11 February 2005

ISAEIDAE – A, TA Urosome articles separate, third uropods biramus. The taxonomy emphasizes males. Isaeidae are suspension feeders, at a wide range of depths where they build tubes or occupy empty shells. *Photis* males bear conspicuous stridulation ridges on the lateral face of gnathopod article 2. The taxonomy of Isaeidae is not reliable for females and the many reports .

1. Uropod 3 inner ramus less than half as long as outer ramus and scale or plate like(Conlan 83:41, fig 21 U3):**1**; (Conlan 83:50, fig 24 U3):**2** 2
- Uropod 3 inner ramus more than half as long as outer ramus (Conlan 83:28, fig12 U3):**3** 5
2. Gnathopod 2 article 5 less than one third as large as article 6 (Barnard 1962a:18, fig 4, whole body):**4** 3
- Gnathopod 2 article 5 more than half as large as article 6, antenna 1 (Conlan 83:41, fig 21 whole body):**5** 4
3. Antenna 1, accessory flagellum a tiny nub (Conlan 83:50, fig 24 A1):**6** (view at 100x), coxa 3 deeper than pereonite 3 (JLB62a:32,fig 11 anterior body to G2):**7** 8
- Antenna 1, accessory flagellum multisegmented (view at 100x) and coxa 3 shallower than pereonite 3 (Barnard 1962a:18, fig 4, whole body):**4** . . . . . *Cheiriphotis megacheles*
4. Gnathopod 2 article 5 broader than article 6 (Conlan 83:41, fig 21whole body)**:5**, gnathopods 1 and 2 palms transverse and greatly overlapped by dactyls (Conlan 83:41, fig 21 G1):**8** & (Conlan 83:41, fig 21 G2):**9** . . . . . *Cheirimedeia zotea*
- Gnathopod 2 article 5 and 6 approximately equal in width (Conlan 83:37, fig 18 whole G2 only):**10**, gnathopods 1 and 2 palms oblique and greatly overlapped by dactyls (Conlan 83:37, fig 18 G1):**11** & (Conlan 83:37, fig 18 G2):**12** . . . . . .*Cheirimedeia macrocarpa*
5. Urosome segments 1 and 2 coalesced and pereopod 5-7 with heavy gripping dactyl (JLB62:19, fig. 5 whole body):**13** . . . . . *Chevalia aviculae*
- Urosome segments 1 and 2 separate, accessory flagellum of two or more segments, usually conspicuous (Conlan 83:28 fig 12 whole body):**14** 6
6. Antenna 1 article 3 shorter than article 1, pereopods 3 and 4 anterior margins of articles 2 and 4 strongly setose, male article 4 bearing 4 or more setal groups, ocular lobes distally rounded (Conlan 83:28 fig 12 whole body):**14** 7
- Antenna 1 article 3 as long as article 1 or longer, pereopods 3 and 4 anterior margins of articles 2 and 4 weakly setose, ocular lobes distally pointed (Conlan 83:12 fig 4 whole body):**15** 13
7. Gnathopods 1 and 2 dactyl less than half as long as article 6 (Conlan 83:28 fig 12 whole body):**14** . . . . . *Protomedeia articulata*
- Gnathopods 1 and 2 dactyl less than half as long as article 6 (Conlan 83:31 fig 15 anterior to G2):**16** . . . . . *Protomedeia prudens*
8. Gnathopod 2 with two teeth defining the palmer process of segment 6 (Conlan 83:47, fig. 22 GN2):**17**, gnathopod 1 segment 5 nearly three times as long as wide . (Conlan 83:47, fig 22 whole body):**18** . . . . . *Photis bifurcata*
- Gnathopod 2 with a single tooth defining the palmer process of segment 6, gnathopod 1 segment 5 less than twice as long as wide (Conlan 83:53, fig27 whole body: **19**) 9
9. Gnathopod 1 article 5 posterior margin short, less than 1/3 the length of the anterior margin (Conlan 83:53, fig27 whole body):**19** . . . . . *Photis macinerneyi*

- Gnathopod 1 article 5 posterior margin extended, more than 1/3 the length of the anterior margin (JLB62a:32, fig 11 whole body to G2):**7** 10

10. Palmar excavation deeply rounded (JLB62a:32,fig 11 whole body to G2):**7** & (JLB62a:34,fig 12 whole body to G2):**20** 11

- Palmar excavation sharply incised (Conlan 83:50, fig24 whole body):**21** 12

11. Inner margin of dactyl without a large protrusion (JLB62a:34, fig 12 anterior body to G2):**20** . . . . . *Photis californica*

- Inner margin of dactyl with a large protrusion and (JLB62a:32, fig 11 whole body to G2):**7** . . . . . *Photis brevipies*

12. Dactyl of gnathopod 2 extending past the defining palmar tooth of article 6 (Conlan 83:50, fig 24 anterior body to G2):**21** (Lives in small snail shells glued to algae on rocky coasts) . . . . . *Photis conchicola*

- Dactyl of gnathopod 2 not extending past the defining palmar tooth of article 6 (Conlan 83:52, fig 26 whole body to G2):**22** . . . . . *Photis lacia*

13. Urosome of males dorsally cusped (Conlan 1983:12, fig 4 ABD):**23**, coxa 7 greatly expanded posteriorly, pereopods 3 and 4 articles 4 and 5 subequal (Conlan 1983:12, fig 4 whole body):**15** 14

- Urosome of both sexes dorsally smooth, pereopod 7 coxa short, pereopods 3 and 4 articles 4 half to three quarters the length of article 5 (Conlan 1983:21, fig 9, whole body: **24**) 15

14. Male gnathopod 1 posterior distal corner of article 2 expanded and densely covered with setae (Shoemaker 1942:29, fig. 10a):**25** . . . . . *Gammaropsis shoemakeri*

- Gnathopod 1 posterior distal corner of article 2 unexpanded and without dense cover of setae (Barnard 1959:63, fig. 11 N):**26** . . . . . *Gammaropsis thompsoni*

15. Gnathopod 2 (both sexes) posterior margin of gnathopod 2 article 5 more than 1/3rd the length of article 6 (Shoemaker 1942:31, fig 11 whole body):**27** & (JLB69:147, fig. 32 whole body P5 male):**28** 16

- Gnathopod 2 (both sexes) posterior margin of gnathopod 2 article 5 less than 1/5th the length of article 6 (Conlan 1983:21, fig 9 whole body):**24** & (Conlan 1983:21, fig 9 GN2 male):**29** 18

16. Male coxa 2 posteriorly straight or concave (Shoemaker 1942:31, fig 11 whole body):**27** & (JLB69:147, fig 32a whole body):**28** 17

- Male coxa 2 posteriorly lobed (JLB69:143, fig. 29 j):**30** and pereopod 3 anteriodistal article 2 expanded (JLB 69:144, fig. 30 g):**31** . . . . . *Gammaropsis mamolus*

17. Antenna 1 article 1 twice as thick as article 2, accessory flagellum tiny and of 2 articles, articles 2 and 4 of pereopod 5 normal, head pigmented, ocular lobes rounded (JLB69:147, fig. 32a whole body):**28** . . . . . *Gammaropsis effrena*

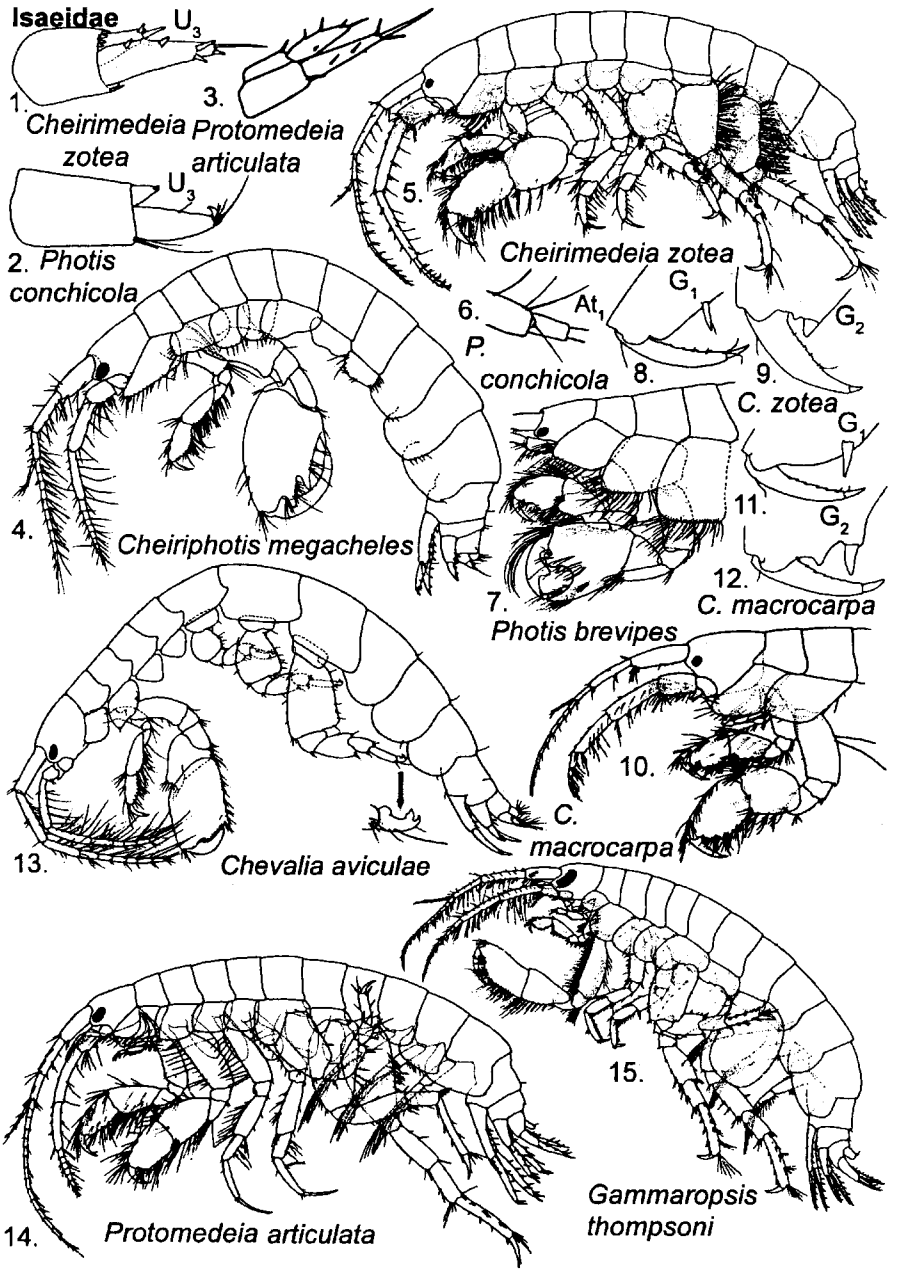
- Antenna 1 article 1 only slightly thicker than article 2, accessory flagellum prominent and of 3 articles, pereopod 5 articles 2 and 4 of thick, article 4 posterior lined with spines, head unpigmented, ocular lobes pointed (Shoemaker 1942:31, fig 11 whole body):**27** . . . . . *Gammaropsis spinosa*

18. Male pereopod 5 article 2 posterior ventral edge deeply notched (Conlan 1983:21, fig 9 P5 male):**32** and gnathopod 2 article 6 half wide as long (Conlan 1983:21, fig 9 GN2 male):**29**, accessory flagellum a microscopic button (Conlan 1983:21, fig 9, whole body):**24** . . . . . *Gammaropsis barnardi*

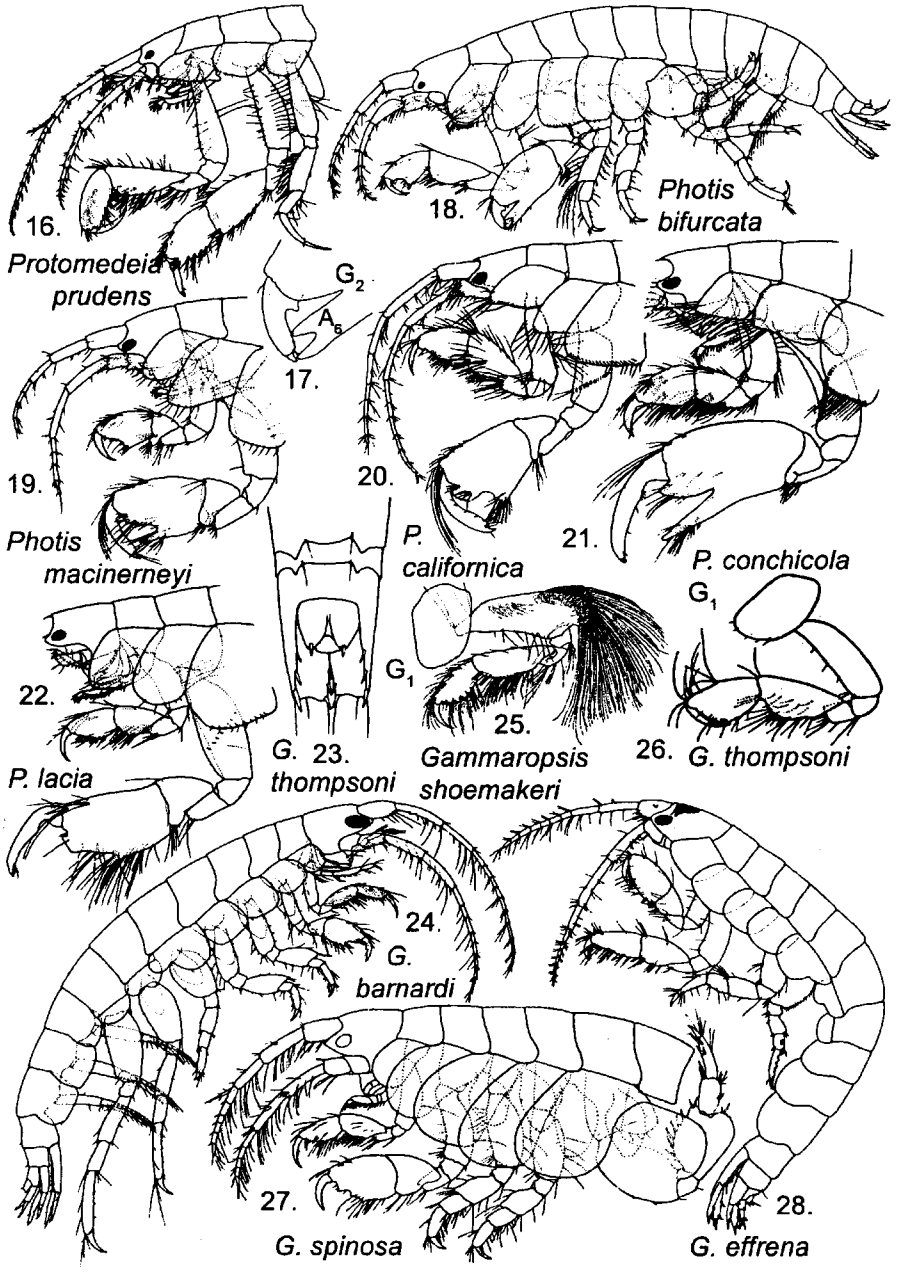
- Male pereopod 5 article 2 posterior ventral edge evenly rounded (JLB69:150, fig 35k):**33**, gnathopod 2 article 6 two thirds as wide as long (JLB69:149, fig 34h):**34**, accessory flagellum as long as the first article of the flagellum (JLB69:150, fig 35a):**35** . . . . . *Gammaropsis martesia*

Cheirimedeia macrocarpa (Bulytscheva, 1952) *americana* Conlan 1983, British Columbia to Netart's Bay, Oregon, 0 m, in brackish to full marine semi-protected sand flats.
Cheirimedeia zotea (Barnard, J.L., 1962) Long Beach, Vancouver Island, B. C. .to Monterey Bay, CA, 0-113 m in mixed mud and sand sediments.
Cheiriphotis megacheles (Giles, 1885) Rocky intertidal, Cayucos to La Jolla, CA, Galapagos Islands, South Africa, India, Red Sea. (A possible introduced species. Large teeth on palm of male gnathopod 2 vary from 3-5. Adults lose inner ramus of uropod 3.)
Gammaropsis barnardi (Kudryashov & Tzvetkova, 1975) Bering Sea to southern CA, 0-17 m in mixed sand sediments.
Gammaropsis effrena (Barnard, 1964) Cayucos to La Jolla CA in rocky intertidal, 0 m.
Gammaropsis mamola (Barnard, J.L., 1962) Among algae holdfasts and on hard surfaces from Monterey Bay to Goleta, CA, 3-25m.
Gammaropsis martesia (Barnard, 1964a) Among *Phyllospadix*, tunicates and sponges, Carmel, CA to Bahia de San Cristobal, Baja California, 0-84 m. (This could be the terminal *G. spinosus* form since it is difficult to distinguish from juvenile and female *G. spinosus*.)
Gammaropsis shoemakeri Conlan, 1983 Vancouver Island, B. C. to Magdalena Bay, Baja California, among kelp and hydoids, 0-27 m.
Gammaropsis spinosa (Shoemaker, 1942) Among algae, sponges, and polychaete tubes. Quatsino Sound, Vancouver Island, B. C. to Magdalena Bay, Baja California, 0-27m.
Gammaropsis thompsoni (Walker, 1898) Among encrusting animals and in algal holdfasts, 0-27m. (Posterior extension of coxa 2 not as in *G. mamolus*.)
Photis bifurcata Barnard, 1962 Usually on soft sediment, Chichagof Island, Alaska south to Bahia de Cristobal, Baja California, low water to 109 m.
Photis brevipes Shoemaker, 1942 various sediments but especially sand, Prince William Sound, Alaska, to Bahia Magdalena, Baja California, low water to 289m.
Photis californica Stout, 1913 Monterey Bay, California to San Cristobal Bay, Baja California, low intertidal to 147m.
Photis conchicola Alderman, 1936 Washington south to La Jolla, California, on rocky beaches with algae and surfgrass, often pagurid-like, living in empty gastropod shells differing from oligochaeta only by its more setose coxae, 0-42m.
Photis lacia Barnard, J.L., 1962a Goose Island, British Columbia south to Santa Maria Basin area, California, 7-148m.
Photis macinerneyi Conlan, 1983 Lady Ellen Point, Broughton Strait, Vancouver Island south to Neah Bay, Clallam County, Washington to southern California, low intertidal and subtidal sand.
* *Photis sp.* Barnard, 1969, Pt. Conception South

Isaeidae Plate 1



Isaeidae Plate 2



Isaeidae Plate 3