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Article

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Synopiidae*

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* *In*: Lowry, J.K. & Myers, A.A. (Eds) (2009) Benthic Amphipoda (Crustacea: Peracarida) of the Great Barrier Reef, Australia. *Zootaxa*, 2260, 1–930.

Abstract

Three species on Synopiidae are recorded from the Great Barrier Reef, Queensland, Australia. One new species *Syrrhoe petitaserrata* **sp. nov.** and two new records of *Synopia ultramarina* Dana and *Telsosynopia trifidilla* Hughes & Lowry are included.

Key words: Crustacea, Amphipoda, Synopiidae, Great Barrier Reef, Australia, taxonomy, new species, *Telsosynopia trifidilla*, *Synopia ultramarina*, *Syrrhoe petitaserrata*

Introduction

Shallow-water synopiids are mainly nektonic amphipods (J.L. Barnard 1972). Collections used for this study are predominantly from light traps, where synopiids can be collected in the order of 100's of individuals.

There are currently six species in the genus *Synopia* with *Synopia ultramarina* Dana 1853 reported from waters throughout the world. Material has been figured from most locations reported and there seems little need to separate taxa based on illustrations, despite the broad geographic range.

Syrrhoe petitaserrata **sp. nov.** is the twelfth species described for the genus. It is recorded from Torres Strait, Lizard Island and One Tree Island, a distribution spanning much of the Great Barrier Reef. The new records of *Telsosynopia trifidilla* Hughes & Lowry, 2006 from Lizard and One Tree Island is a considerable range extension from the Solitary Islands and Botany Bay, New South Wales (Hughes & Lowry 2006).

Materials and methods.

Descriptions were generated from a DELTA database (Dallwitz 2005) to world *Synopia*, *Syrrhoe* and *Telsosynopia* species. All material is lodged in the Australian Museum, Sydney (AM). A set of colour plates, a list of standard abbreviations and detailed station data is available in Lowry & Myers (2009). A CD (*Benthic Amphipoda (Crustacea: Peracarida) of the Great Barrier Reef: Interactive Keys*) is available with the book or the keys can be accessed at the crustacea.net website.

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Synopiidae Dana, 1852

***Synopia* Dana, 1852**

***Synopia ultramarina* Dana, 1853**
(Figs 1, 2)

Synopia ultramarina Dana, 1853: 995, pl. 68 fig. 6a–h. —Bovallius, 1886: 613, pl. 1, figs 1–21. —Stebbing, 1906: 271. —Spandl, 1924: 47, fig. 17 (part). —Schellenberg, 1926: 341. —K.H. Barnard, 1930: 367. —Shoemaker, 1933: 11. —Pirlot, 1936: 301. —Shoemaker, 1945: 195, fig. 8. —Nagata, 1965: 171. —J.L. Barnard, 1972: 51. —Ortiz, 1978: 9. —Ledoyer, 1986: 990, fig. 391. —Hirayama, 1988: 55, figs 279–282. —Barnard & Thomas, 1989: 363, figs 1–4 part. —Barnard & Karaman, 1991: 716. —Lowry & Stoddart, 2003: 124 (catalogue).
Synopia scheeleana. —Ledoyer, 1979: 137, fig. 88(II).

Type locality. Tropical Western Atlantic.

Material examined. 1 unsexed, AM P27058 (AJB H1/29/11); male, 1 'A' male specimen, 6.3 mm, 3 slides, AM P77868 (JML-7-10-1); 1 'B' female, 4.0 mm, 3 slides, AM P77869 (JML-7-10-1); 10+ unsexed, AM P77870 (JML-7-10-1); 10+ unsexed, AM P77873 (JML 7-10-2); 14 unsexed, AM P77878 (JML 7-10-3); 6 unsexed, AM P70329 (JML 16-10-7); 4 unsexed, AM P77879 (JML 16-10-8); 2 unsexed, AM P77876 (JML 16-10-9); 4 unsexed, AM P77877 (JML 17-10-2); 4 unsexed, AM P77875 (JML 20-10-1); 5 unsexed, AM P77874 (JML 20-10-2); 82 unsexed, AM P36794 (JML 24-7-4); 1 unsexed, AM P77872 (QLD 1981); 183 unsexed, AM P77871 (QLD 2014).

Description. Based on male, 6.3 mm, AM P77868.

Head. *Head* protuberant. Rostrum short, apically acute; lateral cephalic lobe absent; eyes greater than half length of head; accessory eyes with 3 ommatidia. *Antenna 1* peduncular article 1 without tooth; peduncular article 2 not elongate; flagellum 17–articulate. *Antenna 2* flagellum 16–articulate. *Mandible* palp article 2 with 2 plumose setae; article 3 with 2 plumose apical setae; molar greatly enlarged, columnar, triturative, accessory setal row with 5 serrate setae. *Maxilla 1* inner plate with 4 slender setae. *Maxilliped* foliaceaous.

Pereon. *Pereonites 6–7* without lateral ridge. *Pereonite 7* without carination. *Gnathopod 1* weakly subchelate; coxa anterior margin not produced, coxa not tapering distally; basis about as long as carpus; propodus palm acute, without robust setae defining posterodistal corner of palm. *Gnathopod 2* simple; coxa not distally tapering; basis about as long as carpus; dactylus vestigial, terminal setae short, subequal to length of dactylus. *Pereopod 3* coxa anterodistal lobe absent, posterodistal lobe truncate, greater than half depth of coxa, margin smooth; basis width subequal to breadth of ischium. *Pereopod 4* coxa smaller than coxa 3, subtriangular, posterior margin with well-developed lobe. *Pereopods 5–6* basis subovoid, expanded, posterodistal lobe well developed, rounded, posterodistal lobe not extending past ischium. *Pereopods 5–7* basis anterodistal corner weakly produced, rounded, posterior margin smooth. *Pereopod 7* basis subrectangular, posterodistal lobe well developed, subacute, extending below ischium.

Pleon. *Pleonites 1–3* without lateral ridges; without carination; posterodorsal margins smooth. *Epimeron 1–3* posterior margin smooth, posterodistal corner rounded. *Uropod 3* length greatly exceeding length of uropods 1–2; peduncle long (at least 2 x breadth). *Telson* moderately cleft (30-65%), much longer than uropod 3 peduncle, setae lining lateral margin, with 1 pair of slender and 1 pair of robust setae.

Habitat. Coral rubble, 12–18 m depth, nektonic at night.

Remarks. The presence of an accessory eye in *Synopia ultramarina* aligns it with *S. caraibica* Bovallius, 1886 and *S. scheeleana* Bovallius, 1886. In *S. ultramarina* the telson is moderately to deeply cleft which separates it from *S. caraibica* which has a weakly cleft telson (<30% of length). In *S. ultramarina* the pereopod 4 coxa is subtriangular whereas in *S. scheeleana* the coxa is subrectangular. *Synopia ultramarina* figured here has coxa 1 broader and pereopod 4 carpus less expanded in comparison to material figured by Hirayama (1988) and Barnard & Thomas (1989). Material figured by Ledoyer (1986) appears to have more rounded margins on coxae 1, 3 and 4. These slight variations are considered to be intraspecific variation within this widely distributed species.

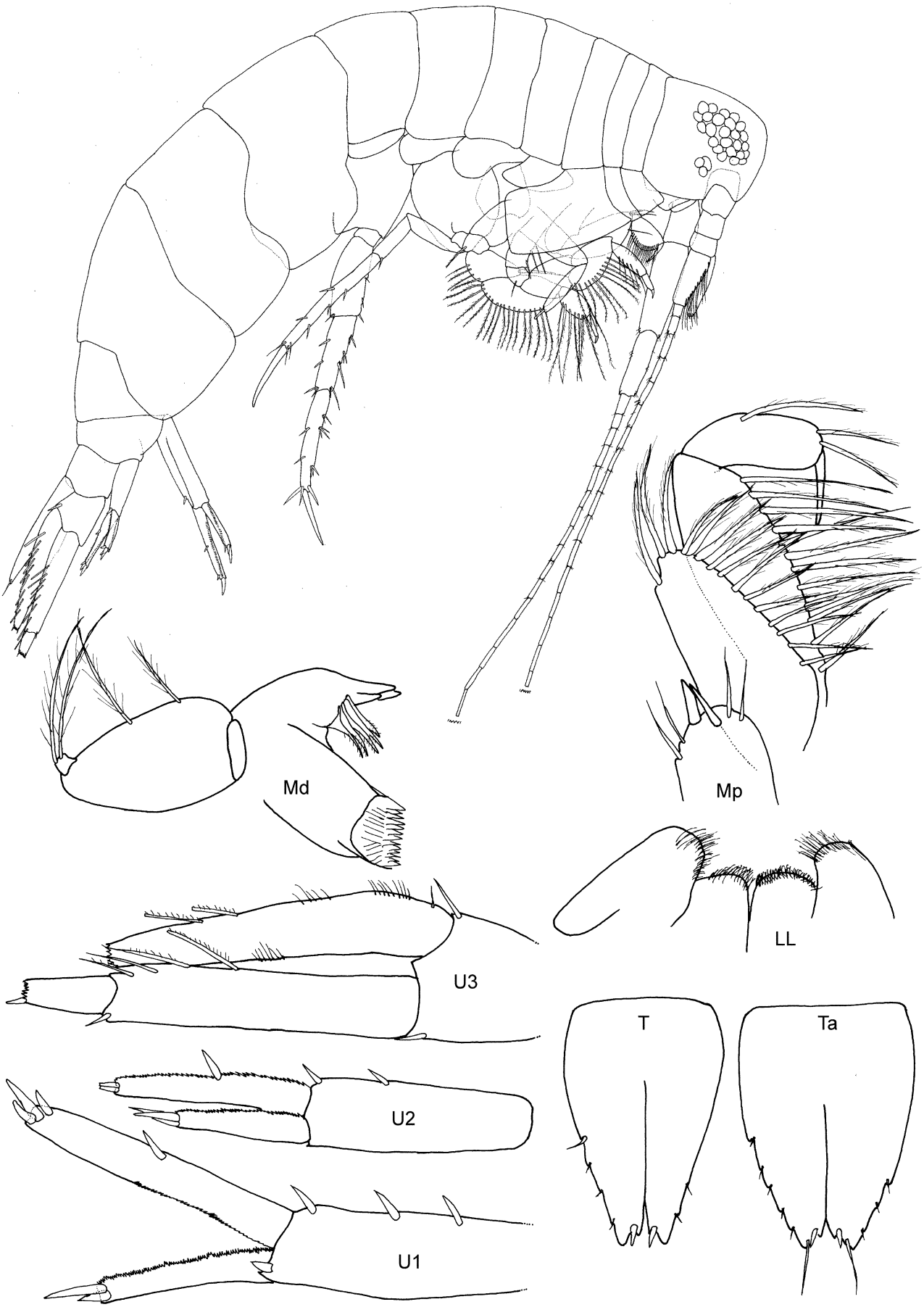

FIGURE 1. *Synopia ultramarina* Dana, 1852, male, 6.3 mm, AM P77868, 'a' female, 4.0 mm, AM P77869, Lizard Island, Great Barrier Reef.

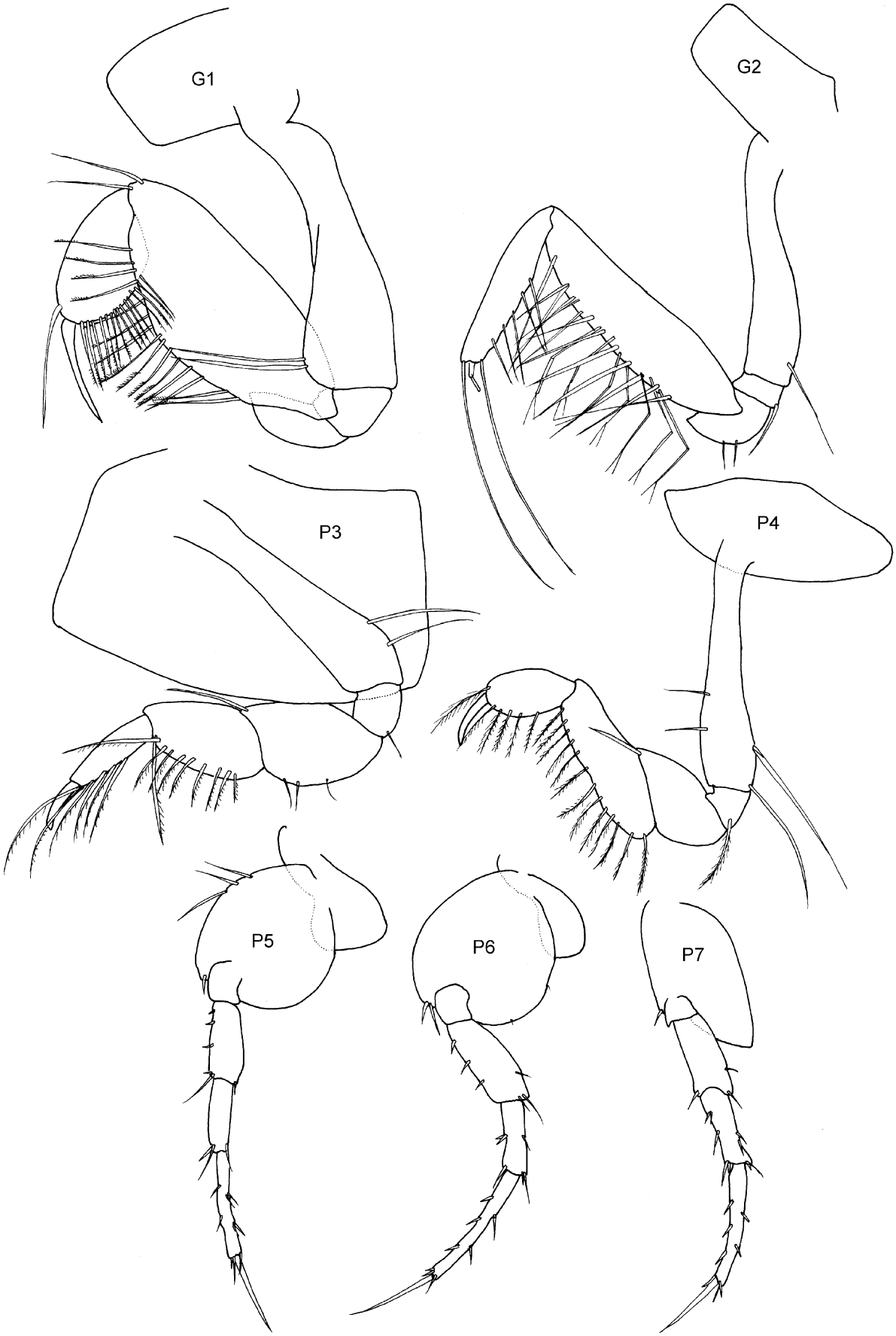

FIGURE 2. *Synopia ultramarina* Dana, 1852, male, 6.3 mm, AM P77868, Lizard Island, Great Barrier Reef.

Synopia ultramarina is exceptionally similar to *Telsosynopia trifidilla* Hughes & Lowry, 2006. These species co-occur at Lizard Island and One Tree Island and have been recorded from the same sample. *Synopia ultramarina* and *Telsosynopia trifidilla* are differentiated by the entire and cleft telson, respectively, however all other morphological variation between these species is slight. Material representing both sexes and a range of body sizes have been observed for both species and this dismisses the possibility of these taxa are a single species where the telsonic clefting is a growth stage.

Distribution. *Australia*. Queensland: Lizard Island (current study); Lowe Isles (K.H. Barnard 1930); Heron Island and One Tree Island (current study). *Brazil* (Dana 1853). *Indian Ocean*. (Dana 1853). *Indonesia*. Borneo (Pirlot 1936). *Japan*. Seto Inland Sea (Nagata 1965); Tomioka Bay (Hirayama 1988). *Madagascar*. (Ledoyer 1986). *Red Sea* (Spandl 1924). *West Atlantic*. (Dana 1853; Stebbing 1906); Bermuda (Shoemaker 1945); Caribbean (Shoemaker 1933; Ortiz 1978; Barnard & Thomas 1989).

Syrrhoe Goës, 1866

Syrrhoe petitaserrata sp. nov.

(Figs 3, 4)

Type material. Holotype**,** female 3.4 mm, 3 slides, AM P77880, off Osprey Island, Lizard Island area (14°40'S 145°26'E), surface plankton tow, full moon, J.M. Leis, 7 October 1979, (JML 7-10-1). Paratypes: 6 specimens, AM P77885 (same locality).

Additional material examined. 1 unsexed specimen, AM P77886 (JML 17-10-2); 3 unsexed specimens, AM P77887 (QLD 16); 2 unsexed specimens, AM P77881 (QLD 21); 1 unsexed specimen, AM P28474 (QLD 28); 1 unsexed specimen, AM P28476 (QLD 29); 1 unsexed specimen, AM P28477 (QLD 30); 2 unsexed specimens, AM P77884 (QLD 1907); 1 unsexed specimen, AM P77883 (QLD 1981); 1 unsexed specimen, AM P77882 (QLD 1983).

Type locality. Off Osprey Island, Lizard Island area (14°40'S 145°26'E).

Etymology. From petite – 'small'; and serrata – 'serrate,' referring to the smaller size of the species in comparison to other closely related *Syrrhoe* species.

Description. Based on female, 3.4 mm, AM P77880.

Head. *Head* protuberant; rostrum short, apically acute; lateral cephalic lobe absent; eyes less than half length of the head; accessory eyes absent. *Antenna 1* peduncular article 1 not elongate, with a distal tooth; peduncular article 2 not elongate; flagellum shorter than pereon, 6–articulate. *Antenna 2* flagellum 8–articulate. *Mandible* palp article 2 with many slender setae; article 3 with many slender apical setae; molar greatly enlarged, smooth, not triturative, accessory setal row with 2 serrate setae. *Maxilla 1* inner plate with 5 slender setae. *Maxilliped* not foliaceaous.

Pereon. *Pereonites 6–7* without lateral ridge. *Pereonite 7* without carination. *Gnathopod 1* subchelate; coxa anterior margin not produced, not tapering distally; basis longer than carpus; propodus palm acute, defined by serrate robust seta. *Gnathopod 2* subchelate; coxa not distally tapering; basis longer than carpus; propodus palm acute, defined by serrate robust seta; dactylus well developed. *Pereopod 3* coxa anterodistal lobe produced subacute, posterodistal lobe margin smooth, truncate, greater than half depth of coxa. *Pereopod 4* coxa smaller than coxa 3, lobate in shape, with weakly developed posteroventral lobate. *Pereopods 5–7* basis anterodistal corner produced rounded, posterior margin serrate. *Pereopods 5–6* basis subovoid, expanded, posterodistal lobe well developed, acute, extending below ischium. *Pereopod 7* basis ovate, posterodistal lobe well developed, acute, extending below ischium.

Pleon. *Pleonites 1–3* without lateral ridges. *Pleonites 1–2* posterodorsal margin smooth. *Pleonites 1–2* carinate. *Pleonite 3* without carination; posterodorsal margin smooth. *Epimeron 1* posterior margin smooth, posterodistal corner acute. *Epimeron 2* posterior margin smooth, posterodistal corner produced acute. *Epimeron 3* posterior margin serrate distally. *Uropod 3* length not exceeding uropods 1–2; peduncle short (less than 2 x breadth). *Telson* deeply cleft, longer than uropod 3 peduncle, without setae along the lateral margin, with single pair of slender apical setae.

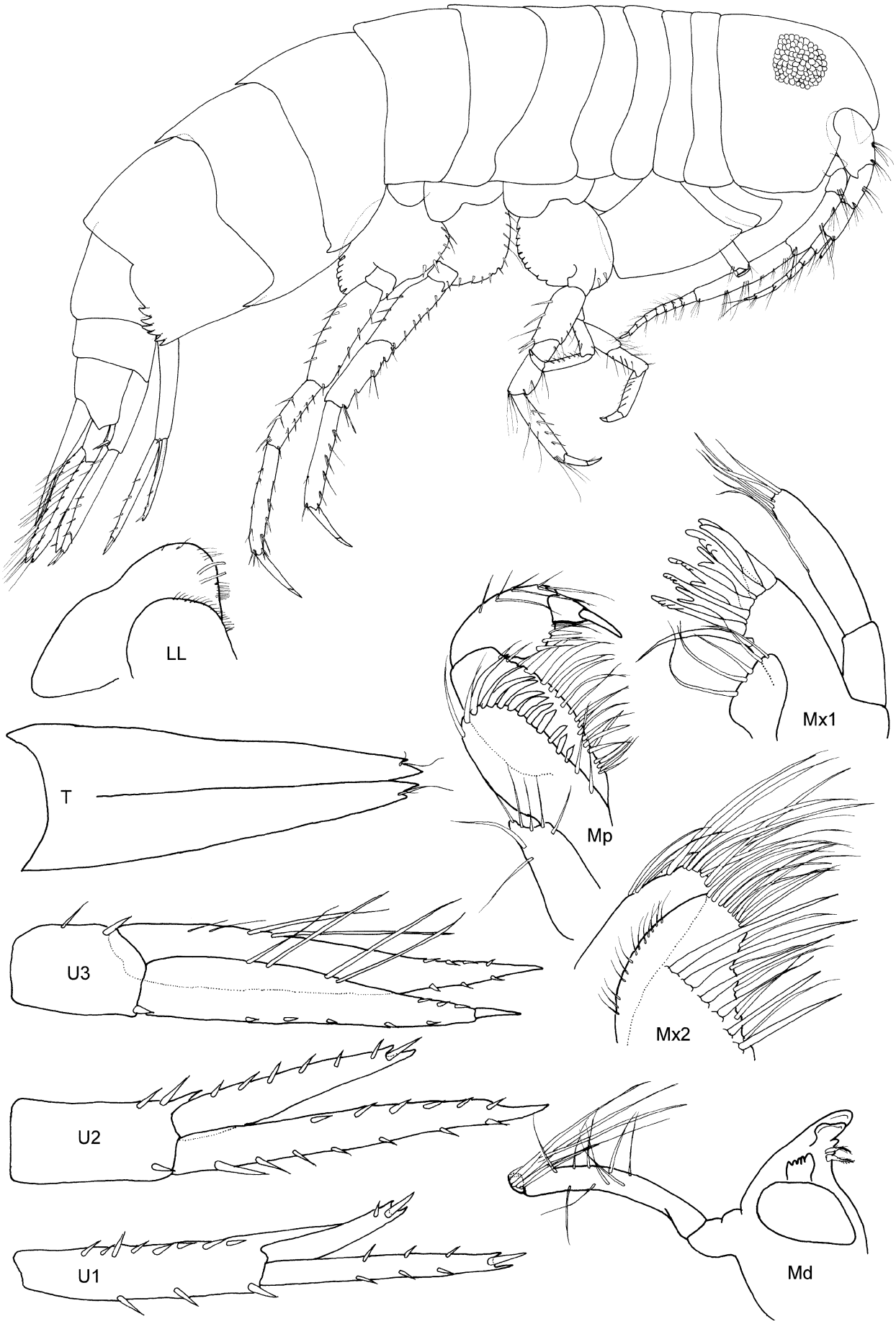

FIGURE 3. *Syrrhoe petitaserrata* **sp. nov.**, holotype, female, 3.4 mm, AM P77880, Osprey Island, Great Barrier Reef.

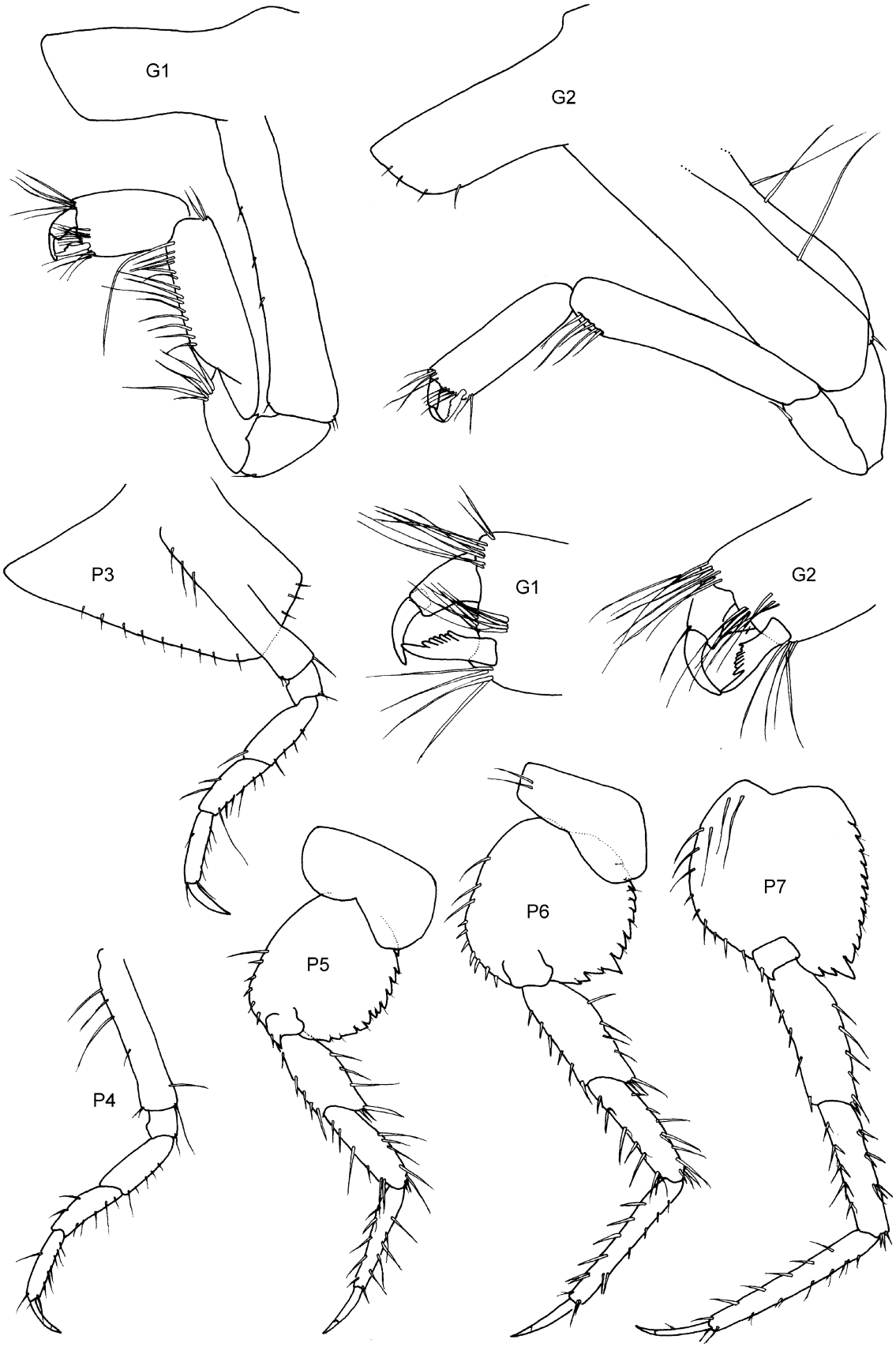

FIGURE 4. *Syrrhoe petitaserrata* **sp. nov.**, holotype, female, 3.4 mm, AM P77880, Osprey Island, Great Barrier Reef.

Habitat. Mixed algae and coral rubble, 6–27 m depth, nektonic at night.

Remarks. The new species, *Syrrhoe petitaserrata*, is most similar to *S. semiserrata* Stebbing, 1888,

described from off Melbourne, in south-eastern Australia. These species have no dorsal serrations on the pereon or pleon and epimeron 3 is distally serrate. This combination of characters separates them from all other *Syrrhoe* species except *S. serrima* J.L. Barnard, 1972. Eyes are present in *S. petitaserrata* **sp. nov.** and *S. semiserrata* but are absent in *S. serrima*. The lobes of the telson in the former two species abut along the cleft inner margin, where in *S. serrima* the telsonic lobes are divergent.

In *S. petitaserrata* pereopods 5–7 are shorter in length in relation to the body compared to those of *S. semiserrata*. On pereopods 5–7 the serrations on the basis posterior margin are more pronounced those of *S. petitaserrata*. The apical margins of the telson are acute in *S. petitaserrata* and truncate in *S. semiserrata*. *Syrrhoe petitaserrata* **s**can be further distinguished from *S. semiserrata* by the fewer number of plumose setae on the maxilla 1 inner plate (5 setae), the smooth mandibular molar, the gnathopod 1 carpus length which is shorter than the basis and posterodistal corners of epimera 2–3 which are more acutely produced.

Distribution. *Australia*. Queensland: Torres Strait; Lizard Island; One Tree Island (current study).

Telsosynopia Karaman, 1986

Telsosynopia trifidilla Hughes & Lowry, 2006

(Figs 5, 6)

Telsosynopia trifidilla Hughes & Lowry, 2006: 44, figs 22–23.

Type Locality. Northwest Solitary Island, Solitary Islands, New South Wales, Australia (30°01.116'S 153°18.184'E).

Material examined. 1 'A' male specimen, 3 slides, AM P77888 (FT 106); 1 'B' male specimen, 4 slides, AM P77889 (FT 106); 10+ unsexed specimens, AM P77890 (FT 106); 3 unsexed specimens, AM P77935, (FT 106); 4 unsexed specimens, AM P77931, (JML 7-10-2); 1 unsexed specimen, AM P77934, (JML 7-10-3); 1 male specimen, 6.9 mm, 4 slides, AM P70328 (JML 16-10-7); 1 female specimen, 4.0 mm, AM P70327 (JML 16-10-7); 5 unsexed specimens, AM P77925 (JML 16-10-7); 2 unsexed specimens, AM P77933, (JML 16-10-9); 9 unsexed specimens, AM P77932, (JML 20-10-2); 10+ unsexed specimens, AM P77926 (LTN 77-26); 78 unsexed specimens, AM P37007 (NL 1-77); 6 unsexed specimens, AM P77928 (QLD 1943); 12 unsexed specimens, AM P77927 (QLD 1948); 3 unsexed specimens, AM P77929 (QLD 1964); 1 unsexed specimen, AM P77930 (QLD 2005).

Description. Based on male, 6.9 mm, AM P70328.

Head. *Head* protuberant; rostrum short, apically acute; lateral cephalic lobe absent; eyes greater than half length of head; accessory eyes present, with 2 ommatidia (3 in other QLD material). *Antenna 1* peduncular article 1 elongate, with a distal tooth; peduncular article 2 elongate; flagellum longer than pereon, more than 13–articles (broken). *Antenna 2* flagellum 30–articulate. *Mandible* palp article 2 without setae; article 3 with 2 plumose apical setae; molar greatly enlarged, columnar, triturative, accessory setal row with 5 serrate setae. *Maxilla 1* inner plate with 1 plumose seta. *Maxilliped* foliaceaous.

Pereon. *Gnathopod 1* weakly subchelate; coxa anterior margin not produced, not tapering distally; basis about as long as carpus; propodus palm acute, without defining robust setae. *Gnathopod 2* simple; coxa not distally tapering; basis about as long as carpus; dactylus vestigial, terminal setae short, subequal to length of dactylus. *Pereopod 3* coxa anterodistal lobe absent, posterodistal lobe truncate, greater than half depth of coxa, margin smooth; basis width subequal to breadth of ischium. *Pereopod 4* coxa smaller than coxa 3, subtriangular, posterior margin with well developed lobe. *Pereopods 5–7* basis anterodistal corner weakly produced, posterior margin smooth. *Pereopods 5–6* basis subovoid, expanded, posterodistal lobe well developed, rounded, not extending past ischium. *Pereopod 7* basis subrectangular, posterodistal lobe well developed, subacute, extending below ischium. *Pereonites 6–7* without lateral ridge. *Pereonite 7* without carination.

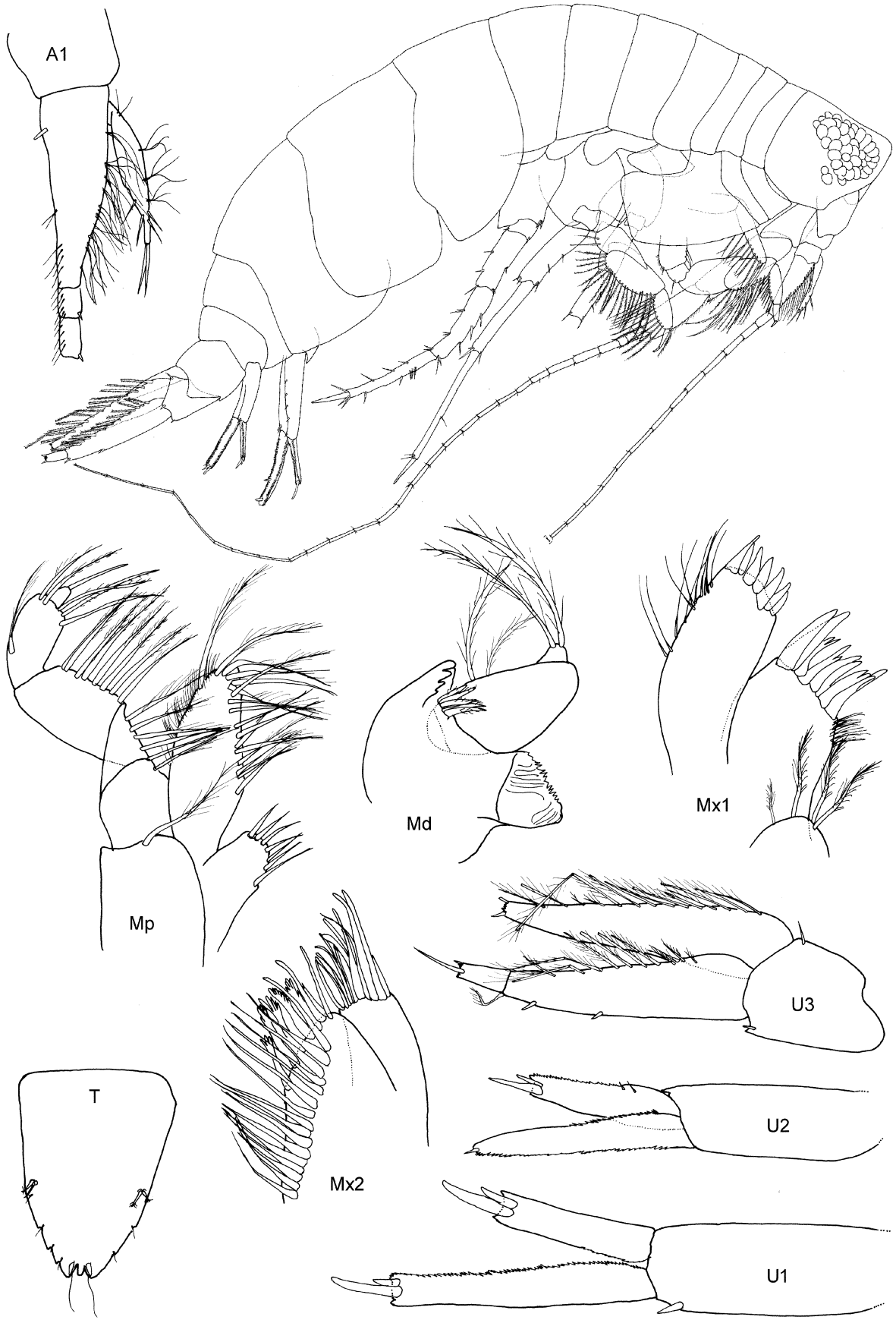

FIGURE 5. *Telsosynopia trifidilla* Hughes & Lowry, 2006, male 6.9 mm, AM P70382, Lizard Island, Great Barrier Reef.

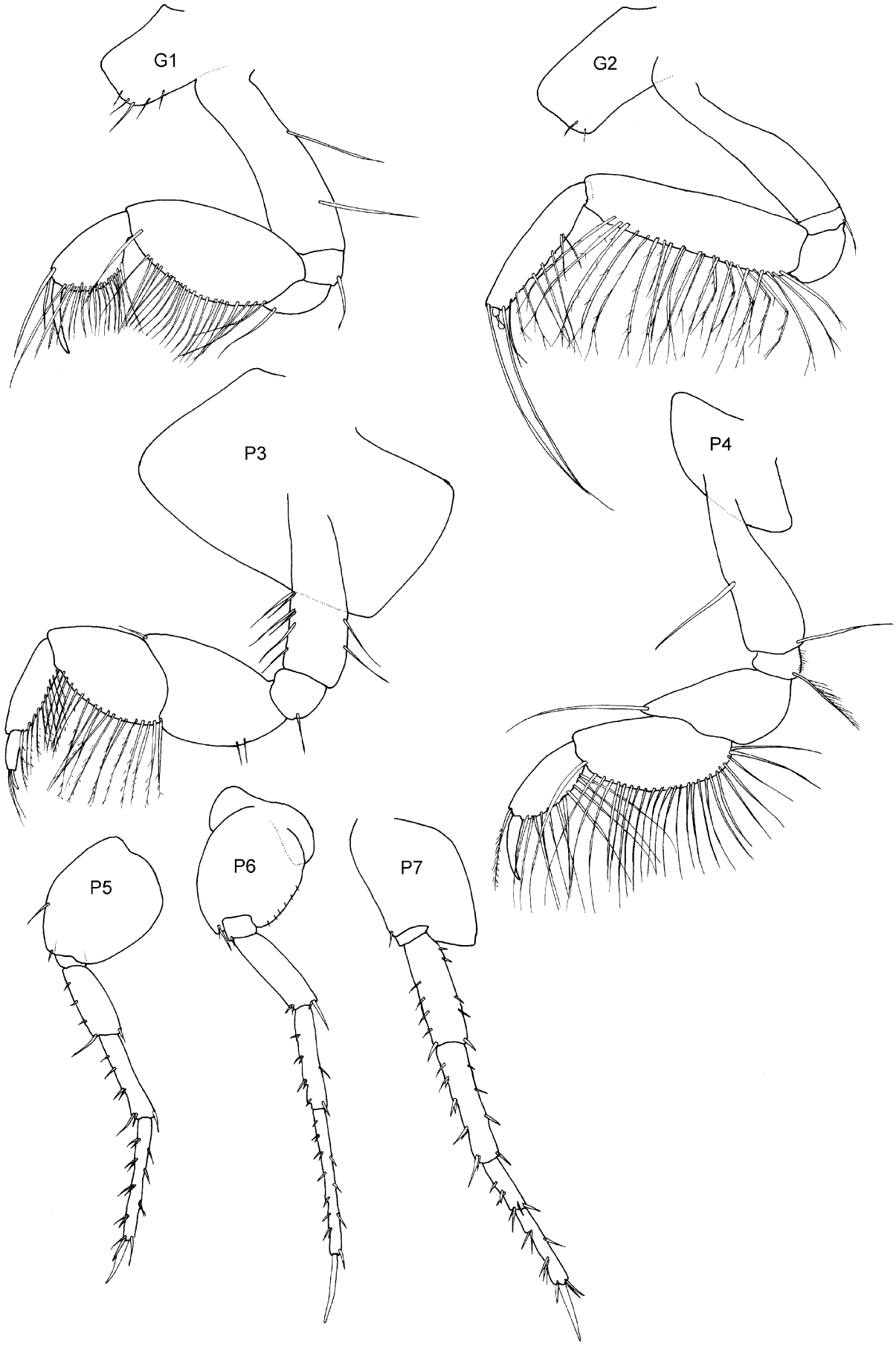

FIGURE 6. *Telsosynopia trifidilla* Hughes & Lowry, 2006, male 6.9 mm, AM P70382, Lizard Island, Great Barrier Reef.

Pleon. *Pleonites 1–3* without lateral ridges, without carination. *Pleonites 1–3* posterodorsal margin smooth. *Epimera 1–3* posterior margin smooth, posterodistal corner rounded. *Uropod 3* length greatly exceeding length of uropods 1–2; peduncle long (at least 2 x breadth). *Telson* entire, much longer than uropod 3 peduncle, setae lining lateral margins, apical margin trifid, with one pair of slender and one pair of robust setae.

Habitat. Soft sediments, 1.5 to 15 m depth, nektonic at night.

Remarks. Material of *Telsosynopia trifidilla* from the Great Barrier Reef show little to no variation from original material described from more southerly Australian waters. The individual figured from Lizard Island is a larger body size (6.9 mm) and thus the telson in broader than the smaller (5.5 mm) type material from the Solitary Islands. The broadening of the telson with size has previously been noted for the Synopiidae (Andres 1984; Barnard & Thomas 1989).

Distribution. *Australia*. Queensland: Lizard Island; One Tree Island (current study). New South Wales: Solitary Islands; Botany Bay (Hughes & Lowry 2006).

Acknowledgements

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