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Article in *Zootaxa* · September 2020

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Three new species of *Scyracepon* Tattersall, 1905 (Isopoda: Bopyridae) from Pacific islands, with comments on the rarity of bopyrids parasitizing brachyurans

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Abstract

Three new species of the bopyrid genus *Scyracepon* Tattersall, 1905 are described from crabs collected on Pacific Islands: *Scyracepon polynesiensis* n. sp. from the Society Islands, *S. pseudoliomerae* n. sp. from the Mariana Islands, and *S. biglobosus* n. sp. from the Line Islands. The first two were found infesting *Xanthias lamarckii* and *Pseudoliomera* sp. (Xanthidae), a new host family for species of *Scyracepon*, and the last was found parasitizing *Schizophrys aspera* (Majidae). *Scyracepon* now includes 11 species, all but one known from single collections, infesting 12 host species in 9 brachyuran families. The discovery of three new species, each rare, suggests that crab parasites are undersampled, and further suggests that the low relative diversity of bopyrids known from brachyurans may partly reflect this undersampling. Keys to all species of *Scyracepon* and to all 31 genera of Keponinae are provided.

Keywords: Bopyridae, Isopoda, Keponinae, new species, *Scyracepon*

Introduction

The family Bopyridae currently includes 611 recognized species (Boyko *et al.* 2008 onwards), all parasitic as adults on decapod crustaceans. Keponinae is the third largest subfamily in the group, after Pseudioninae and Bopyrinae, with 98 species assigned to 31 genera (Boyko *et al.* 2008 onwards). Most species (>85%) in Keponinae are branchial parasites of brachyurans as definitive hosts and most bopyrids that live on crabs belong to this subfamily (Shields *et al.* 2015). Overall, brachyurans have relatively few bopyrid parasites; Markham (1986) reported that diversity of bopyrid species relative to diversity of potential host species hovers around 10% for most decapod clades but is only 1.7% for Brachyura. It is not clear whether the low level of parasitism of brachyurans reflects a relatively recent invasion of crab hosts (but fossil evidence goes back to the late Jurassic; Klompmaker *et al.* 2014), slow rate of diversification of crab-associated bopyrids, or under-sampling of these parasites. The rarity of infested crabs suggests that the latter could be important, and this is reflected in the small numbers of specimens most keponines are known from. For example, 10 of the 11 species of the genus *Scyracepon* Tattersall, 1905, including the three new species described herein, are known only from the type specimens. Focused surveys on crabs are needed for a better understanding of the true diversity of Keponinae. Here we report on three new species of *Scyracepon* found on three crab hosts deposited in the Florida Museum of Natural History collections.

Scyracepon can be easily distinguished from related keponine genera by the fused pleon of males. The genus includes eight previously described and three new species (Boyko *et al.* 2008 onwards). Only one of the 11 species has been recorded more than once, and remarkably these 11 species are recorded from 12 host species in nine different families of brachyuran hosts (Table 1). Clearly, further research is needed to assess the level of host specificity exhibited by members of this genus. Keys to the 31 genera of the Keponinae and to the 11 species *Scyracepon* are presented below.

Material and methods

All specimens examined are deposited in the Invertebrate Zoology collections of the Florida Museum of Natural History, University of Florida (UF). Bopyrids were viewed and drawn using a LEICA MZ16 dissecting microscope, the figures were scanned using a CanonScan 9900F, and edited using Adobe Photoshop CS6. Males to be studied by scanning electron microscope were fixed in 2.5% glutaraldehyde in 0.2 M Millonig's phosphate buffer at pH 7.4 for 1.5h and postfixed in 1% osmium tetroxide in 0.2M Millonig's buffer for 1h. These specimens were then dehydrated through a graded series of ethanol, followed by critical point drying. After sputter coating with colloidal gold, the specimens were examined with a KYKY2800B scanning electron microscope. Full citations are given for the taxonomic literature of the parasites, but not of the hosts. The nomenclature of the host name has been updated.

Systematic account

Order ISOPODA Latreille, 1817

Family BOPYRIDAE Rafinesque, 1815

Subfamily Keponinae Boyko, Moss, Williams & Shields, 2013

Genus *Scyracepon* Tattersall, 1905

Type-species, by monotypy: *Scyracepon tuberculosa* Tattersall, 1905

Scyracepon polynesiensis n.sp.

Figs 1, 2

Material examined. *Holotype* female, *paratype* male, UF Arthropoda 42203, infesting left branchial chamber of *Xanthias lamarckii* (H. Milne Edwards, 1834), UF Arthropoda 23676, French Polynesia, Society Island, Moorea Island, off Gump Cape, 50 meters north of bungalows, fringing reef flat, 1–1.5 meters, 17.4893°S, 149.8258°W, 24 October 2009, coll. A. Anker.

Description. *Holotype female* length 4.32 mm, maximum width 3.40 mm, head length 0.68 mm, head width 1.28 mm. Body suboval, sinistrally distorted (Fig. 1A).

Head oblate, with well-developed frontal lamina (Fig. 1A), with black eyes near junction of head and frontal lamina (Fig. 1A). *Antennula* of three articles; *antenna* of five articles; terminal article of both setose (Fig. 1B). *Barbula* with three, pointed, falcate projections on each side, without projections medially (Fig. 1C). *Maxilliped* with anterior article much larger than posterior article, extended into stout and curved palp fringed with setae, plectron poorly demarcated (Fig. 1D).

Pereon broadest across third pereomere, wider than long, last four pereomeres with middorsal bosses, anterior-most slightly smaller than others, pereomeres 2 and 3 with distinct tergal projections (Fig. 1A). Brood pouch completely closed. First oostegite with two nearly equal segments, internal ridge with large digitate projection and 3–5 small projections, posterolateral point sharp and projecting posteriorly (Fig. 1E, F). First two and last two pereopods smaller than others (Fig. 1G), propodi of pereopods 3–5 with ventral extension to accommodate pointed dactyli, making these appendages almost subchelate (Fig. 1G, H).

Pleon of six pleomeres, first five bearing lateral plates and biramous pleopods (Fig. 1A, I, J, K). All lateral plates and *pleopods* covered with tubercles, with tuberculated margins, and decrease in size posteriorly (Fig. 1A, I, J, K). Endopodites of pleopods oval and much smaller than exopodites. *Uropods* uniramous, resembling lateral plates and pleopod exopodites (Fig. 1L).

Paratype male length 1.96 mm, maximum width 0.83 mm, head length 0.23 mm, head width 0.34 mm, pleonal length 0.58 mm. Without pigmentation (Fig. 1M, 2A).

Head oblate, with small black eyes near posterior margin (Fig. 1M). *Antennula* of 3 articles, *antenna* of 4 articles, terminal three articles of both setose (Fig. 2B).

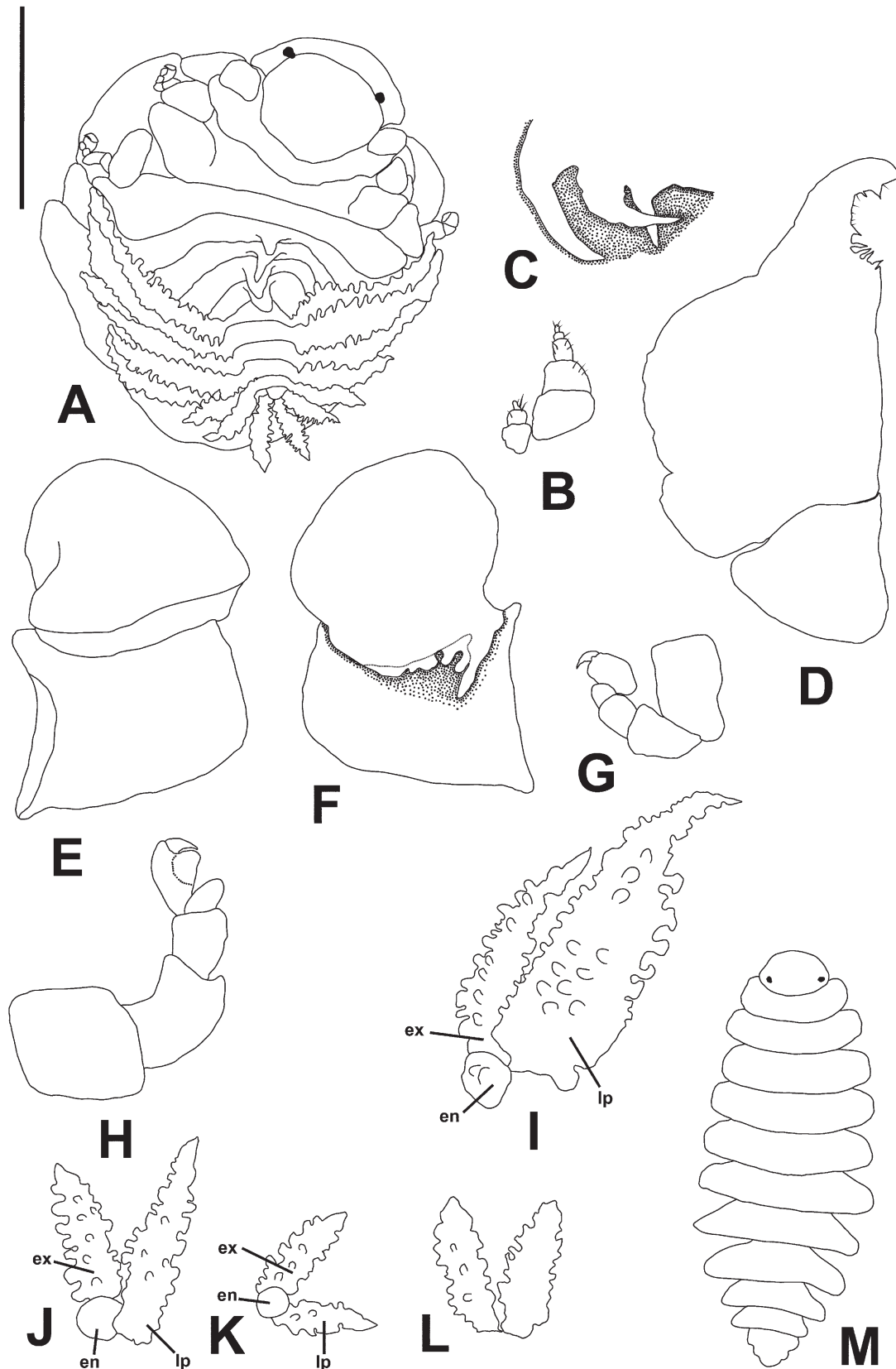


FIGURE 1. *Scyracepon polynesiensis* n. sp., holotype female (A–L); A. Dorsal view; B. Left antennula and antenna; C. Right side of barbula; D. Right maxilliped, external view; E. Right oostegite 1, external view; F. Right oostegite 1, internal view; G. Right pereopod 1; H. Right pereopod 4; I. Left pleopod 1 (lp=lateral plates; en=endopodite; ex=exopodite); J. Left pleopod 3; K. Left pleopod 5; L. Uropods. *Paratype* male (M); M. Dorsal view. *Scale-bars*: A = 1 mm; B, G, H = 0.21 mm; C, D = 0.30 mm; E, F, I–M = 0.47 mm.

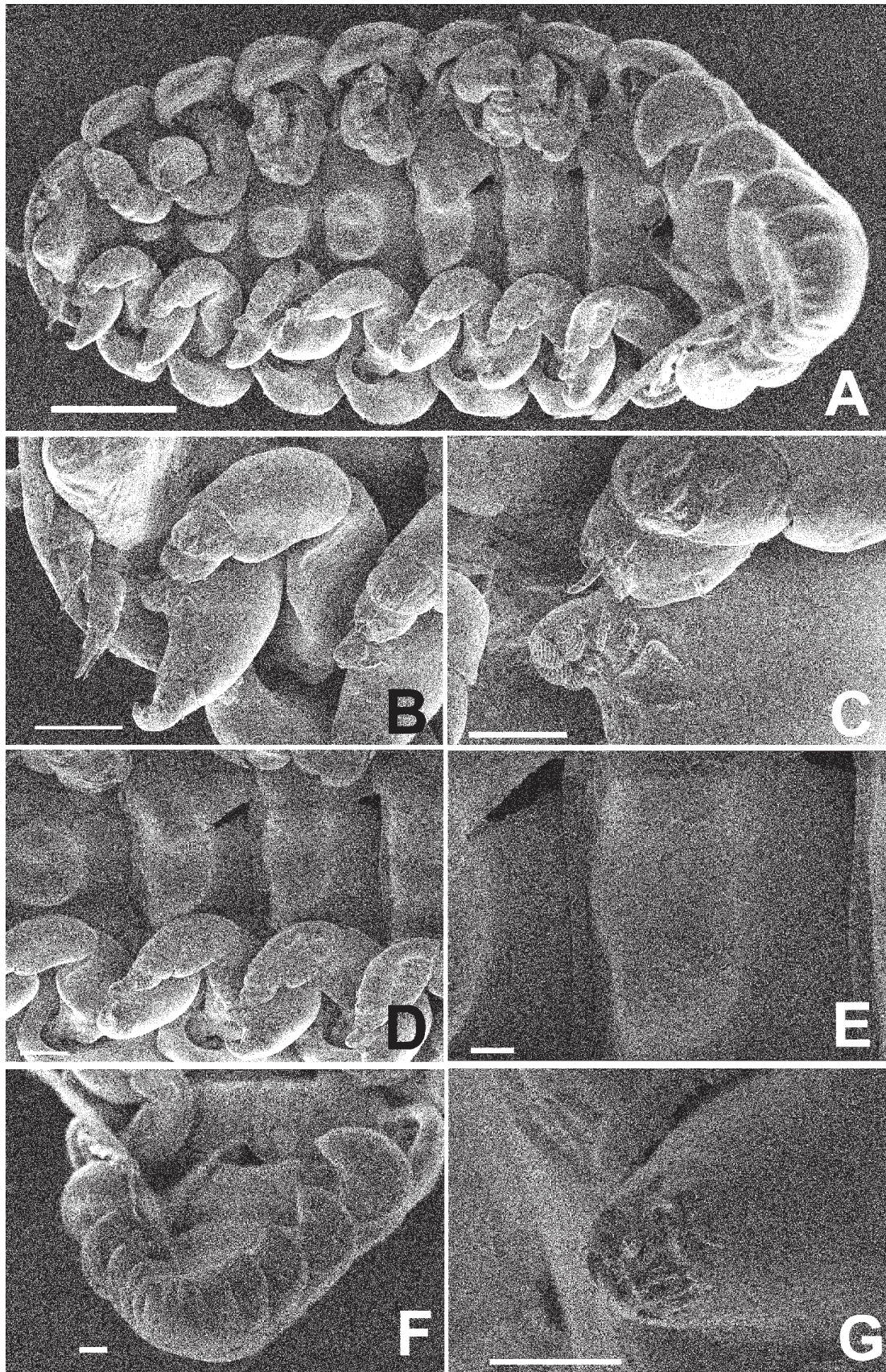


FIGURE 2. *Scyracepon polynesiensis* n. sp., Scanning Electron Micrograph of paratype male. A. Ventral view of the male; B. Right antenna, antennae and pereopods 1, 2; C. Propodus, carpus and merus of right pereopod 1; D. Midventral projections of pereomeres 4–7, and right pereopods 5, 6; E. Midventral projection of pereomere 6; F. Ventral view of pleon; G. Left tip of uropods. Scale-bars: A = 200 μ m; B, D = 50 μ m; C, E, G = 20 μ m; F = 40 μ m.

Pereon with distinct segments, sixth widest (Fig. 2A), sides truncate, curved ventrally (Fig. 2A). All pereomeres with midventral projections, peg-like in 1 and 2, bilobate in 3 and 4, broadly bilobate with broad, flat center in 5–7, increasing in size posteriorly (Fig. 2A, D, E), all with scales. Pereopods of similar size (Fig. 2A), with short but pointed dactyli, with few, small scales on meri, carpi and propodi (Fig. 2B, C), propodi with ventral, finger-like extension, covered with 4 or 5 scales with grooved sculpture that accommodate tip of dactyli (Fig. 2C).

Pleon somewhat coalesced, first three pleomeres separated by faint demarcations dorsally and ventrally, posterior three pleomeres fused; all pleomeres clearly demarcated by lateral indentations (Figs 1M, 2F). Lateral sides of pleomeres curved ventrally, ending in five pairs of hook- to tubercle-like *pleopods* (Fig. 2F). *Uropods* short, tubercle-like, terminating in a cluster of scales and setae (Fig. 2G).

Etymology. The specific name, *polynesiensis*, refers to the type locality of French Polynesia.

Remarks. The present specimens are placed in *Scyracepon* because the pleon of the male has pleomeres 4–6 fused. Among the 8 known species of *Scyracepon*, only two have middorsal projections on the last four pereomeres: *S. hawaiiensis* and *S. quadrihamatum*. The present species can be distinguished from *S. hawaiiensis* because the female lacks middorsal projections on pereomeres 2, 3 (present in *S. hawaiiensis*); head has a convex anterior margin (anterior margin of head is indented, giving a bilobate aspect, in *S. hawaiiensis*); lacks projections on the posterior margin of oostegite 1 (present in *S. hawaiiensis*). The female of the new species differs from *S. quadrihamatum* in that middorsal projections on the last three pereomeres are subequal (the last is much larger, extending to posterior end of body, in *S. quadrihamatum*), and has eyes (eyes lacking in *S. quadrihamatum*). Males can be distinguished in that the first three pleomeres are free (fused medially in both *S. hawaiiensis* and *S. quadrihamatum*). This is the first record of a species of *Scyracepon* parasitizing any host from the large family Xanthidae, expanding the host range of the genus to nine families.

Scyracepon biglobosus n. sp.

Figs 3, 4

Material examined. *Holotype* female, *paratype* male, UF Arthropoda 42214, infesting right branchial chamber of *Schizophrys aspera* (H. Milne-Edwards, 1834) (Majidae), UF Arthropoda 10459, Kiribati, Line Islands, Kiritimati Atoll, off ocean side of Cook Islet in middle of passage, outer reef slope, under rocks, 10–12 meters, 1.9656°N, 157.4862°W, 6 August 2005, coll. G. Paulay.

Description. *Holotype female* length 7.0 mm, maximum width 5.10 mm, head length 1.56 mm, head width 2.05 mm. Body broad, bulging, segments distinct, slightly dextrally distorted (Fig. 3A, B).

Head deeply bilobate, with two lateral hemispheres separated by sunken middle, with well-developed frontal lamina (Fig. 3A), without eyes. *Antennula* of three articles; *antenna* of four articles, terminal two articles setose (Fig. 3C). *Barbula* with two slender, pointed, falcate projections on each side, external projection larger than inner one, without projections medially (Fig. 3D). *Maxilliped* with stout, triangular, curved palp, inner margin fringed with setae, plectron long, thin, pointed (Fig. 3E).

Pereon broadest across third pereomere (Fig. 3A). First four pereomeres with suboval dorsolateral bosses, those on right side larger than those on left. Pereomeres 2–4 with tergal projections only on right side (Fig. 3A). Last two pereomeres with well-developed, backward-directed, middorsal projections (Fig. 3A). Brood pouch ventrally vaulted, completely closed (Fig. 3B). First oostegite with 3 or 4 projections on internal ridge, anterior margin smooth and curved, posterior margin straight, posterolateral point blunt, substantially extended laterally (Fig. 3F, G). *Pereopods* increase in size posteriorly. Ischia of pereopods 1–3 with small tubercles (Fig. 3H), of pereopod 7 with large tuberculate extension (Fig. 3I). All pereopods with blunt and short dactyli (Fig. 3H, I).

Pleon of six distinct pleomeres, first five bearing lateral plates and biramous pleopods, decreasing in size posteriorly (Fig. 3A). All lateral plates and *pleopods* covered with tubercles, both with digitate margins. Endopodites of pleopods triangular and much smaller than exopodites (Fig. 3B). Uniramous *uropods* resemble lateral plates of pleomere 5 (Fig. 3A).

Paratype male length 2.62 mm, maximum width, 1.02 mm, head length 0.19 mm, head width 0.40 mm, pleonal length 0.83 mm (Fig. 3J; 4).

Head broadly suboval, posterior margin long and relatively straight; with black eyes near posterolateral margin (Fig. 3J). *Antennula* of 3 articles; *antenna* of 5 articles; terminal articles of both setose (Fig. 4B).

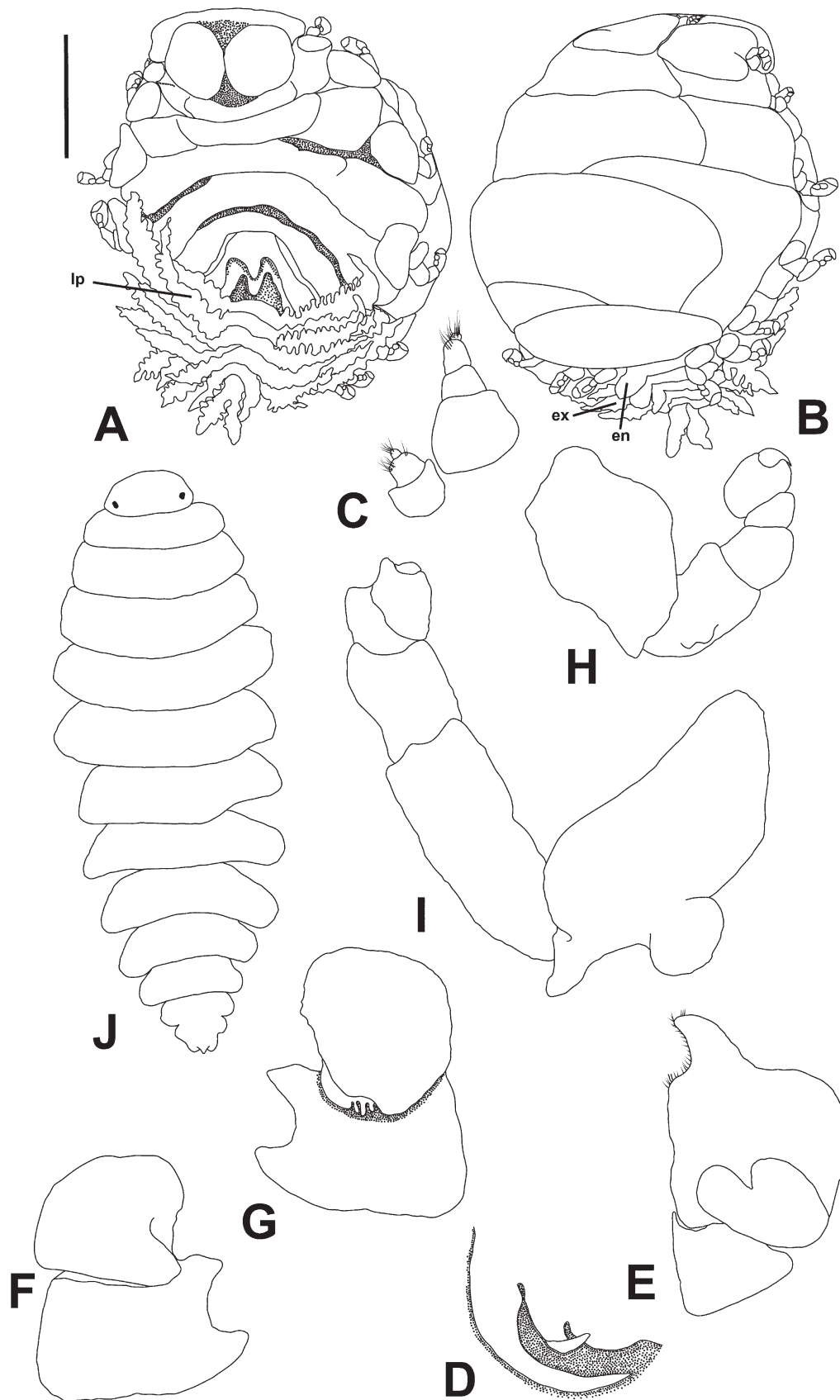


FIGURE 3. *Scyracepon biglobosus* n. sp. Holotype female (A–I). A. Dorsal view; B. Ventral view (lp = lateral plates; en = endopodite; ex = exopodite); C. Left antennae; D. Right side of barbula; E. Left maxilliped, external view; F. Left oostegite 1, external view; G. Left oostegite 1, internal view; H. Left pereopod 1; I. Left pereopod 7; *Paratype* male (J); J. Dorsal view. *Scale-bars*: A, B = 1mm; C, H, I = 0.13 mm; D, E, J = 0.30 mm; F, G = 0.76 mm.

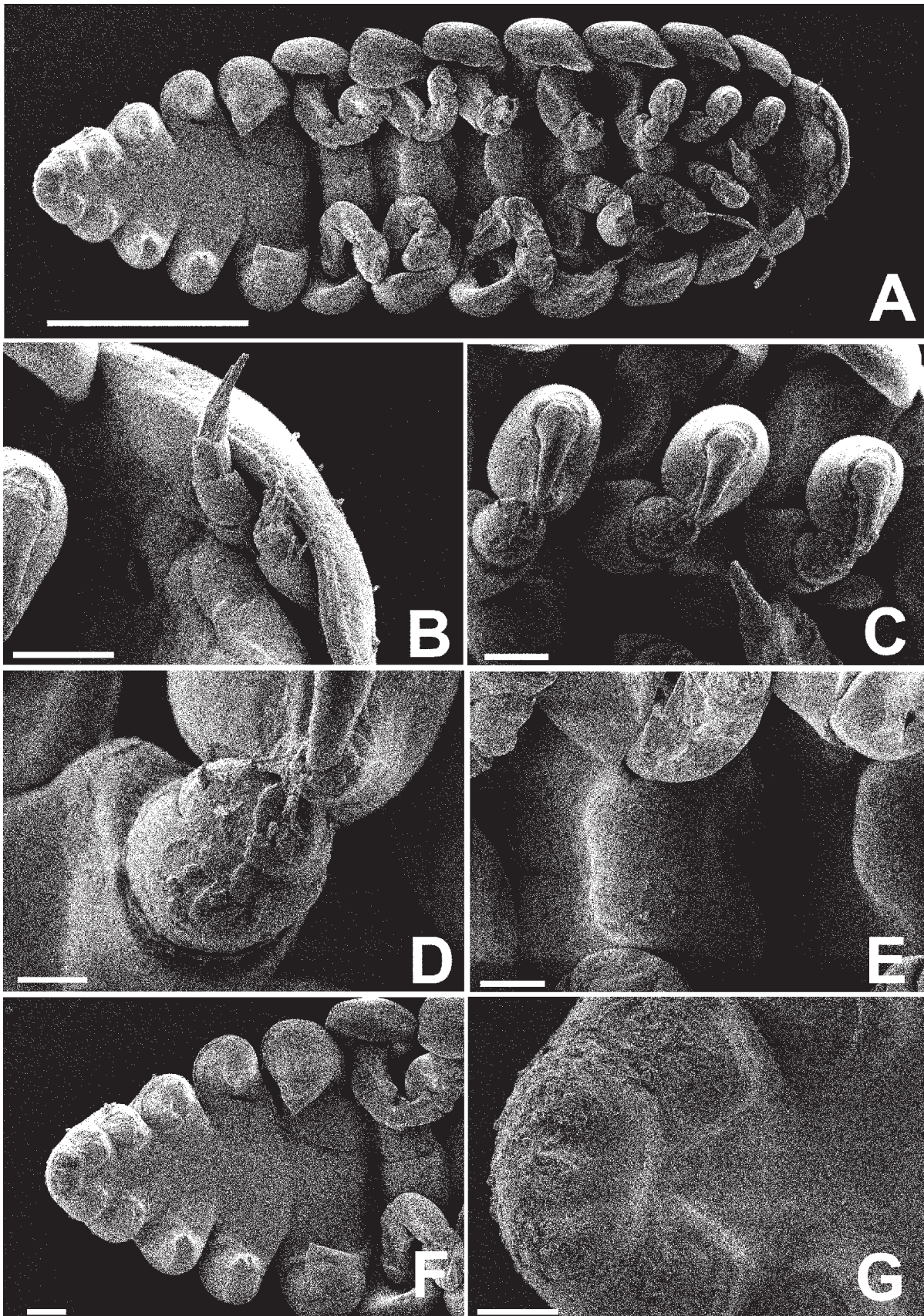


FIGURE 4. *Scyracepon biglobosus* n. sp. Scanning Electron Micrograph of paratype male. A. Ventral view of the male; B. Right antennae; C. Right pereopods 1–3; D. Propodus, carpus and merus of pereopod 3; E. Midventral projections of pereomere 6; F. Ventral view of pleon; G. Pleotelson and anal cone. *Scale-bars:* A = 0.50 mm; B, C, E = 50 μ m; D = 20 μ m; F = 80 μ m; G = 40 μ m.

Pereon much wider than head, fourth widest, anterior three with quadrate margin, others with somewhat sharper margins; lateral extensions curved ventrally (Fig. 4A). *Pereopods* subequal, except dactyli of first three slightly larger than those of others (Fig. 4A, C). Meri, carpi and propodi of pereopods with scale plates and setae (Fig. 4D). Propodi of pereopods with articular socket comprised of 4 or 5 scale plates to accommodate retracted dactyli (Fig. 4D). All pereomeres with midventral projections (Fig. 4A); small and round on 1 and 2, larger and rounded on 3 and 4, broad, almost bilobate on 5 and 6, low and slightly bilobate on 7 (Fig. 4A, E), all with scales.

Pleon with six distinct pleomeres demarcated by lateral indentations, first three free, clearly demarcated both dorsally and ventrally, last three fused (Figs 3J, 4A, F). Five pairs of tuberculate *pleopods* (Fig. 4A, F). *Uropods* short, tuberculate; with anal cone between them (Fig. 4G).

Etymology. The specific name, *biglobosus* refers to the strikingly bilobate head of the female.

Remarks. The present species is assigned to *Scyracepon* because of the fused male pleonal segments. The female of the new species is most similar to *S. distincta* and *S. thalamitae*, as both of these also have middorsal projections on only the last two pereomeres. *Scyracepon biglobosus* is distinguished from both by its conspicuously bilobate head (slightly bilobate in both other species). It is also distinguishable from *S. distincta* by the large (vs very small) middorsal projections on the last pereomeres, and the straight and glabrous posterior margin of oostegite 1 (curved and fringed with setae in *S. distincta*). The new species further differs from *S. thalamitae* in that its pleopods are only ornamented by digitate margins (*S. thalamitae* has pleopods with deeply digitate, divided margins and a minutely tuberculate and setose surface). The male of the new species is distinguished in having three free pleomeres (*S. distincta* has only two free pleomeres, while *S. thalamitae* has all pleomeres medially fused). The spider crab *Schizophrys aspera* is also host of the bopyrid *Grapsicepon magnum* Shiino, 1936 in Japan (Shiino, 1936). This species is readily distinguished from *S. biglobosus* n. sp. by its completely separate pleonal segments in males.

Scyracepon pseudoliomerae n. sp.

Fig. 5

Material examined. *Holotype* female, *paratype* male, UF Arthropoda 42204, infesting right branchial chamber of *Pseudoliomera* sp., (Xanthidae), UF Arthropoda 412, Mariana Islands, Guam Island, Haputo Point, outer reef slope, under rocks, 13.58583°N, 144.83217°E, 15 meters, 17 July 2000, coll. L. Kirkendale.

Description. *Holotype female* length 3.58 mm, maximum width 2.27 mm, head length 0.88 mm (including frontal lamina), head width 0.96 mm. Body broad and bulging, oval in outline, with moderate dextral distortion, all segments distinct (Fig. 5A).

Head with bilobate anterior margin, with well-developed frontal lamina (Fig. 5A), without eyes. *Antennula* of two articles; *antenna* of four articles, with terminal two setose. *Barbula* with three slender, pointed, falcate projections on each side, entire near center (Fig. 5B). *Maxilliped* with triangular palp, inner margin fringed with many setae, plectron long, pointed and extending laterally (Fig. 5C).

Pereon broadest across third pereomere (Fig. 5A). Pereomeres 1–4 with suboval or triangular dorsolateral bosses, 2 and 3 with tergal projections (Fig. 5A). Pereomeres 2 and 3 with slight median swelling, last four with prominent middorsal projections, increasing in size posteriorly (Fig. 5A). Brood pouch ventrally vaulted, completely closed. First oostegite with 2 or 3 small, simple tubercles on internal ridge, anterior margin smooth and curved, posterior margin fringed with setae, posterolateral point blunt and projecting laterally (Fig. 5D, E). *Pereopods* increasing in size posteriorly, bases lacking carinae (Fig. 5F, G), carpi and propodi each with triangular projection along ventral margin; dactyli small, pointed (Fig. 5F, G).

Pleon of six segments, first five bearing lateral plates and biramous pleopods (Fig. 5A). All lateral plates and exopodites of *pleopods* with digitate margins, decreasing in size and width posteriorly. Endopodites of pleopods oval and much smaller than exopodites. Uniramous *uropods* resembling lateral plates (Fig. 5A).

Paratype male length 1.77 mm, maximum width 0.75 mm, head length 0.23 mm, head width 0.31 mm, pleonal length 0.54 mm. All pereomeres distinct (Fig. 5H, I).

Head oval, with black eyes near curved posterior margin (Fig. 5H). *Antennula* of 2 articles; *antenna* of 4 articles; terminal articles of both setose (Fig. 5J).

Pereon segments much wider than head, 4th broadest; lateral margins bending ventrally (Fig. 5I). First two and last two pereopods slightly smaller than pereopods 3–5. Propodi of all pereopods with sharp, ventral tooth, increas-

ing in size posteriorly (Fig. 5K–M). All pereomeres with midventral projections (Fig. 5I), these small and round on first pereomere, bilobate on pereomeres 2–7 (Fig. 5I).

Pleon of six pleomeres clearly demarcated on ventral surface; dorsally first pleomere free, pleomeres 2–3 separated by obscure suture line, pleomeres 4–6 fused, ending in median anal cone (Fig. 5H, I). Five pairs of rudimentary *pleopods* (Fig. 5I), no *uropods*.

Etymology. The specific name *pseudoliomerae* refers to the host genus.

Remarks. Among all the species of *Scyracepon* only three others have middorsal projections on the last four pereomeres: *S. hawaiiensis*, *S. quadrihamatum* and *S. polynesiensis* n. sp. The present specimens are most similar to *S. hawaiiensis*, a species that infests *Thyraplax cooki* (Rathbun, 1906) (Goneplacidae) and is recorded from a depth of 277–284 fathoms (Richardson, 1910). The posterolateral point of the oostegite 1 of the new species projects laterally, while in *S. hawaiiensis* it does not. The middorsal projections on the last four pereomeres of the new species are subequal, but in *S. hawaiiensis* the last is larger, curved and sharply pointed. The head of the male of the new species has a curved posterior margin while that of *S. hawaiiensis* is straight. The first three pleomeres are free in the new species, but all pleomeres are fused in *S. hawaiiensis*. Although the morphological difference between these two species are relatively minor, major differences in host and depth also suggests that they represent distinct species. This conclusion needs to be tested with additional samples and molecular data.

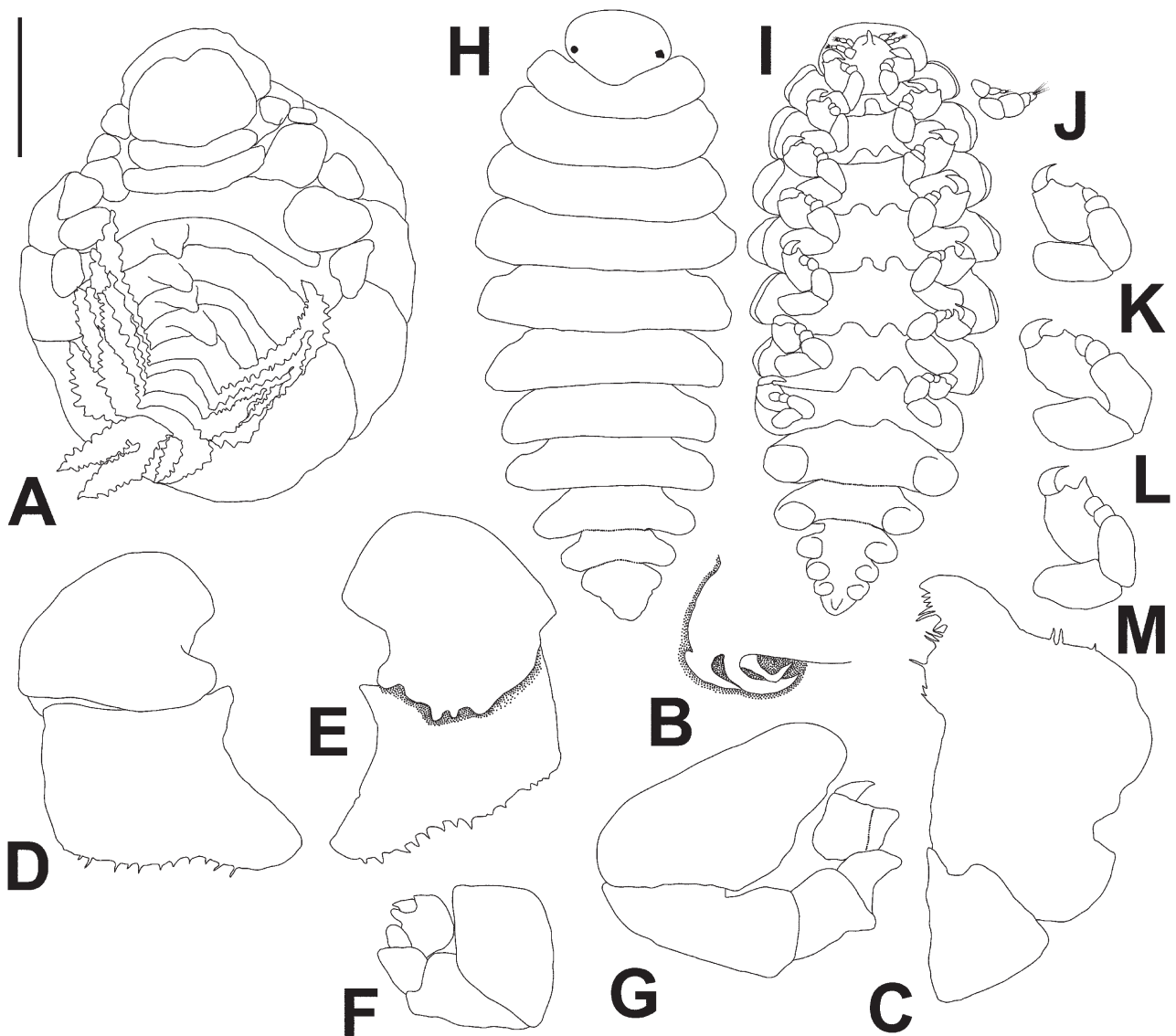


FIGURE 5. *Scyracepon pseudoliomerae* n. sp. Holotype female (A–G) A. Dorsal view; B. Right side of barbula; C. Left maxilliped, external view; D. Left oostegite 1, external view; E. Left oostegite 1, internal view; F. Left pereopod 2; G. Left pereopod 5; paratype male (H–M); H. Dorsal view; I. Ventral view; J. Left antennae; K. Right pereopod 1; L. Right pereopod 3; M. Right pereopod 5. *Scale-bars:* A = 1mm; B = 0.47 mm; C, H, I = 0.39 mm; D, E = 0.59 mm; F, G, J–M = 0.21 mm.

Both *S. pseudoliomerae* and *S. polynesiensis* parasitize crabs of the family Xanthidae, and have females with middorsal projections on the last four pereomeres. They can be distinguished from each other by the anterior margin of the head (head of *S. polynesiensis* with smooth and almost straight anterior margin; but those of *S. pseudoliomerae* deeply bilobate), and by the posterior margin and internal ridge of oostegite 1 (first oostegite of *S. polynesiensis* with two nearly equal segments, internal ridge with a large digitate projection, and 3–5 small tubercles, posterolateral point sharp and projecting posteriorly; those of *S. pseudoliomerae* with 2–3 small, simple tubercles on internal ridge, posterolateral point blunt and projecting laterally). Females of *S. quadrihamatum* are readily differentiated from those of the other species by the very elongate middorsal projection of the last pereomere that extends to the end of the body, while males have all pleomeres fused.

Key to the species of *Scyracepon* based on female characters

1	Pereon without middorsal projections ...	<i>S. australiana</i> Markham, 2010
-	Pereon with middorsal projections ...	2
2	All pereomeres with middorsal projections ...	<i>S. levis</i> Barnard, 1940
-	Less than five pereomeres with middorsal projections ...	3
3	Last four pereomeres with middorsal projections ...	4
-	Last two or three pereomeres with middorsal projections ...	7
4	Middorsal projection of last pereomere elongate, extending to end of pleon ...	<i>S. quadrihamatum</i> Shiino, 1936
-	Middorsal projection of pereomeres subequal, not extending beyond first segment of pleon ...	5
5	Posterior margin of oostegite 1 smooth ...	<i>S. polynesiensis</i> n. sp.
-	Posterior margin of oostegite 1 bearing projections ...	6
6	Middorsal projection of pereomere 7 larger than others ...	<i>S. hawaiiensis</i> Richardson, 1910
-	Middorsal projections subequal ...	<i>S. pseudoliomerae</i> n. sp.
7	Last three pereomeres with middorsal projections ...	8
-	Last two pereomeres with middorsal projections ...	9
8	Head bilobate ...	<i>S. oceanicum</i> Shiino, 1942
-	Head oval ...	<i>S. tuberculosa</i> Tattersall, 1905
9	Last two pereomeres with small middorsal projections ...	<i>S. distincta</i> An, Boyko & Yu, 2012
-	Last two pereomeres with prominent middorsal projections ...	10
10	Head markedly bilobate ...	<i>S. biglobosus</i> n. sp.
-	Head indistinctly bilobate ...	<i>S. thalamitae</i> (Markham, 1985)

Key to 29 genera of the subfamily Keponinae (*Hemicepon* and *Metathelges* based on immature type specimens are excluded)

1	Abdominal parasites, female with almost smooth lateral plates and pleopods ...	<i>Rhopalione</i>
-	Branchial parasites, female usually with digitate or tuberculate lateral plates and pleopods ...	2
2	All pereomeres of female normally developed ...	3
-	Pereomere 2 of female almost absent ...	<i>Onychocepon</i>
3	One pair of lateral plates on every pleomere of female ...	4
-	Two pairs of lateral plates on every pleomere of female ...	<i>Cardiocepon</i>
4	Female with some middorsal projections ...	5
-	Female without middorsal projections ...	13
5	Endopodite of pleopod of female well-developed ...	6
-	Endopodite of pleopod of female reduced or absent ...	10
6	All male pleomere segments distinct ...	7
-	Some male pleomere segments fused ...	<i>Scyracepon</i>
7	Female with middorsal projection on pleomere 1 ...	<i>Megacepon</i>
-	Female without middorsal projection on pleomeres ...	8
8	Antennae of female as long as body ...	<i>Ergyne</i>
-	Antennae of female much shorter than body ...	<i>Allokepon</i>
9	Pleopods of female without endopodites ...	<i>Mesocepon</i>
-	Pleopods of female with reduced endopodites ...	10
10	Middorsal projections only on last 2 pereomeres of female ...	12
-	Middorsal projections on more than last 2 pereomeres of female ...	11
11	Lateral plates and pleopods of female with digitate margins ...	<i>Cancricepon</i>
-	Lateral plates and pleopods of female with smooth margins ...	<i>Paracepon</i>

12	Pereomere 6 of female with more than one projection	<i>Tylokepon</i>
-	Pereomere 6 of female with one projection	<i>Grapsicepon</i>
13	Pleopods of female with well-developed endopodites	14
-	Pleopods of female with reduced endopodites	22
14	Tergal projection of female with densely tuberculate surface	<i>Lobocepon</i>
-	Tergal projection of female with almost smooth surface	15
15	Lateral plates and pleopods of female with smooth margins	16
-	Lateral plates and pleopods of female with digitate margins	18
16	Male with lateral plates	<i>Procepon</i>
-	Male without lateral plates	17
17	Female with wide lamellar lateral plates, male with slender uropods	<i>Coxalione</i>
-	Female with narrow striped lateral plates, male with stout uropods	<i>Hypocepon</i>
18	Head of female with bilobate anterior margin	19
-	Head of female with convex anterior margin	21
19	Lateral plates and pleopods of female covered with tubercles, margins sparsely digitate	<i>Anacepon</i>
-	Lateral plates and pleopods of female smooth, margins densely digitate	20
20	Female with endopodites of pleopods slightly shorter than exopodites, barbula with 2 pairs of projections	<i>Kepon</i>
-	Female with endopodites of pleopods much shorter than exopodites, barbula with 3 pairs of projections	<i>Dactylocepon</i>
21	Male without pleopods	<i>Metacepon</i>
-	Male with pleopods	<i>Heterocepon</i>
22	Female with 5 pairs of biramous pleopods plus uropods	<i>Castrione</i>
-	Female with 5 pairs of uniramous pleopods plus uropods	23
23	Lateral plates of female with largely smooth margins	24
-	Lateral plates of female with digitate margins	25
24	Exopodites of pleopods of female slightly shorter than corresponding lateral plates	<i>Epicepon</i>
-	Exopodites of pleopods of female much shorter than corresponding lateral plates	<i>Atypocepon</i>
25	Male with all pleomeres fused	<i>Hypercepon</i>
-	Male with some pleomeres separated	26
26	Female with reduced frontal lamina	<i>Apocepon</i>
-	Female with well-developed frontal lamina	27
27	Frontal lamina of female tuberculate	<i>Onkokepon</i>
-	Frontal lamina of female smooth	28
28	Male with long uropods	<i>Leidya</i>
-	Male with short uropods	<i>Trapezepon</i>

Acknowledgements

This work was supported by a Program of Ministry of Science and Technology of the People's Republic of China (2015FY210300) and Natural Science Foundation of Shanxi Province (No. 201901D111274). We are indebted to all collectors of specimens in the Florida Museum of Natural History. We also wish to thank Mandy Bemis and John Slapcinsky of the Florida Museum of Natural History for all the help during the first author's visit.

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