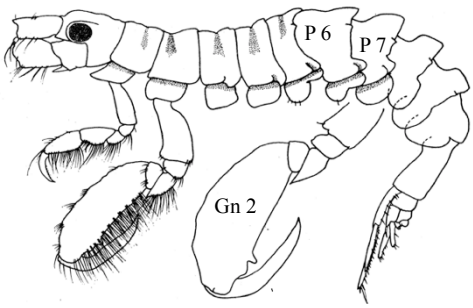

Figure 8. Podoceridae: *Podocerus cristatus.*

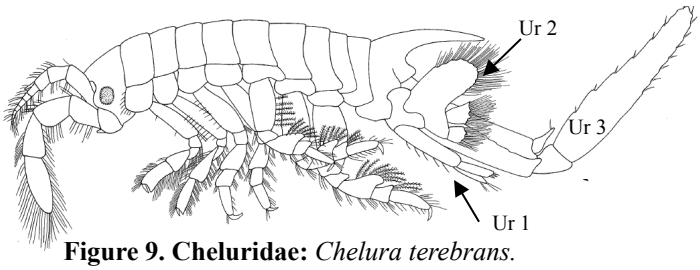

Figure 9. Cheluridae: *Chelura terebrans.*

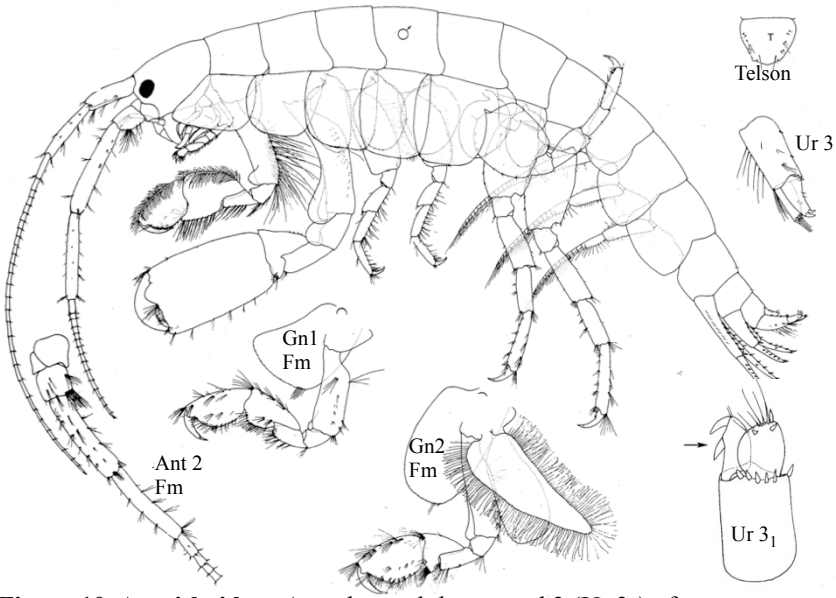

Figure 10. Ampithoidae: *Ampithoe valida*; uropod 3 (Ur 3$_1$) of *Ampithoe kaneohe.*

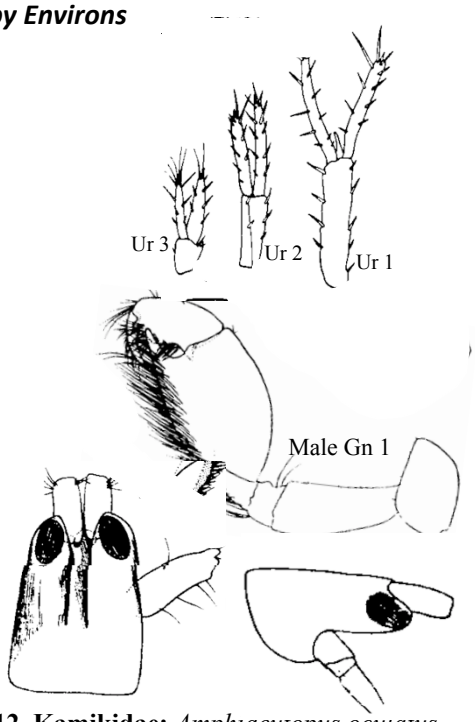

Figure 12. Kamikidae: *Amphiaeutopus oculatus*, head dorsal and lateral view.

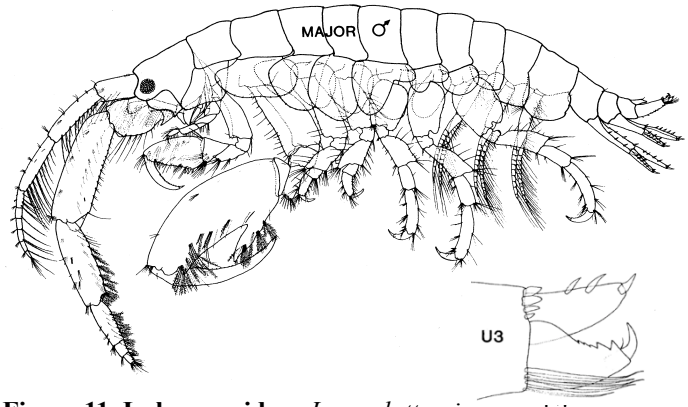

Figure 11. Ischyroceridae: *Jassa slatteryi*; uropod 3 (U3) of *J. falcata.*

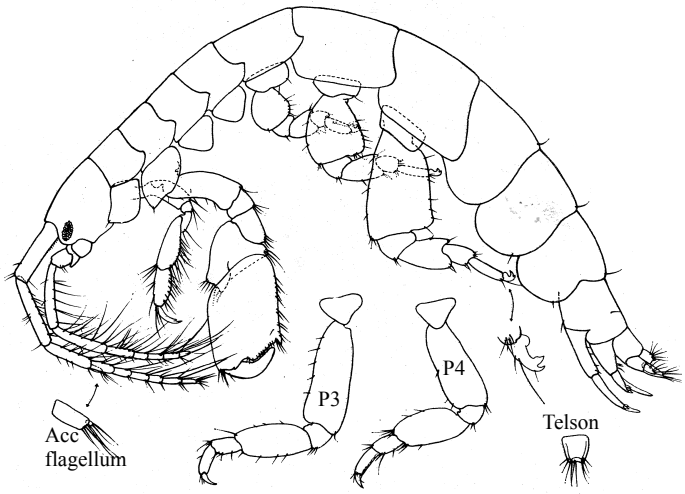

Figure 13. Chevaliidae: *Chevalia inaequalis.*

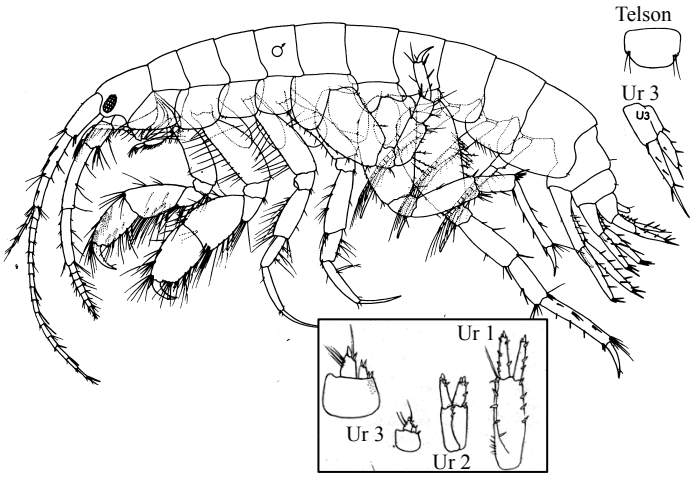

Figure 14. Protomeidae, Protomedeiinae: *Protomedeia articulata*; inset, uropods 1-3 of *Cheiriphotis megacheles.*

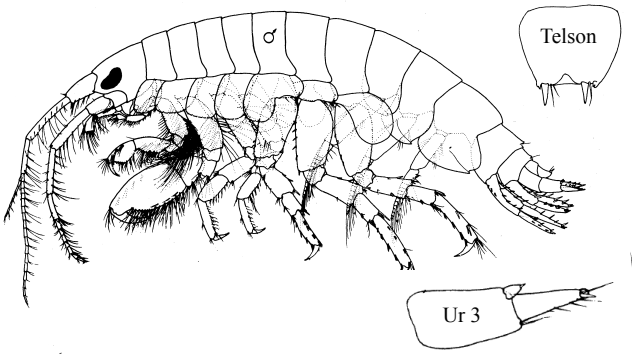

Figure 15. Photidae: *Gammaropsis shoemakeri*; uropod 3 (Ur3) of *Photis brevipes.*

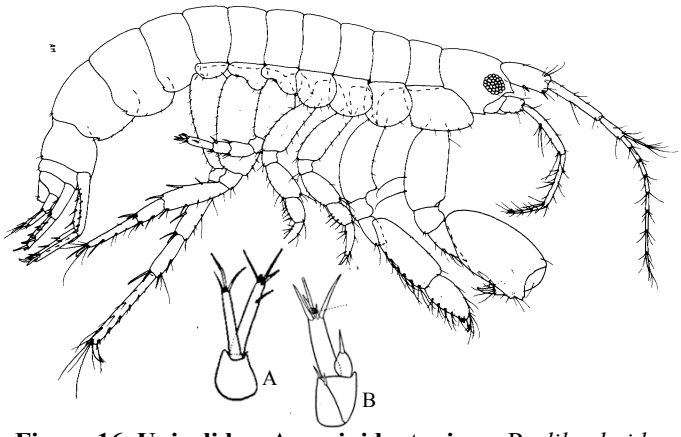

Figure 16. Unicolidae, Acuminideutopinae: R*udilemboides naglei*; uropod 3 of *Rudilemboides stenopropodus* (A) and *Acuminodeutopus heteruropus* (B).

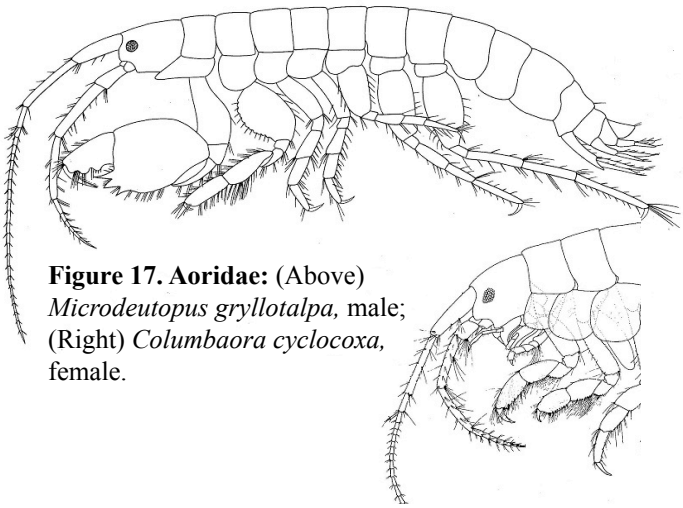

Figure 17. Aoridae: (Above) *Microdeutopus gryllotalpa,* male; (Right) *Columbaora cyclocoxa,* female.

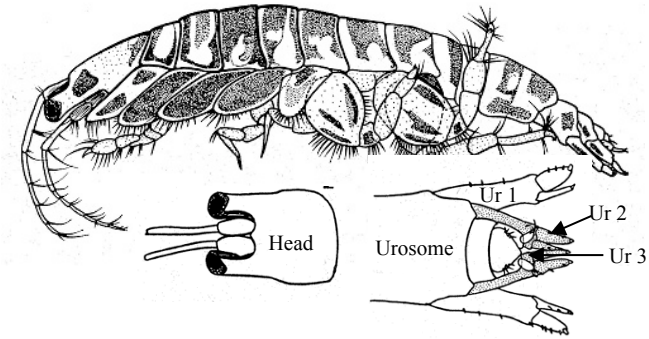

Figure 18: Photidae: *Ampelisciphotis podophthalma.*

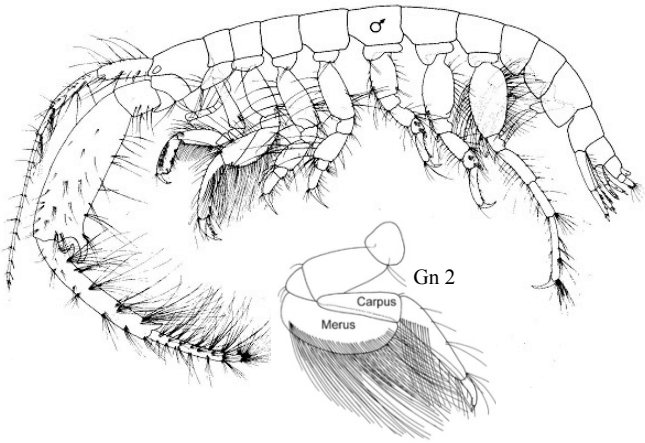

Figure 19: Corophiidae, Corophiinae: *Americorophium spinicorne*; generic merochelate gnathopod 2.

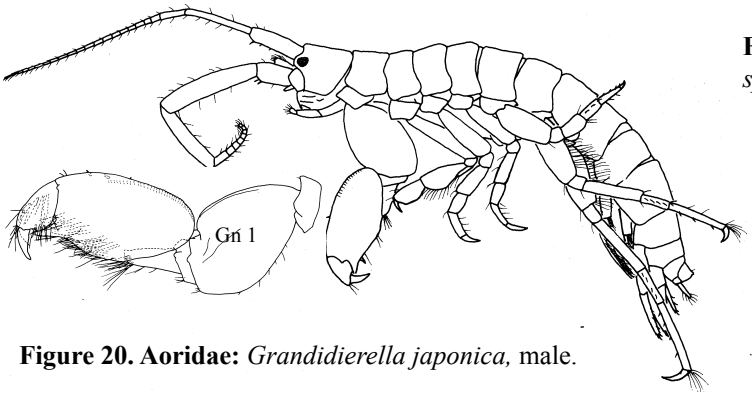

Figure 20. Aoridae: *Grandidierella japonica,* male.

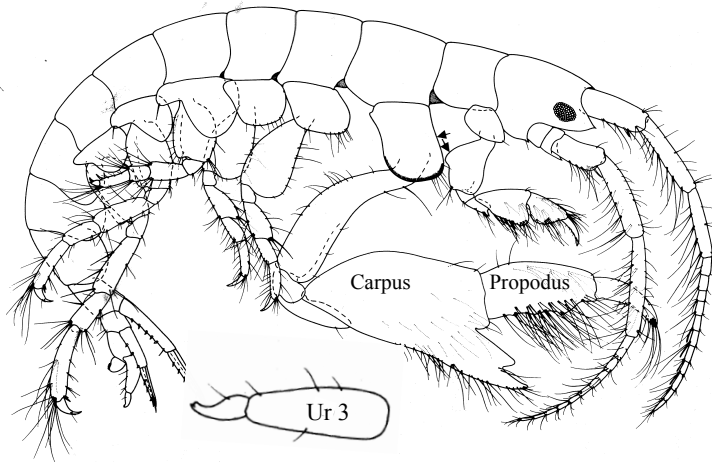

Figure 21. Ischyroceridae: *Ericthonius brasiliensis.*

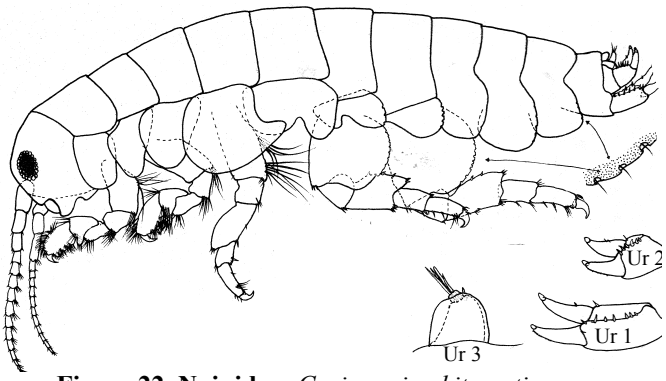

Figure 22. Najnidae: *Carinonajna kitamati*.

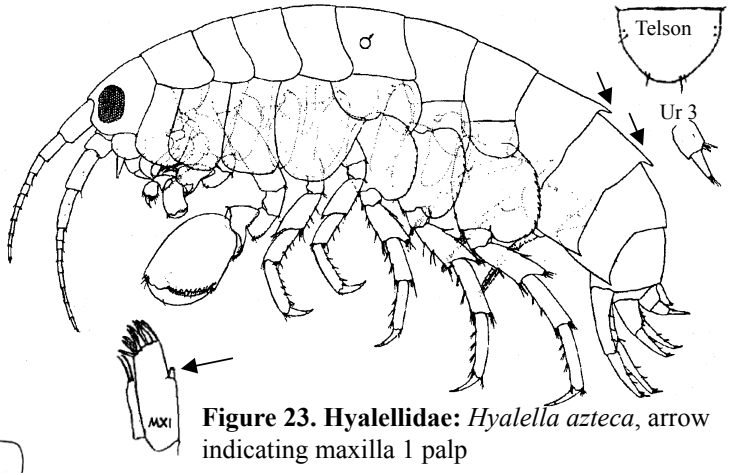

Figure 23. Hyalellidae: *Hyalella azteca*, arrow indicating maxilla 1 palp

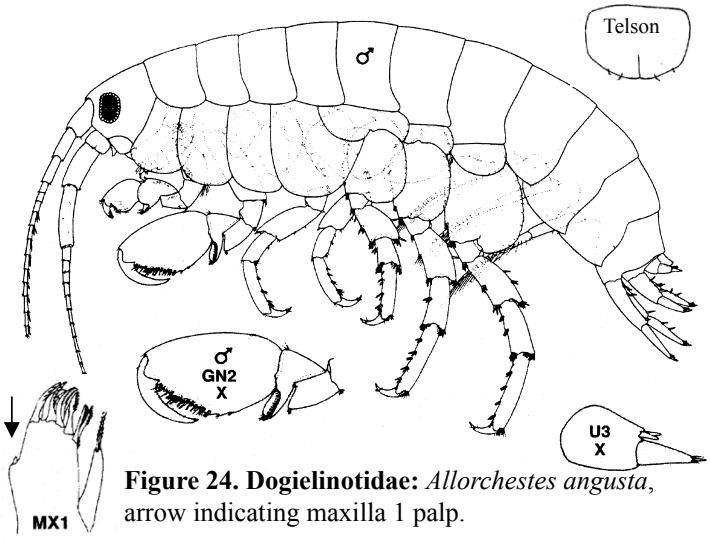

Figure 24. Dogielinotidae: *Allorchestes angusta*, arrow indicating maxilla 1 palp.

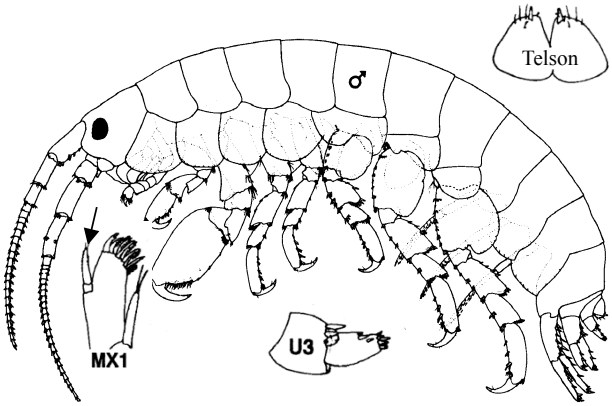

Figure 25. Hyalidae: *Parallorchestes cowan*, arrow indicating maxilla 1 palp.

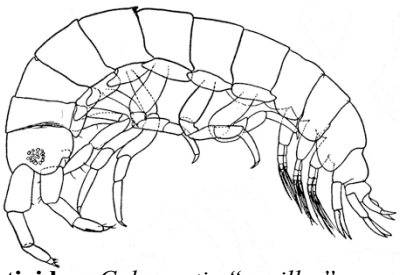

Figure 26. Colomastigidae: *Colomastix "pusilla."*

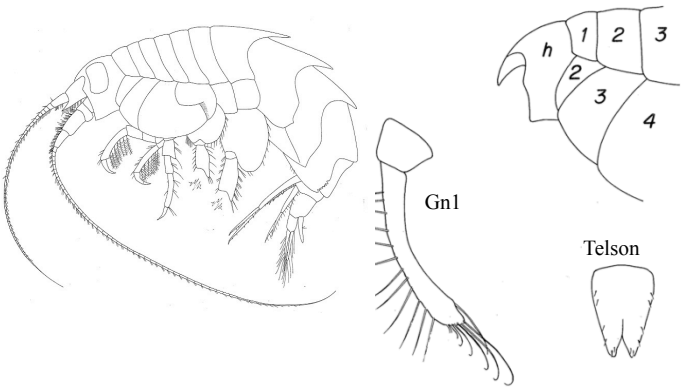

Figure 27. Bateidae: *Batea cuspidata,* whole; gnathopod 1, telson, head and pereonites 1-3.

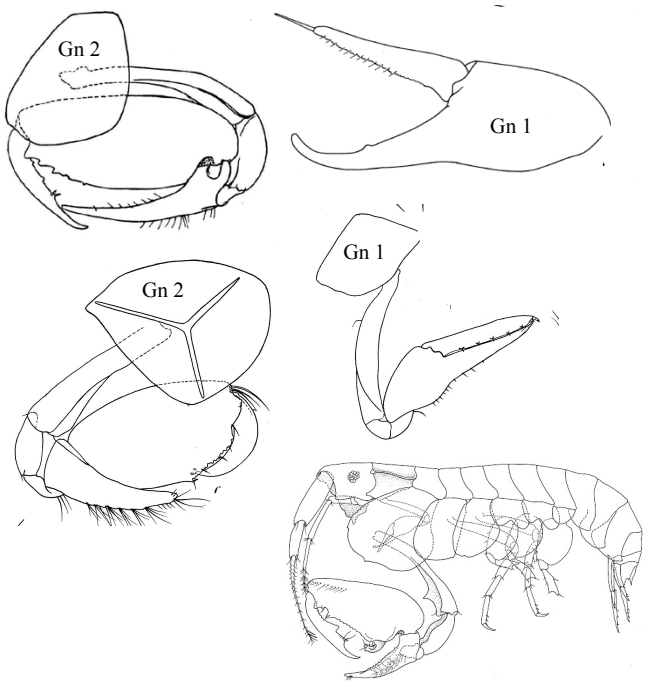

Figure 28. Leucothoidae:**Anamixinae:** *Anamixis pacifica,* gnathopods 1 and 2; *Anamixis papuaensis,* anamorph whole.

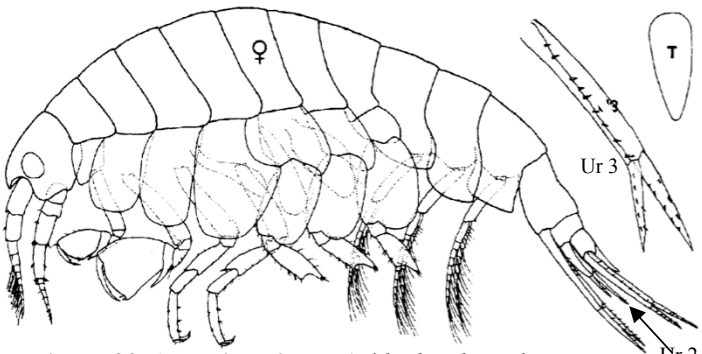

Figure 29. Amphilochidae: *Apolochus litoralis.*

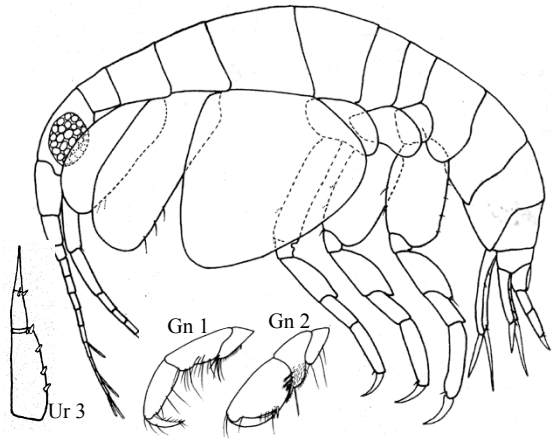

Figure 30. Stenothoidae: *Stenula modosa; Stenothoe valida*, uropod 3.

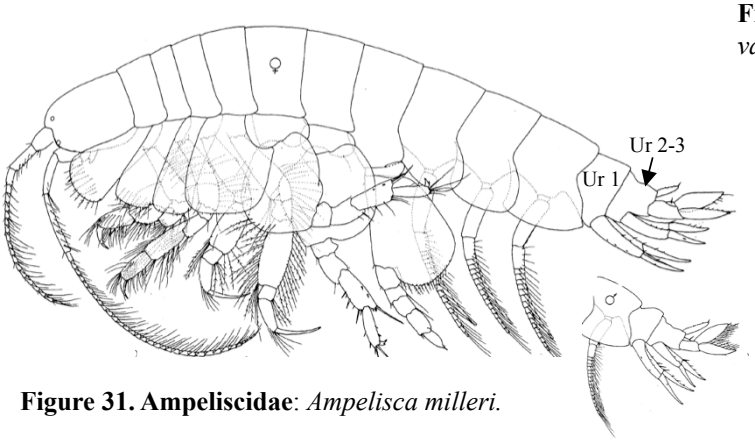

Figure 31. Ampeliscidae: *Ampelisca milleri.*

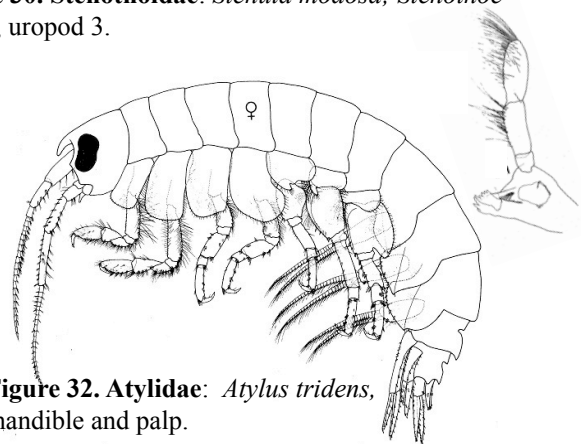

Figure 32. Atylidae: *Atylus tridens,* mandible and palp.

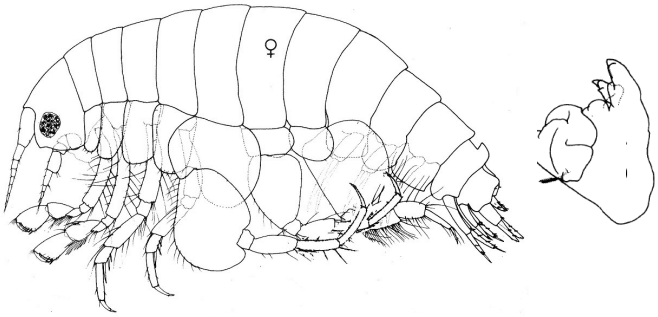

Figure 33. Dexaminiidae: *Guernea reduncans,* right mandible (palp vestigial).

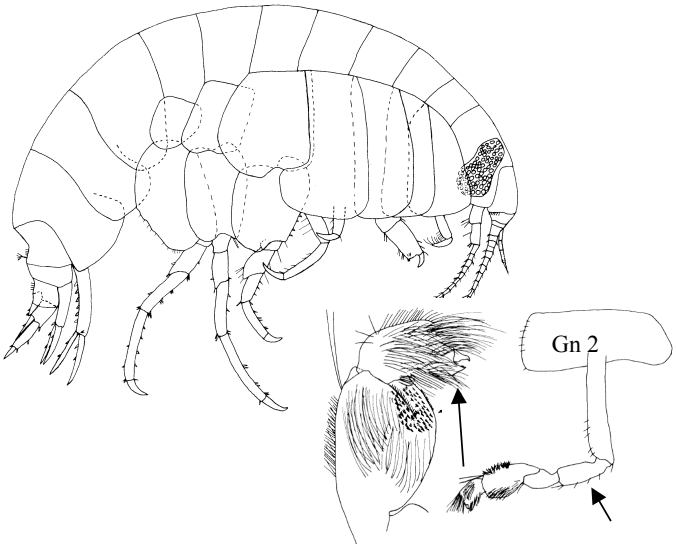

Figure 34. Lysianassoidea: *Orchomene limodes,* gnathopod 2

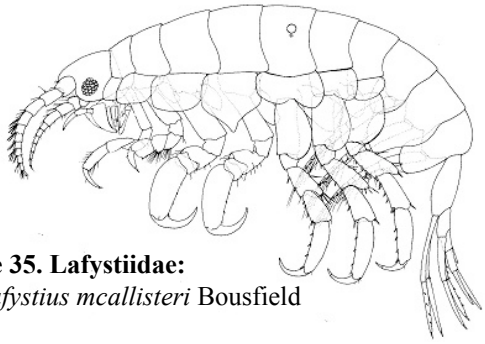

Figure 35. Lafystiidae: *Paralafystius mcallisteri* Bousfield 1987.

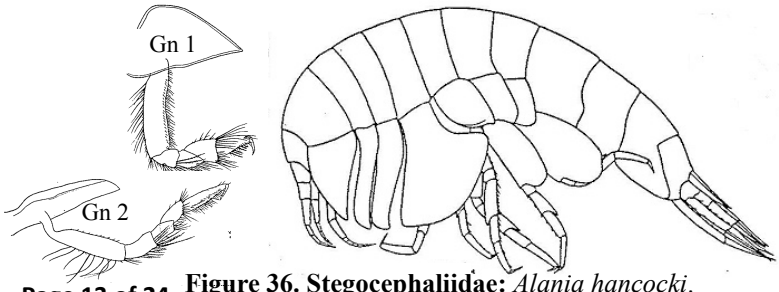

Figure 36. Stegocephaliidae: *Alania hancocki*.

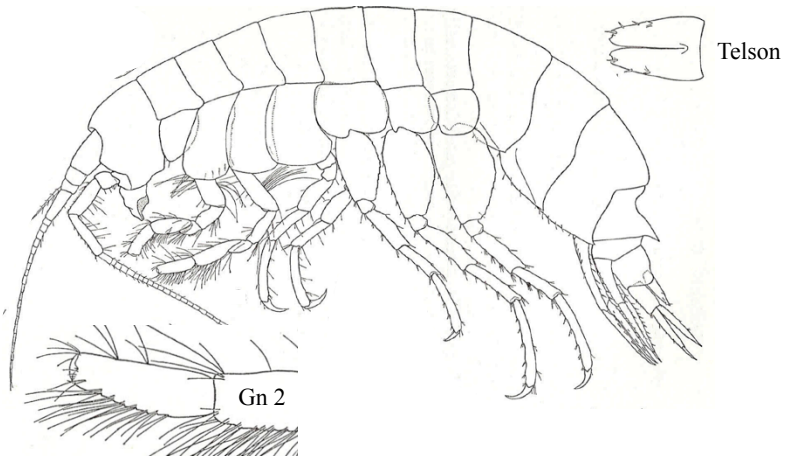

Figure 37. Valettiopsidae: *Valettiopsis dentatus* (Holmes 1908) (from JL Barnard 1967).

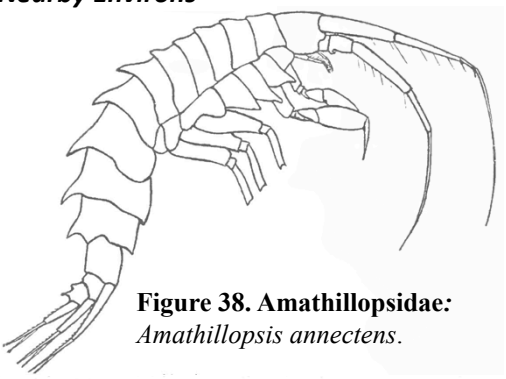

Figure 38. Amathillopsidae*:* *Amathillopsis annectens*.

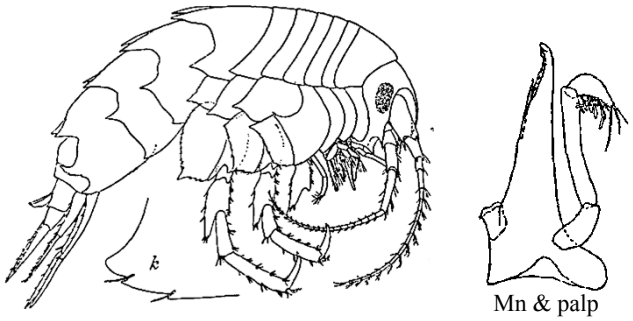

Figure 39. Iphimediidae: *Iphimedia rickettsi* mandible and palp.

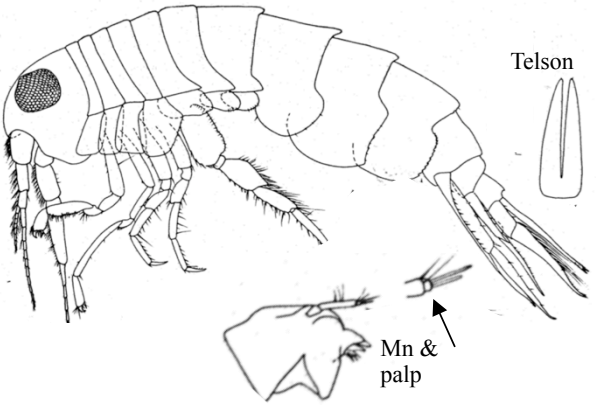

Figure 40. Synopiidae (In part)*: Garosyrrhoe bigarra,* mandible and palp, telson.

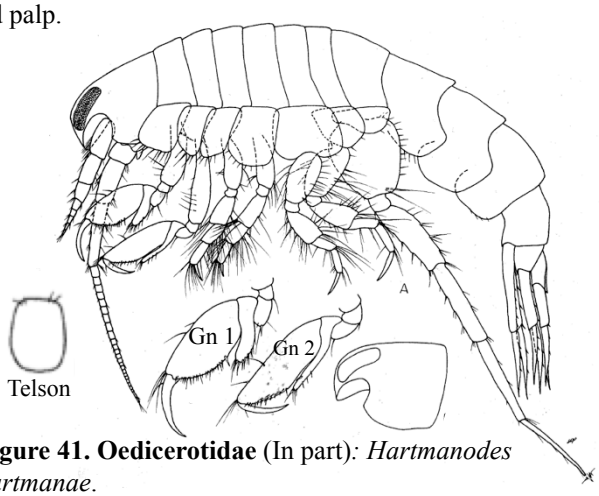

Figure 41. Oedicerotidae (In part)*: Hartmanodes hartmanae*.

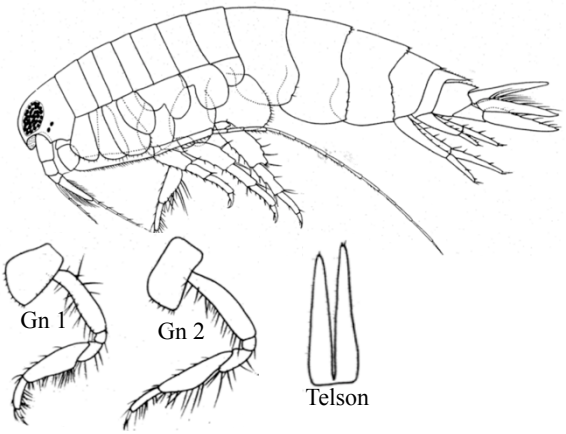

Figure 42. Synopiidae (In part)*: Tiron biocellata*.

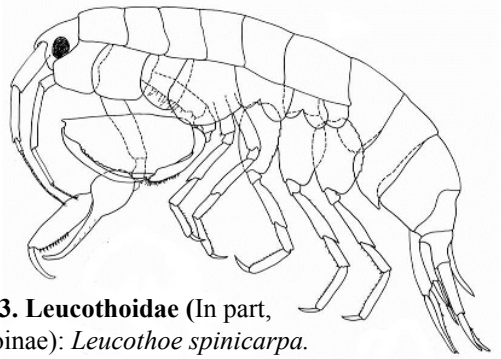

Figure 43. Leucothoidae (In part, Leucothoinae): *Leucothoe spinicarpa.*

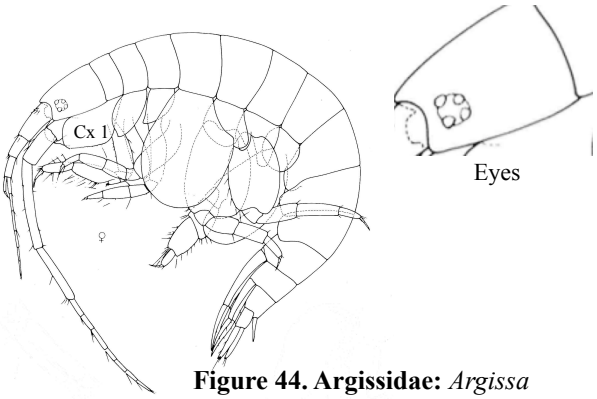

Figure 44. Argissidae: *Argissa hamatipes.*

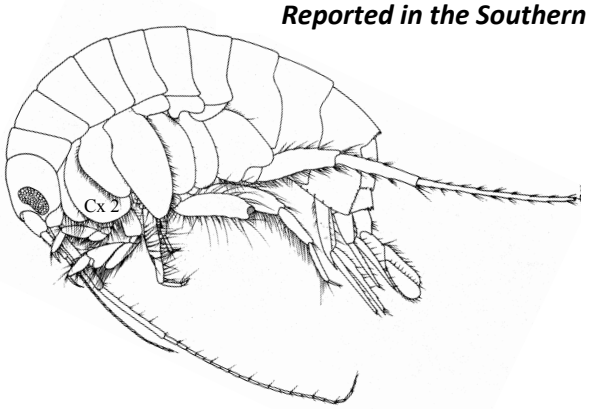

Figure 45. Megaluropidae: *Gibberosus myersi*.

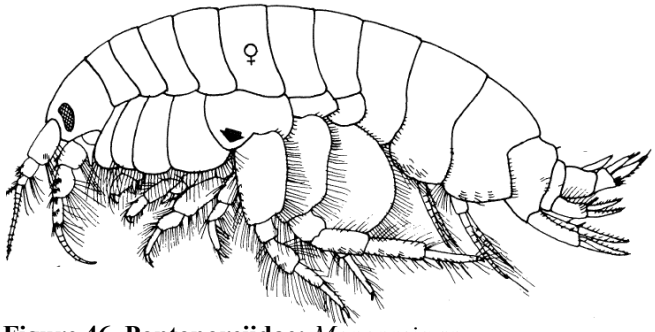

Figure 46. Pontoporeiidae: *Monopreia sp*.

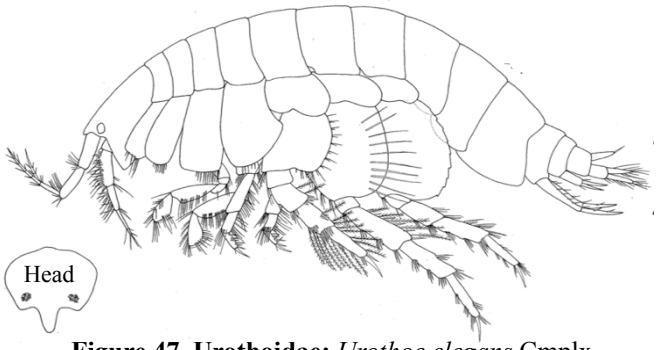

Figure 47. Urothoidae: *Urothoe elegans* Cmplx.

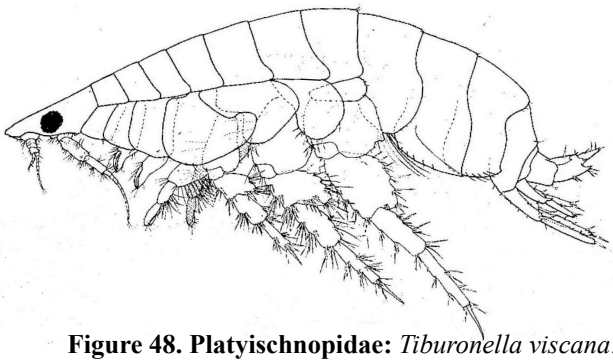

Figure 48. Platyischnopidae: *Tiburonella viscana*.

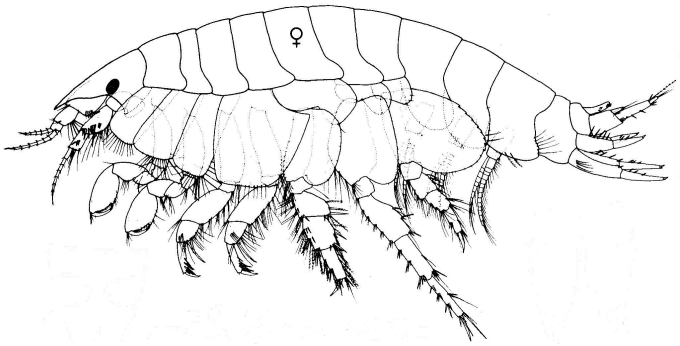

Figure 49. Phoxocophalidae: *Foxiphalus similis*

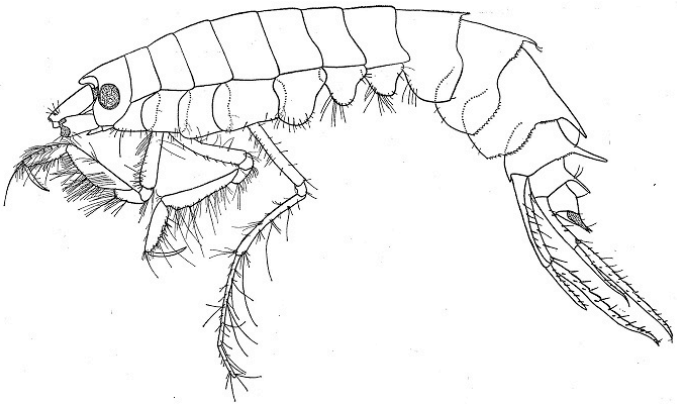

Figure 50. Melphidippidae: *Melphidippa amorita.*

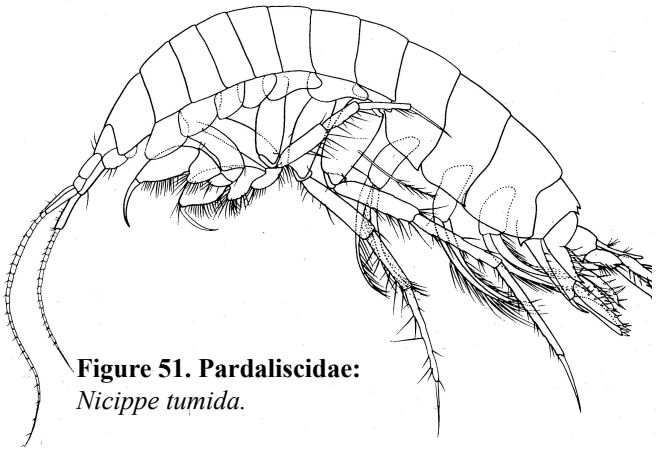

Figure 51. Pardaliscidae: *Nicippe tumida.*

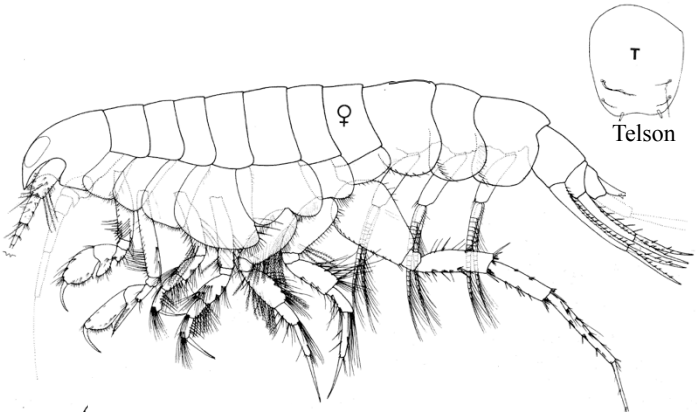

Figure 52. Oedicerotidae: *Deflexilodes enigmaticus*.

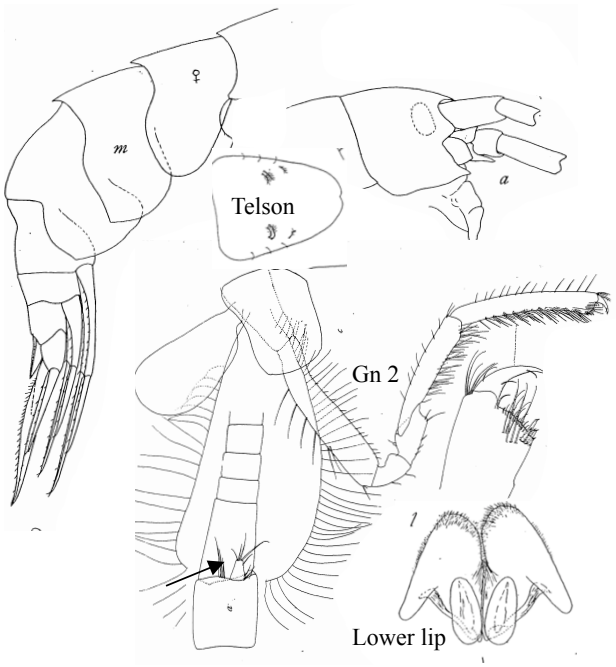

Figure 53. Calliopiidae: *Oradarea longimana,* arrow indicating uniarticulate antenna 1 flagellum.

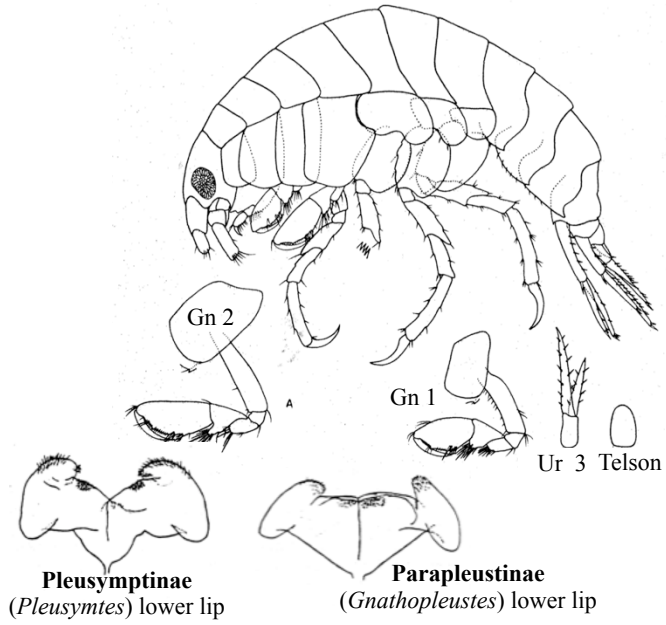

Figure 54. Pleustidae: *Pleusymtes subglaber*; Pleusymptinae and Parapleustinae lower lips.

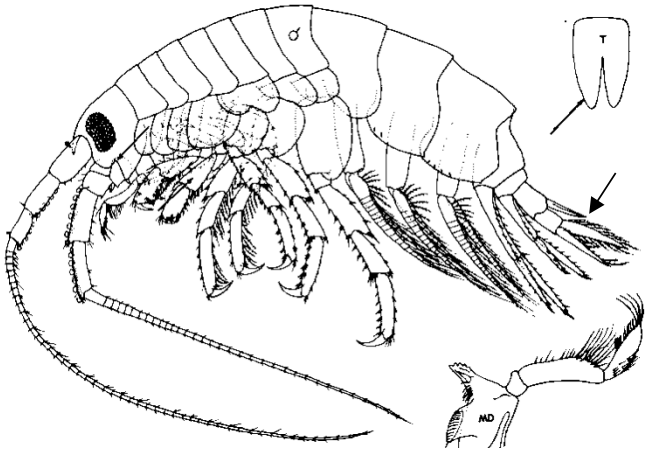

Figure 55. Pontogeneiidae: *Pontogenia inermis*.

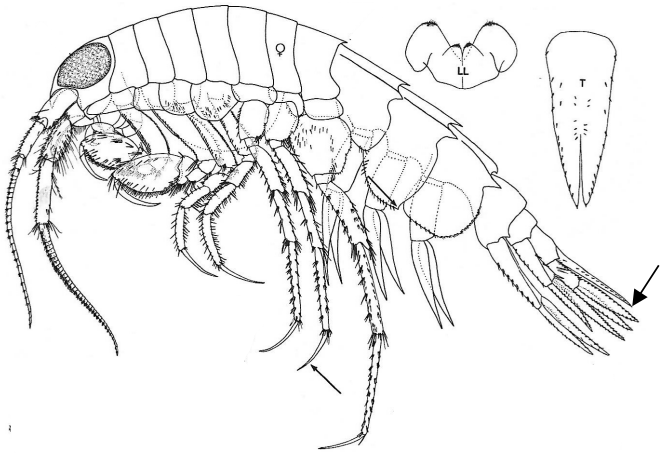

Figure 56. Eusiridae: *Rhachotropis oculatus*.

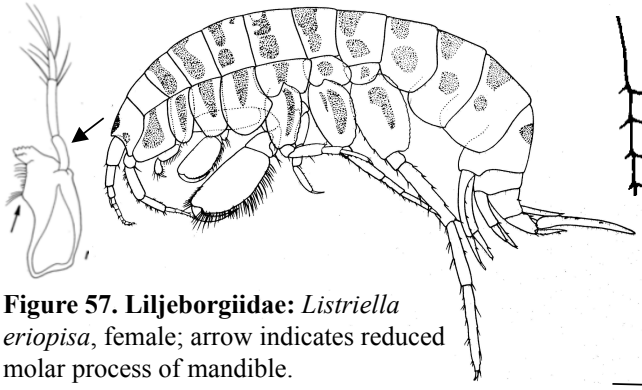

Figure 57. Liljeborgiidae: *Listriella eriopisa*, female; arrow indicates reduced molar process of mandible.

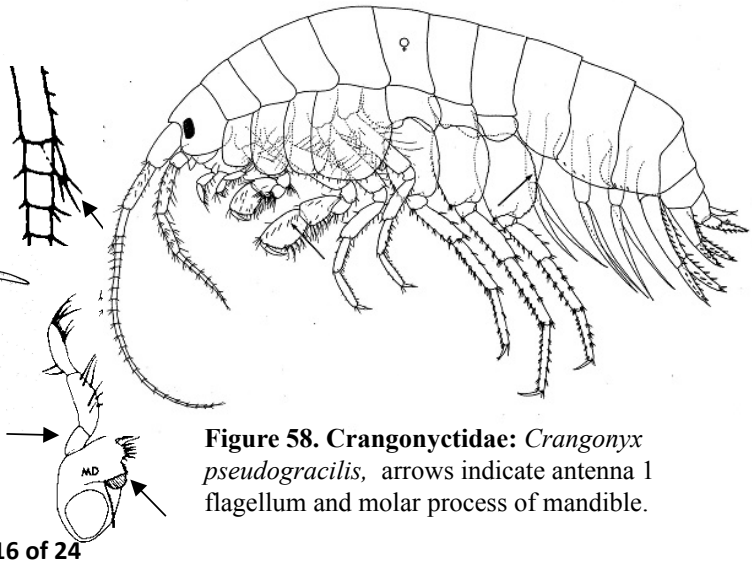

Figure 58. Crangonyctidae: *Crangonyx pseudogracilis,* arrows indicate antenna 1 flagellum and molar process of mandible.

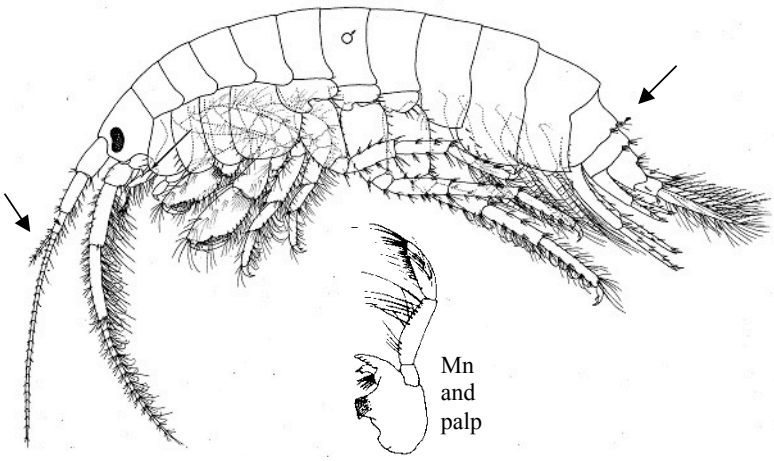

Figure 59. Gammaridae: *Gammarus daiberi*

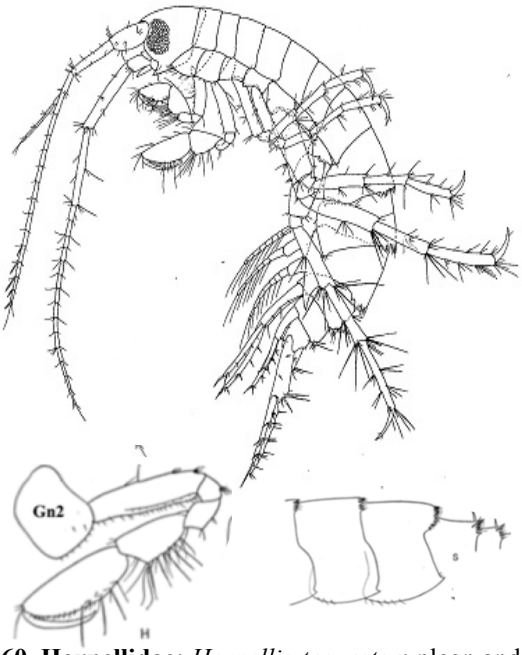

Figure 60. Hornellidae: *Hornellia tequestae*; pleon and gnathopod 2 of *Hornella occidentalis.*

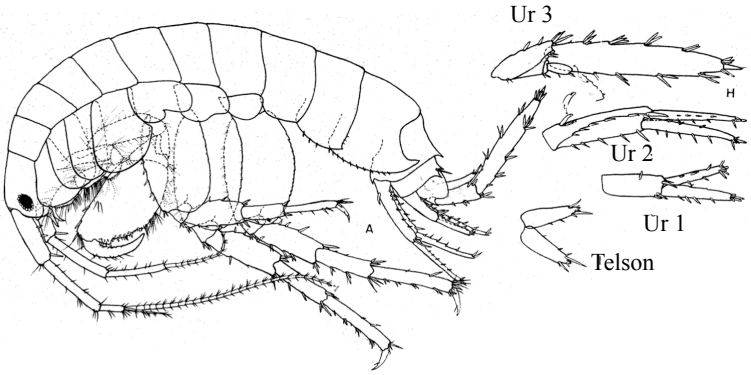

Figure 61. Melitidae: *Desdimelita desdicahada.*

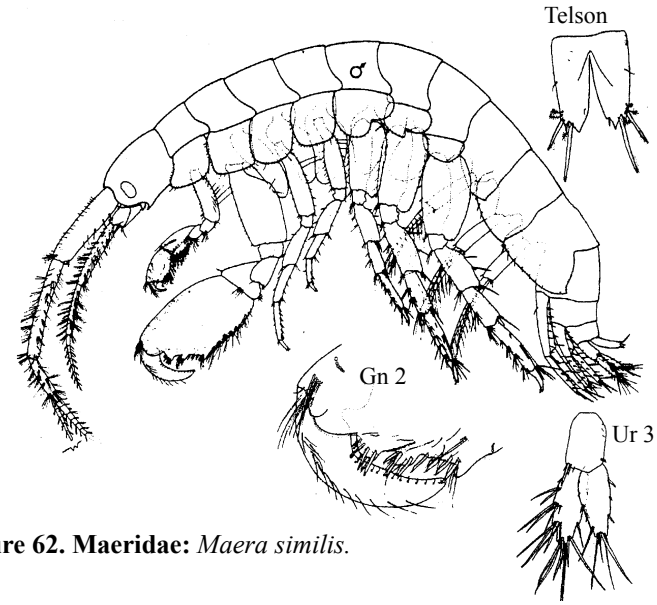

Figure 62. Maeridae: *Maera similis.*

FIGURES:

Figure 1. Caprellidae: *Caprella penantis* Leach 1814. From Guerra-Garcia, J.M. 2006.

Figure 2. Infolfielliidea. *Ingolfiella fuscina D*ojiri and Sieg 1987. From Dojiri and Sieg 1987.

Figure 3. Haustoridae: *Eohaustorius washingtonianus* Thorsteinson, 1941. From Bousfield and Hoover 1995; Urosome of *Acanchohaustorius intermedius* Bousfield 1965. From Bousfield 1965

Figure 4. Talitridae: *Traskorchestia traskiana* (Stimpson 1857). From Bousfield 1982.

Figure 5. Phliantidae: *Pariphinotus seclusus* (Shoemaker 1933), lateral and dorsal views. From Shoemaker 1933; *Pariphinotus escabrosus*, antenna 1. From JL Barnard 1962b.

Figure 6. Eophliantidae: *Lignophliantis pyrifera* JL Barnard 1969a. From JL Barnard. 1969a. *Eophliantis tindalei* Sheard 1936, urosome. From From JL Barnard & GS Karaman 1991a.

Figure 7. Dulichiidae: *Dulichia rhabdoplastis,* McCloskey 1970. From Laubitz 1977.

Figure 8. Podoceridae: *Podocerus cristatus* (Thompson 1879). From JL Barnard 1962.

Figure 9. Cheluridae: *Chelura terebrans* Philippi 1839. From JL Barnard & GS Karaman 1991a.

Figure 10. Ampithoidae: *Ampithoe valida* Smith in Verrill & Smith 1873. From Conlan and Bousfield, 1982; uropod 3 (Ur 3) of *Ampithoe Kaneohe* JL Barnard 1970. From Conlan 1982.

Figure 11. Ischyroceridae: *Jassa slatteryi* Conlan 1990; uropod 3 (U3) of *Jassa falcata* (Montagu 1808). From Conlan 1990.

Figure 12. Kamikidae: *Amphideutopus oculatus* JL Barnard in JL Barnard & Reish 1959. From JL Barnard & Reish 1959.

Figure 13. Chevaliidae: *Chevalia inaequalis* (Stout 1913). From JL Barnard 1962a.

Figure 14. Protomeidae, Protomedeiinae: *Protomedeia articulata* JL Barnard 1962. From Conlan 1983.

Figure 15. Photidae: *Gammaropsis shoemakeri* Conlan 1983. From Conlan 1983.

Figure 16. Unicolidae, Acuminideutopinae: *Rudilemboides naglei* Bousfield 1973. From Bousfield 1973. Uropod 3 of *Rudilemboides stenopropodus* JL Barnard in JL Barnard & Reish 1959 (A) and *Acuminodeutopus heteruropus* JL Barnard in JL Barnard & Reish 1959 (B). Both from JL Barnard & Reish 1959.

Figure 17. Aoridae: (Above) *Microdeutopus gryllotalpa* A Costa 1853*,* male. From JL Barnard & Karaman 1991. (Right) *Columbaora cyclocoxa* Conlan & Bousfield 1982, female. From Conlan & Bousfield 1982.

Figure 18: Photidae: *Ampelisciphotis podophthalma* (JL Barnard 1958). From JL Barnard 1958.

Figure 19: Corophiidae, Corophiinae: *Americorophium spinicorne* Stimpson 1857. From Bousfield & Hoover 1997. Generic merochelate gnathopod 2. From Meyers and Lowry 2003.

Figure 20. Aoridae: *Grandidierella japonica* Stephensen 1938, male. From Ariyama 1996.

Figure 21. Ischyroceridae: *Ericthonius brasiliensis* (Dana 1853). From Myers McGrath 1984.

Figure 22. Najnidae: *Carinonajna kitamati* (JL Barnard 1979). From JL Barnard 1962c.

Figure 23. Hyalellidae: *Hyalella azteca* (Saussure 1858), arrow indicating maxilla 1 palp. From Bousfield 1996.

Figure 24. Dogielinotidae: *Allorchestes angusta* Dana 1856, arrow indicating maxilla 1 palp. From Hendrycks and Bousfield 2001.

Figure 25. Hyalidae: *Parallorchestes cowan* Bousfield and Hendrycks 2002, arrow indicating maxilla 1 palp. From Bousfield and Hendrycks 2002.

Figure 26. Colomastigidae: *Colomastix* sp A SCAMIT 2012 §. From JL Barnard 1955a, as *C.* "*pusilla*".

Figure 27. Bateidae: *Batea cuspidate* (Shoemaker 1926). From Barnard and Karaman. 1991b

Figure 28. Leucothoidae: Anamixinae: *Anamixis pacifica* (JL Barnard 1955), gnathopods 1 and 2. From JL Barnard 1955b. *Anamixis papuaensis* Thomas 1997, anamorph whole. From Thomas 1997.

Figure 29. Amphilochidae: *Apolochus litoralis* (Stout 1912). From Hoover & Bousfield 2001.

Figure 30. Stenothoidae: *Stenula modosa* JL Barnard 1962. From JL Barnard 1962. *Stenothoe valida*, uropod 3. From JL Barnard 1953.

Figure 31. Ampeliscidae: *Ampelisca milleri* JL Barnard 1954. From Dickinson 1982.

Figure 32. Atylidae: *Atylus tridens* (Alderman 1936). From Bousfield and Kendall 1994.

Figure 33. Dexaminiidae: *Guernea reduncans* (JL Barnard 1958). From Bousfield and Kendall 1994.

Figure 34. Lysianassoidea: *Orchomene limodes* Meador & Present 1985. From Meador & Present 1985.

Figure 35. Lafystiidae: *Paralafystius mcallisteri* Bousfield 1987. From Bousfield 1987.

Figure 36. Stegocephaliidae: *Alania hancocki* (Hurley 1956). From Hurley 1956.

Figure 37. Valettiopsidae: *Valettiopsis dentatus* (Holmes 1908). From JL Barnard 1967.

Figure 38. Amathillopsidae*: Amathillopsis annectens* Holmes 1908. From Holmes 1908.

Figure 39. Iphimediidae: *Iphimedia rickettsi* (Shoemaker 1931). From Shoemaker 1931.

Figure 40. Synopiidae (In part)*: Garosyrrhoe bigarra* (JL Barnard 1962). From JL Barnard 1962.

Figure 41. Oedicerotidae (In part): *Hartmanodes hartmanae* (JL Barnard 1962). From JL Barnard 1962.

Figure 42. Synopiidae (In part)*: Tiron biocellata* JL Barnard 1962. From JL Barnard 1962.

Figure 43. Leucothoidae (In part, Leucothoinae: *Leucothoe spinicarpa* (Abildgaard 1789). From Crowe 2006.

Figure 44. Argissidae: *Argissa hamatipes* (Norman 1869). From Bellan-Santini et al 1982.

Figure 45. Megaluropidae: *Gibberosus myersi* (McKinney 1980). From JL Barnard 1962.

Figure 46. Pontoporeiidae: *Monopreia sp.* From Bousfield 1989.

Figure 47. Urothoidae: *Urothoe elegans* Cmplx. From JL Barnard & Karaman 1991.

Figure 48. Platyischnopidae: *Tiburonella viscana* (JL Barnard 1964). From JL Barnard 1963.

Figure 49. Phoxocephalidae: *Foxiphalus similis* (JL Barnard 1960). From Jarrett and Bousfield 1994.

Figure 50. Melphidippidae: *Melphidippa amorita* JL Barnard 1966 (From JL Barnard 1966)

Figure 51. Pardaliscidae: *Nicippe tumida* Bruzelius 1859. From J L Barnard 1959.

Figure 52. Oedicerotidae: *Deflexilodes enigmaticus* Bousfield and Chevrier 1996. From Bousfield and Chevrier 1996.

Figure 53. Calliopiidae: *Oradarea longimana* (Boeck 1871). From Shoemaker 1930.

Figure 54. Pleustidae: *Pleusymtes subglaber* (JL Barnard & Given 1960). From JL Barnard & Given 1960. Pleusymptinae and Parapleustinae lower lips. From Bousfield & Hendrycks 1994.

Figure 55. Pontogeneiidae: *Pontogenia inermis* (Krøyer 1838). From Bousfield 1973.

Figure 56. Eusiridae: *Rhachotropis oculata* (Hansen 1888). From Bousfield 1973.

Figure 57. Liljeborgiidae: *Listriella eriopisa* J. L. Barnard 1959, female. From JL Barnard 1959. Mandible and palp. From JL Barnard and Karaman 1991.

Figure 58. Crangonyctidae: *Crangonyx pseudogracilis* Bousfield 1958. From Bousfield 1973.

Figure 59. Gammaridae: *Gammarus daiberi* Bousfield 1969. From Bousfield 1973.

Figure 60. Hornellidae: *Hornellia tequestae* Thomas & JL Barnard 1986. From Thomas & JL Barnard 1986. Pleon and gnathopod 2, *Hornella occidentalis* (J. L. Barnard in J. L. Barnard & Reish 1959). From JL Barnard & D Reish 1959.

Figure 61. Melitidae: *Desdimelita desdicahada* (J. L. Barnard 1962) (From JL Barnard 1962)

Figure 62. Maeridae: *Maera similis* Stout 1913 (From Krapp-Schickel & Jarrett 2000)

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