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Ampithoidae*

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Abstract

Five genera and 19 species of ampithoid amphipods are reported from the Great Barrier Reef, Queensland, Australia. Seven species are new to science. The majority of species occur in the genus *Cymadusa*.

Key words: Crustacea, Amphipoda, Ampithoidae, Great Barrier Reef, Australia, taxonomy, new species, *Ampithoe cookana*, *Ampithoe katae*, *Ampithoe kava*, *Ampithoe meganae*, *Ampithoe waialua*, *Cymadusa alyxis*, *Cymadusa cavimana*, *Cymadusa heronensis*, *Cymadusa hoeyae*, *Cymadusa khbarnardi*, *Cymadusa mariabyrneae*, *Cymadusa imbroglio*, *Cymadusa smilodonta*, *Cymadusa tattersalli*, *Cymadusa thagaay*, *Cymadusa wistari*, *Paragrubia edgari*, *Plumithoe quadrimana*, *Sunamphitoe fantome*

Introduction

Ampithoids are shallow-water tropical to temperate herbivorous amphipods found around the world. Previous to this study 42 ampithoid species were known from Australia (Just 2002 (1); Lowry & Stoddart 2003 (12); Peart 2004 (1); Peart 2006 (3); Peart 2007a, b (25)). We report 19 species in five genera from the Great Barrier Reef and increase the Australian ampithoid fauna to 49 species. About 75% of the 19 Great Barrier Reef ampithoid species, including seven new species described here, have been reported in the last four years (Peart 2004, 2007a, b). Such a high species richness of ampithoid amphipods in a tropical reef system has not been reported from any other reef system (J.L. Barnard 1965 (Micronesia, 5 species), 1970 (Hawaii, 10 species); Ledoyer 1983 (Madagascar, 11 species), 1984 (New Caledonia, 11 species); Myers 1985 (Fiji, 11 species); Appadoo & Myers 2004 (Mauritius, 12 species).

Material and methods

The descriptions were generated from a DELTA database (Dallwitz 2005) to the ampithoid genera and species of the world. 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.

This paper includes seven new species, two of these species are attributed to Peart from work in an unpublished MSc thesis, and five are attributed to Hughes & Lowry. In this paper terminology defining the palm angle follows Poore & Lowry (1997).

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Ampithoidae Stebbing, 1899

***Ampithoe* Leach, 1814**

***Ampithoe cookana* Peart, 2007**
(Figs 1, 2)

Ampithoe cookana Peart, 2007b: 13, figs. 7–10 (key).

Material examined. 3 unsexed, AM P76242 (1974); 1 unsexed, AM P76244 (QLD 1975); 6 unsexed, AM P76243 (QLD 1978); 6 unsexed, AM P76241 (QLD 1999); 1 male 'A' dissected, 7.0 mm, 3 slides, AM P76240 (QLD 2000); 1 dissected male 'B', 7.2 mm, 3 slides, AM P76239 (QLD 2000); 1 female dissected, 6.5 mm, 3 slides, AM P76238 (QLD 2000).

Type locality. North ledge, Cook Island, New South Wales (28º11.44'S 153º34.67'E), living in *Chlorodesmis* sp., 12 m.

Description. Based on 'B' male, 7.2 mm, AM P76239.

Head. *Head* as long as deep. *Antennae 1–2* missing [in female paratype *antenna 1* longer than antenna 2; peduncular article 1 subequal to article 2 with 4 robust setae along posterior margin; flagellum 29 articles; accessory flagellum absent. *Antenna 2* peduncle with dense setose clumps on articles 3 to 5; article 4 subequal in length to article 5; flagellum 6+ articles]. *Mandible* molar well developed, triturating, accessory setal row with 5 serrate robust setae; palp 3–articulate, marginally setose; article 1 shorter than article 2, slender setae present; article 2 subequal in length to article 3. *Lower lip* outer plates notched, forming a medial excavation, lateral lobe distinctly longer than medial lobe; mandibular lobe with curved margins, rounded apically. *Maxilla 1* inner plate with more than 4 slender setae; palp article 2 slender. *Maxilliped* outer plate with row of large robust setae along medial margin.

Pereon. *Coxae 1–4* deeper than broad. *Gnathopod 1* smaller than gnathopod 2; coxa subequal to coxa 2, anteroventrally produced, anterior margin straight, anteroventral corner narrowly rounded; basis shorter than coxa, anterodistal lobe rounded, with 1 slender seta; merus posterodistal lobe acute; carpus about 1.5 x as long as broad, shorter than propodus, anterior margin with 1 robust seta, posterior margin straight; propodus narrow, subrectangular; palm transverse acute, convex, with rounded posterodistal corner, with 1 robust seta defining palm; dactylus slightly overreaching palm, inner margin crenate. *Gnathopod 2* coxa without long, plumose setal fringe on ventral margin, basis with medial fringe of long, slender setae, anterodistal corner with 4 robust setae; merus margin without lobe; carpus shorter than propodus, subtriangular, with 7 robust setae along anterior margin; propodus broad, less than 1.5 x as long as broad, subrectangular, not produced into an anterodistally setose lobe; palm acute, excavate, with posterodistal tooth of medium length (length 2 x breadth), apically subacute, without palm defining robust seta; dactylus equal in length to palm, tapering evenly, apically acute, inner margin crenate. *Pereopods 3–4* basis slightly expanded; merus longer than carpus. *Pereopods 5–7* simple. *Pereopod 6* basis posterior margin sinusoidal, with several marginal robust setae; distal articles slender; propodus not expanded distally, with 2 anterodistal striated robust setae; dactylus slightly curved.

Pleon. *Epimera 2–3* posteroventral corner broadly rounded. *Uropod 1* peduncle with more than 13 robust setae, with short fringe of slender setae (less than 0.5 x length of peduncle), distoventral spine absent; rami subequal in length; outer ramus slender, length about 5–6 x as long as broad, with 9 marginal robust setae. *Uropod 2* peduncle with 2 robust setae; outer ramus with 8 lateral robust setae; inner ramus with 9 lateral robust setae. *Uropod 3* peduncle longer than broad, more than 2 x length of rami, without marginal slender setae, with 5 distal robust setae, with 5 distal slender setae; outer ramus with 2 large recurved distal robust setae, without lateral robust or slender setae; inner ramus with 6 distal slender setae, without lateral robust setae. *Telson* subtriangular, apically rounded, with small apical cusp on each distolateral corner, with 3 pair of lateral and1 pair of apical slender setae, and with 2 pair of lateral and 1 pair of apical plumose setae.

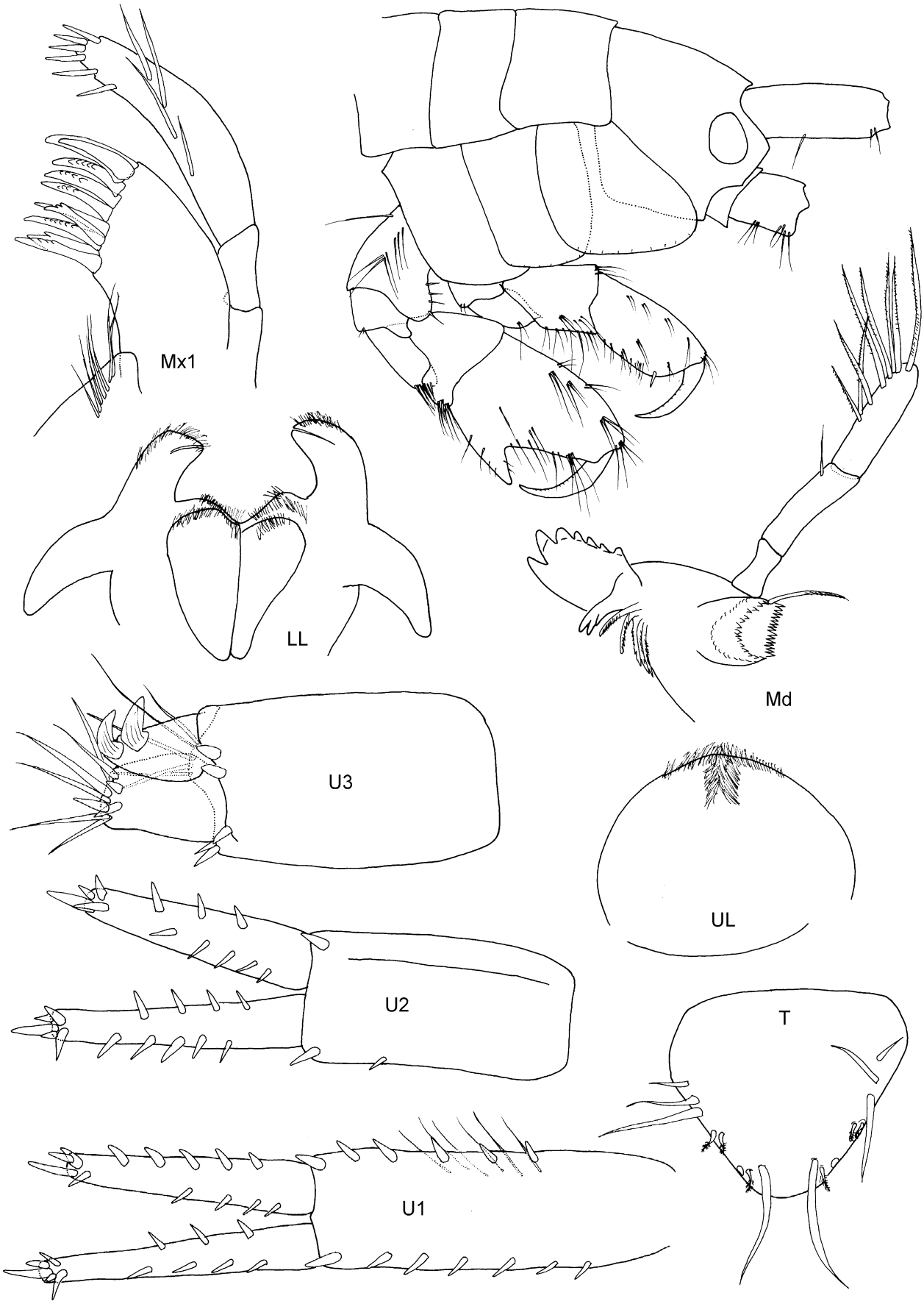

FIGURE 1. *Ampithoe cookana* Peart, 2007b, male 'A', 7.0 mm, AM P76240, One Tree Island, Great Barrier Reef.

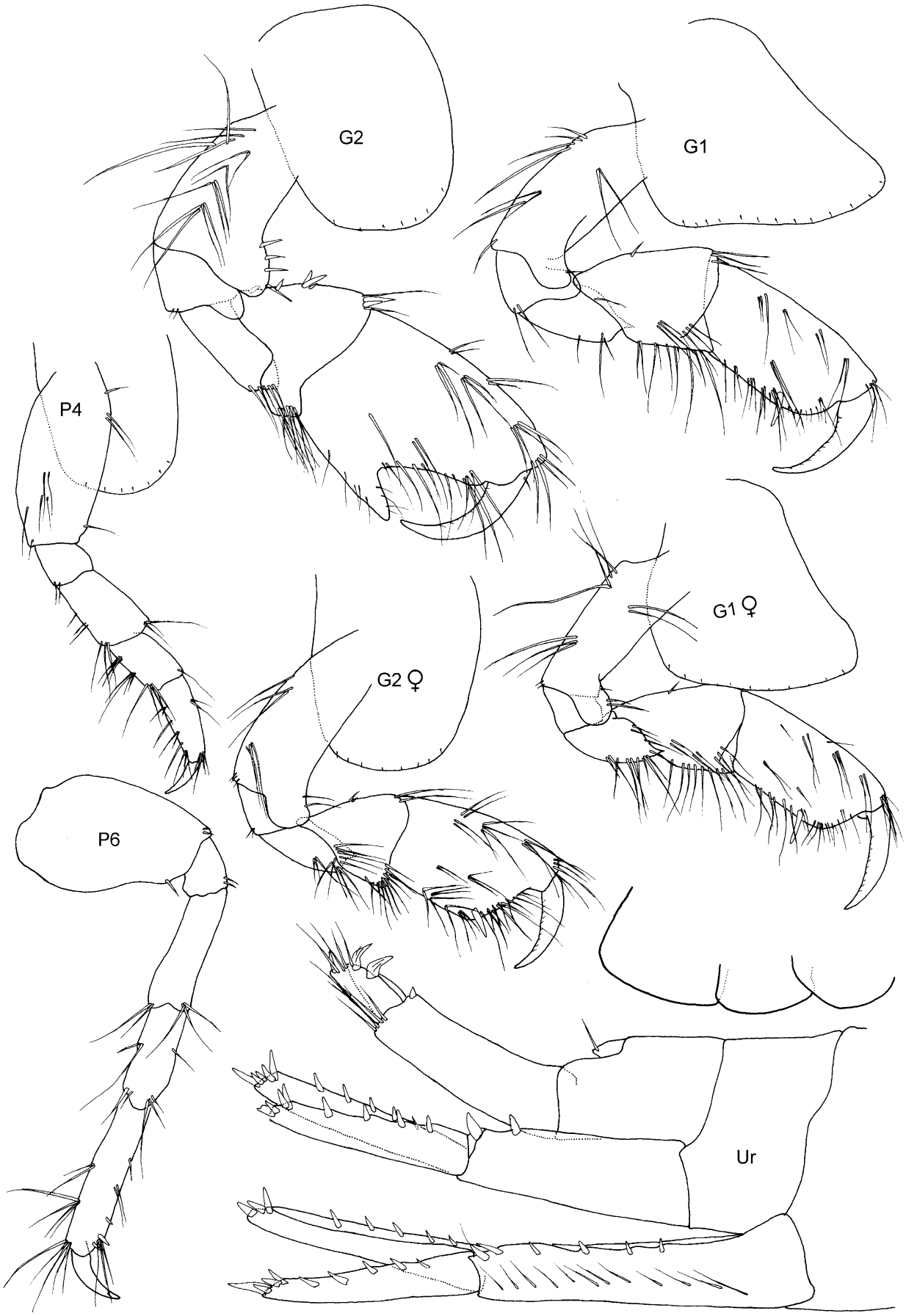

FIGURE 2. *Ampithoe cookana* Peart, 2007b, male 'A', 7.0 mm, AM P76240, female, 6.5 mm, AM P76238, One Tree Island, Great Barrier Reef.

Female (sexually dimorphic characters). Based on female, 6.5 mm, AM P76238. *Gnathopod 1* subequal in size to gnathopod 2; coxa anterior margin slightly concave, anteroventral corner rounded; basis with 3 slender setae; carpus anterior margin with slender setae; palm subacute, straight. *Gnathopod 2* basis anterodistal corner with 2 slender setae; palm entire, with rounded posterodistal corner, with 1 robust seta defining palm.

Habitat. *Chlorodesmis* sp., dead *Acropora* sp. coral with epiphytes.

Remarks. *Ampithoe cookana* belongs to a group of *Ampithoe* species with a posterodistal tooth defining the palm of male gnathopod 2. This group includes: *A. akuolaka* J.L. Barnard, 1970; *A. katae* Peart, 2007b; *A. platycera* Sivaprakasam, 1971, *A. rachanoi* Peart, 2002, *A. waialua* J.L. Barnard, 1970 and the species complex associated with *A. ramondi* Audouin, 1826. *Ampithoe cookana* may be distinguished from these species by the male gnathopod 2 propodus which lacks the anterodistal hood and the gnathopod 1 palm which is convex. Within the GBR *Ampithoe cookana* is similar to *A. katae*, however *A. katae* has an anterodistal hood on gnathopod 2 and is more setose along the anterodistal propodus margin.

Distribution. *Australia*. New South Wales: Cook Island (Peart 2007b). Queensland: One Tree Island (current study).

***Ampithoe katae* Peart, 2007**
(Figs 3, 4)

Ampithoe katae Peart, 2007b: 37, figs 26–29 (key).
Ampithoe ningaloo Peart, 2007b: 55, figs 42–45 (key).

Material examined. Holotype, male, 5 mm, AM P61842 (QLD 1372). Paratypes: female, AM P61843 (QLD 1372); many unsexed, AM P70594 (QLD 1622); 3 unsexed, AM P76791 (QLD 1632); 3 unsexed, AM P70737, (QLD 1643);4 unsexed, AM P70790 (QLD 1649); 1 unsexed, AM P76790 (QLD 1670); 6 unsexed, AM P70903 (QLD 1685); 3 unsexed, AM P70919 (QLD 1695); 8 unsexed, AM P70947 (QLD 1696); 3 unsexed, AM P70945 (QLD 1699); 7 unsexed, AM P70948 (QLD 1703); 2 unsexed, photos 2, AM P70981 (QLD 1704); many unsexed, AM P71079 (QLD 1704); 2 unsexed, AM P76789 (QLD 1730); many unsexed, AM P71162 (QLD 1732); 2 unsexed, AM P71198 (QLD 1736); many unsexed, AM P71256 (QLD 1757); 1 male 'D', 1 slide, AM P76777 (QLD 1762); 1 male 'E', 1 slide, AM P76783 (QLD 1762); 1 male 'F', 1 slide, AM P76776 (QLD 1762); 11 unsexed, AM P71272 (QLD 1762); 2 unsexed, AM P76792 (QLD 1787); 12 unsexed, AM P71548 (QLD 1787); 3 unsexed, AM P71368 (QLD 1799); 7 unsexed, AM P71395 (QLD 1801); many unsexed, AM P71557 (QLD 1824); many unsexed, AM P71426 (QLD 1830); 4 unsexed, AM P71551 (QLD 1831); 3 unsexed, AM P71558 (QLD 1833); many unsexed, AM P71580 (QLD 1834); many unsexed, AM P71576 (QLD 1835); 1 male 'C', 3 slides, AM P76781 (QLD 1837); 1 male 'A', 3 slides, AM P76778 (QLD 1837); 1 female 'B', 3 slides, AM P76780 (QLD 1837); many unsexed, AM P71453 (QLD 1837); 3 unsexed, AM P76782 (QLD 1885); 1 unsexed, AM P76787 (QLD 1888); 2 unsexed, AM P76785 (QLD 1895); 1 unsexed, AM P76784 (QLD 1974); many unsexed, AM P76786 (QLD 1976); 2 unsexed, AM P76788 (QLD 1978).

Type locality. Mangrove Beach, Lizard Island, Queensland, Australia (14º40.99'S 145º27.63'E), living on *Turbinaria* sp., 1 m.

Description. Based on holotype male, 5 mm, AM P61842.

Head. Head as long as deep. Antenna 1 longer than antenna 2; peduncular article 1 subequal to article 2; flagellum 16 articles; accessory flagellum absent. Antenna 2 peduncle not densely setose on ventral margin; article 4 subequal in length to article 5; flagellum 11 articles. Upper lip directed nearly straight down, lateral margins each with midlateral notch. Mandible molar well developed, triturating, accessory setal row with 5 serrate setae; palp 3–articulate, marginally setose; article 1 shorter than article 2; article 2 longer than article 3; article 3 longer than article 1. Lower lip outer plates notched, forming deep medial excavation, lateral lobe

distinctly longer than medial lobe; mandibular lobe with curved margins, rounded apically. Maxilla 1 inner plate with 3 setae; palp article 2 slender. Maxilla 2 inner plate narrower than outer plate. Maxilliped outer plate with row of large robust setae along medial margin.

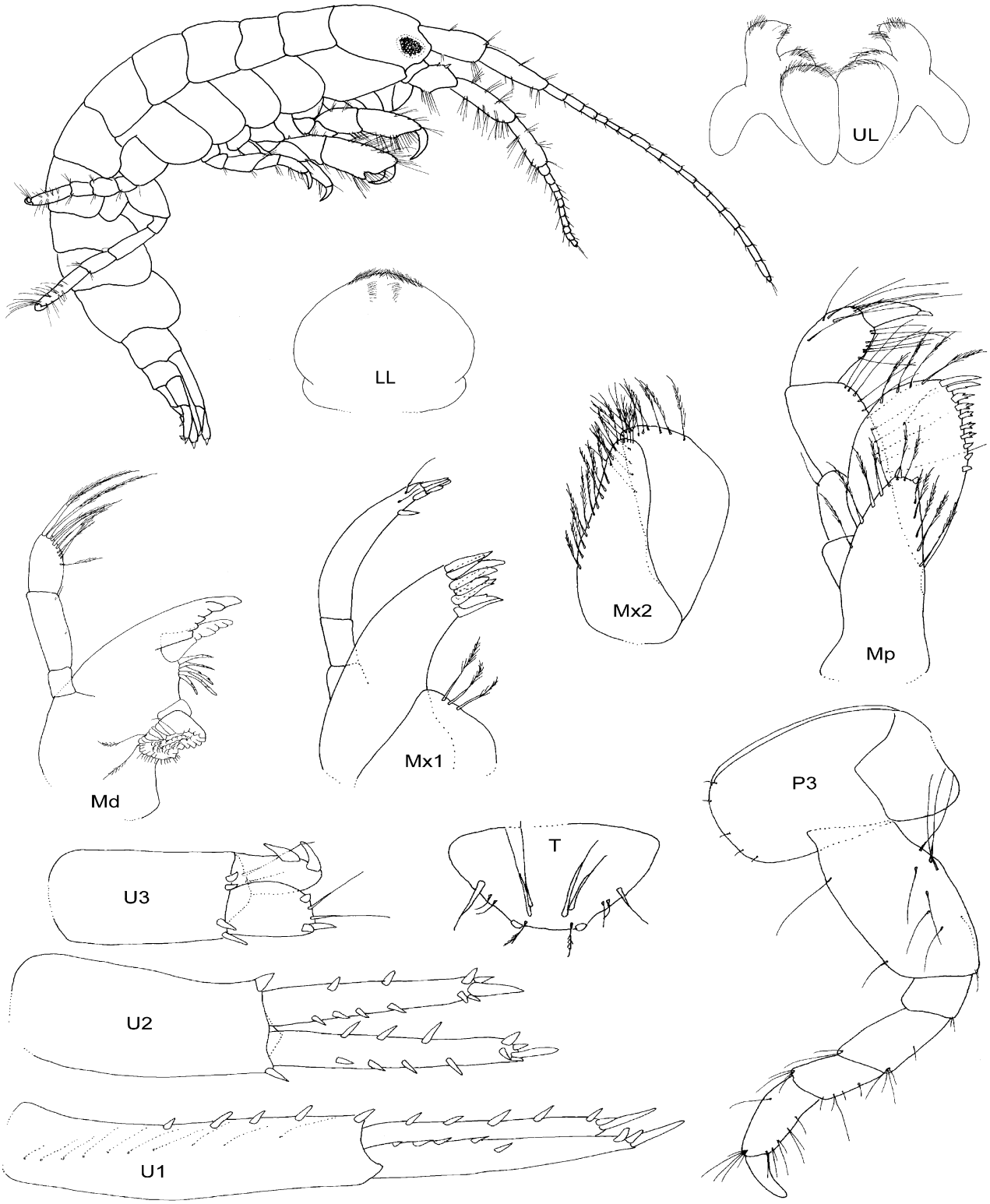

FIGURE 3. *Ampithoe katae* Peart, 2007b**,** holotype, male, 5 mm, AM P61842, Lizard Island, Great Barrier Reef (based on Peart 2007b).

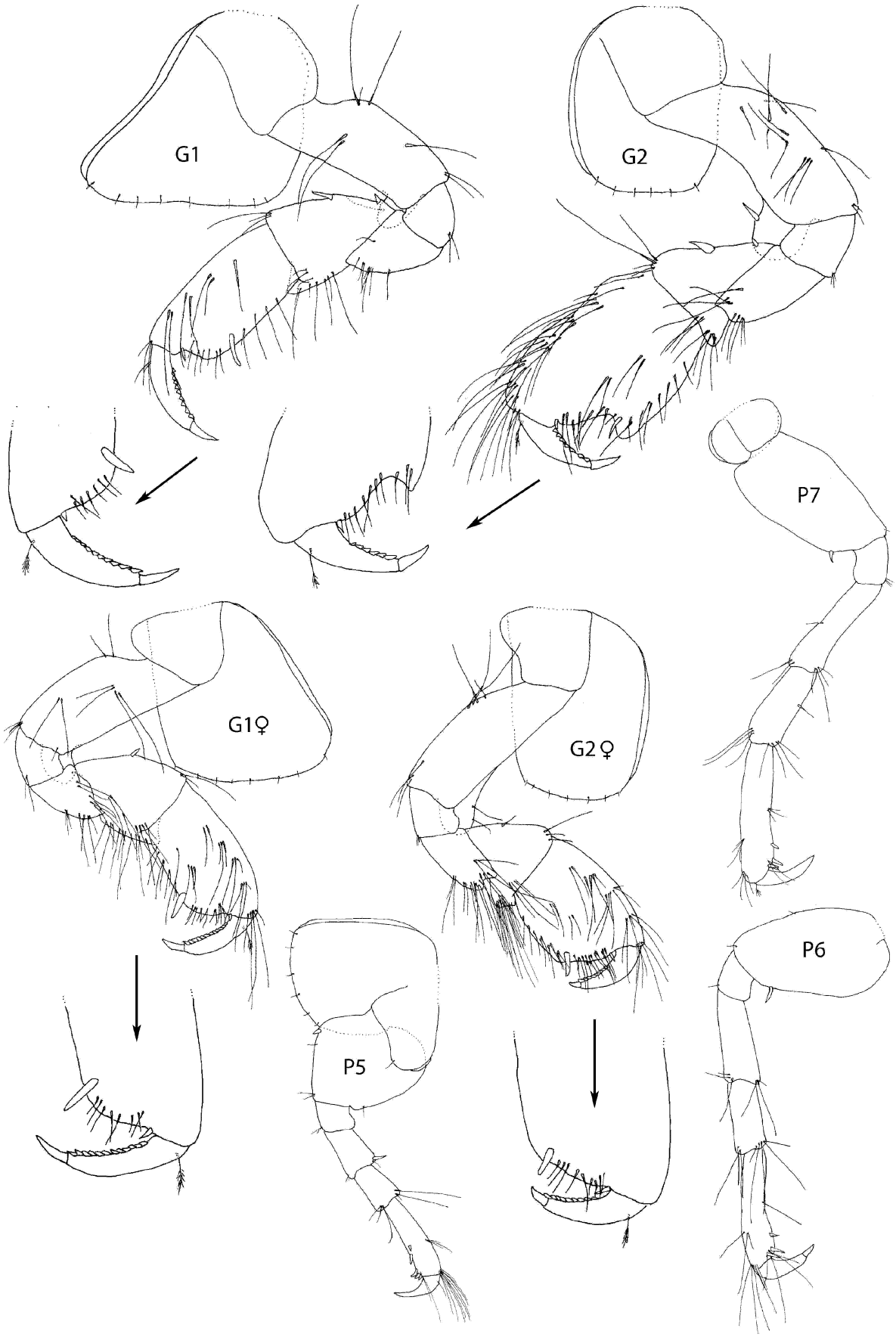

FIGURE 4. *Ampithoe katae* Peart, 2007b**,** holotype, male, 5 mm, AM P61842, paratype, female, 6 mm, AM P61843, Lizard Island, Great Barrier Reef (based on Peart 2007b).

Pereon. *Coxae 1–4* deeper than broad. *Gnathopod 1* smaller than gnathopod 2; coxa distinctly larger than coxa 2, anteroventrally produced, anterior margin slightly concave, anteroventral corner rounded; basis shorter than coxa, anterodistal lobe rounded, with 1 slender seta; merus posterodistal lobe subacute; carpus about 1.5 x as long as broad, shorter than propodus, anterior margin with 2 robust setae; propodus narrow, subrectangular; palm slightly acute, convex, with rounded posterodistal corner, with 1 robust seta defining palm; dactylus overreaching palm, inner margin crenate. *Gnathopod 2* coxa without long, plumose setal fringe on ventral margin; basis with sparse slender setae, anterodistal corner with 1 robust seta; merus, margin with short, subacute anterodistal lobe; carpus shorter than propodus, subtriangular; propodus broad, less than 1.5 x as long as broad, subovoid, produced into an anterodistally setose lobe, anterior margin with fringe of slender setae; palm acute, excavate, with posterodistal tooth, short (length 1 x breadth), apically subacute, without robust setae defining palm; dactylus subequal in length to palm, tapering evenly, apically acute, inner margin crenate. *Pereopods 3–4* basis moderately expanded; merus longer than carpus. *Pereopods 5–7* weakly prehensile. *Pereopod 5* without medial slender setae; distal articles slender; propodus not expanded distally, with 3 anterodistal striated robust setae; dactylus strongly curved. *Pereopod 6* basis rounded proximally, straight distally, with several marginal robust setae; distal articles slender; propodus slightly expanded distally, with 2 anterodistal striated robust setae; dactylus strongly curved. *Pereopod 7* similar to pereopod 6.

Pleon. *Epimera 2–3* posteroventral corner broadly rounded. *Uropod 1* peduncle with 6 robust setae, with long fringe of slender setae (greater than 0.5 x length of peduncle), distoventral spine absent; outer ramus with 4 marginal robust setae; inner ramus with 5 lateral robust setae. *Uropod 2* peduncle with 2 robust setae; outer ramus with 6 lateral robust setae; inner ramus with 7 robust setae. *Uropod 3* peduncle longer than broad, about 2 x length of rami, without marginal slender setae, with 4 distal robust setae, with 4 distal slender setae on ventral margin; outer ramus with 2 large recurved distal robust setae, without lateral robust or slender setae; inner ramus with 4 distal slender setae, without lateral robust setae. *Telson* subtrapezoidal, apically truncated, with small apical cusp on each distolateral corner, with oblique medial rows of slender setae, with 1 pair of lateral slender setae, and with 2 pair of lateral and 1 pair of apical plumose setae.

Female (sexually dimorphic characters). Based on paratype, female, 6 mm, AM P61843. *Gnathopod 1* subequal in size to gnathopod 2; carpus anterior margin with 1 robust seta, posterior margin subacute; dactylus subequal in length to palm. *Gnathopod 2* basis anterodistal corner with 2 slender setae; palm entire, with posterodistal corner, rounded, with 1 robust seta defining palm.

Colour. Body lime green, with red eyes.

Habitat. *Turbinaria* sp. and green algae from 1–3.5 m depth.

Remarks. Peart (2007b) did not compare *Ampithoe ningaloo* Peart, 2007b and *A. katae*. Our examination of types and a range of material from both species indicates that species level differences figured in Peart (2007b) are variations in growth stages. Consequently we are synonymising the species. Characters of *A. katae* that are known to change with growth include: number of robust setae on the anterior margin of the carpus of gnathopods 1 and 2 and the number of setae on the anterodistal lobe of the basis in gnathopods 1 and 2. Counts of setae for these characters from individuals of varying size, shows that there is a general, but inconsistent, trend for a greater number of robust setae on the gnathopods and uropods with increased size of individuals.

Within the GBR *Ampithoe* fauna, *Ampithoe katae* is similar to *A. waialua* J.L. Barnard, 1970, but can be distinguished by the gnathopod 1 palm, which is entire in *A. katae* and excavate in *A. waialua*. *Ampithoe katae* is also similar to *A. cookana* but both *A. waialua* and *A. cookana* lack the anterodistal hood on the propodus of male gnathopod 2.

The heavily setose anterodistal hood on the propodus of male gnathopod 2 in *A. katae* is also seen in *A. platycera* Sivaprakasam, 1971 from India, A. *rachanoi* Peart, 2002, from Thailand, and species associated with the *A. ramondi* species complex. *Ampithoe katae* is most readily distinguished from *A. platycera* by the entire palm on the propodus of gnathopod 1, excavate in *A. platycera*. *Ampithoe katae* is very similar to *A. rachanoi*, however, differences in telson shape, trapezoidal in *A. katae* and subtriangular in *A. rachanoi*, distinguish these species. Comparison with species attributed to the *A. ramondi* complex is difficult until further study is made into this species complex.

Distribution. *Australia*. Queensland: Torres Strait (current study); Lizard Island (Peart 2007b); One Tree Island (current study). Western Australia: Ningaloo (Peart 2007b).

***Ampithoe kava* Myers, 1985**
(Figs 5, 6)

Ampithoe ramondi. —J.L. Barnard, 1970, 50: 18, 19. —Ledoyer, 1984: 13, fig. 4.
Amphithoe kava Myers, 1985: 21 (key), 22, fig. 15. —Myers, 1986: 288, table 1. —Lyons & Myers, 1990: 1200, figs 3, 4.
Ampithoe kava. —Poore & Lowry, 1997: 909, figs 6–9. —Lowry & Stoddart, 2003: 60 (catalogue). —Appadoo & Myers, 2004: 333 (key). —Peart, 2007b: 42–44, figs. 30–31 (key).

Material examined. 1 dissected male 'A', 6.0 mm, 2 slides, AM P76794 (JML 84-4-11-4-N); 1 dissected female 'D', 5.8 mm, 3 slides, AM P76795 (JML 84-4-11-4-N); 1 dissected male 'C', 6.0 mm, 3 slides, AM P76793 (JML 84-4-11-4-N); many unsexed, AM P76796 (JML 84-4-11-4-N).

Type locality. Taunovo Bay, Viti Levu, Fiji (18º15'S 178º00'E), living on mixed red algae.

Description. Based on male 'A', 6.0 mm, AM P76794.

Head. *Head* as long as deep. *Antenna 1* subequal to antenna 2; peduncular article 1 longer than article 2; flagellum 14 articles; accessory flagellum absent. *Antenna 2* peduncle not densely setose on ventral margin; article 4 shorter than article 5; flagellum 11 articles. *Upper lip* directed nearly straight down, around 90 degrees. *Mandible* molar well developed, triturating, accessory setal row with 3 serrate setae; palp 3–articulate, marginally setose; article 1 shorter than article 2; article 2 subequal in length to article 3, slender setae present. *Lower lip* outer plates notched forming a deep distal cleft, medial and lateral lobes subequal in size; mandibular lobe with curved margins, subacute apically. *Maxilla 1* inner plate with 2 seta; palp article 2 slender. *Maxilla 2* inner plate narrower than outer plate. *Maxilliped* outer plate with row of large robust setae along medial margin.

Pereon. *Coxae 1–4* deeper than broad. *Gnathopod 1* smaller than gnathopod 2; coxa 1 smaller than coxa 2, produced, anterior margin straight, anteroventral corner rounded; basis longer than coxa, anterodistal lobe large, rounded, with 3 slender setae; merus posterodistal lobe acute; carpus about as long as broad, shorter than propodus, anterior margin with 1 robust seta, posterior margin convex; propodus narrow, subrectangular; palm slightly acute, straight, with posterodistal corner rounded, with 1 robust seta defining palm; dactylus slightly overreaching palm. *Gnathopod 2* basis with medial row of slender setae, anterodistal lobe large, rounded, with 6 slender setae; merus margin with short, rounded anterodistal lobe; carpus shorter than propodus, subtriangular; propodus broad, less than 1.5 x as long as broad, subrectangular, produced into an anterodistally setose lobe, anterior margin with fringe of slender setae; palm medially incised, with posterodistal tooth, long (length 3 x breadth), apically blunt, without palm defining robust setae; dactylus subequal in length to palm, tapering evenly, apically acute, inner margin crenate. *Pereopods 3–4* basis moderately expanded; merus longer than carpus. *Pereopods 5–7* weakly prehensile. *Pereopod 5* without medial slender setae; distal articles slender; propodus slightly expanded distally, with 1 anterodistal striated robust seta; dactylus strongly curved. *Pereopod 6* basis posterior margin sinusoidal, with several marginal robust setae; distal articles slender; propodus slightly expanded distally, without anterodistal striated robust setae; dactylus strongly curved. *Pereopod 7* similar to pereopod 6.

Pleon. *Epimera 2–3* posteroventral corner broadly rounded. *Uropod 1* peduncle with 6 robust setae, with long fringe of slender setae (greater than 0.5 x length of peduncle), with small rounded distoventral spine; outer ramus length about 4 x as long as broad, with 6 lateral robust setae; inner ramus with 3 lateral robust setae. *Uropod 2* peduncle with 3 robust setae; outer ramus with 6 lateral robust setae; inner ramus with 3 lateral robust setae. *Uropod 3* peduncle longer than broad, less than 2 x length of rami, without marginal slender setae, with 6 distal robust setae, with 3 distal slender setae; outer ramus with 2 large recurved distal robust setae, without lateral robust or slender setae; inner ramus with 3 distal slender setae, without lateral

robust setae. *Telson* subtrapezoidal, apically truncated, with small apical cusp on each distolateral corner, with 3 pair of lateral and 2 pair of apical slender setae, and with 2 pair of lateral plumose setae.

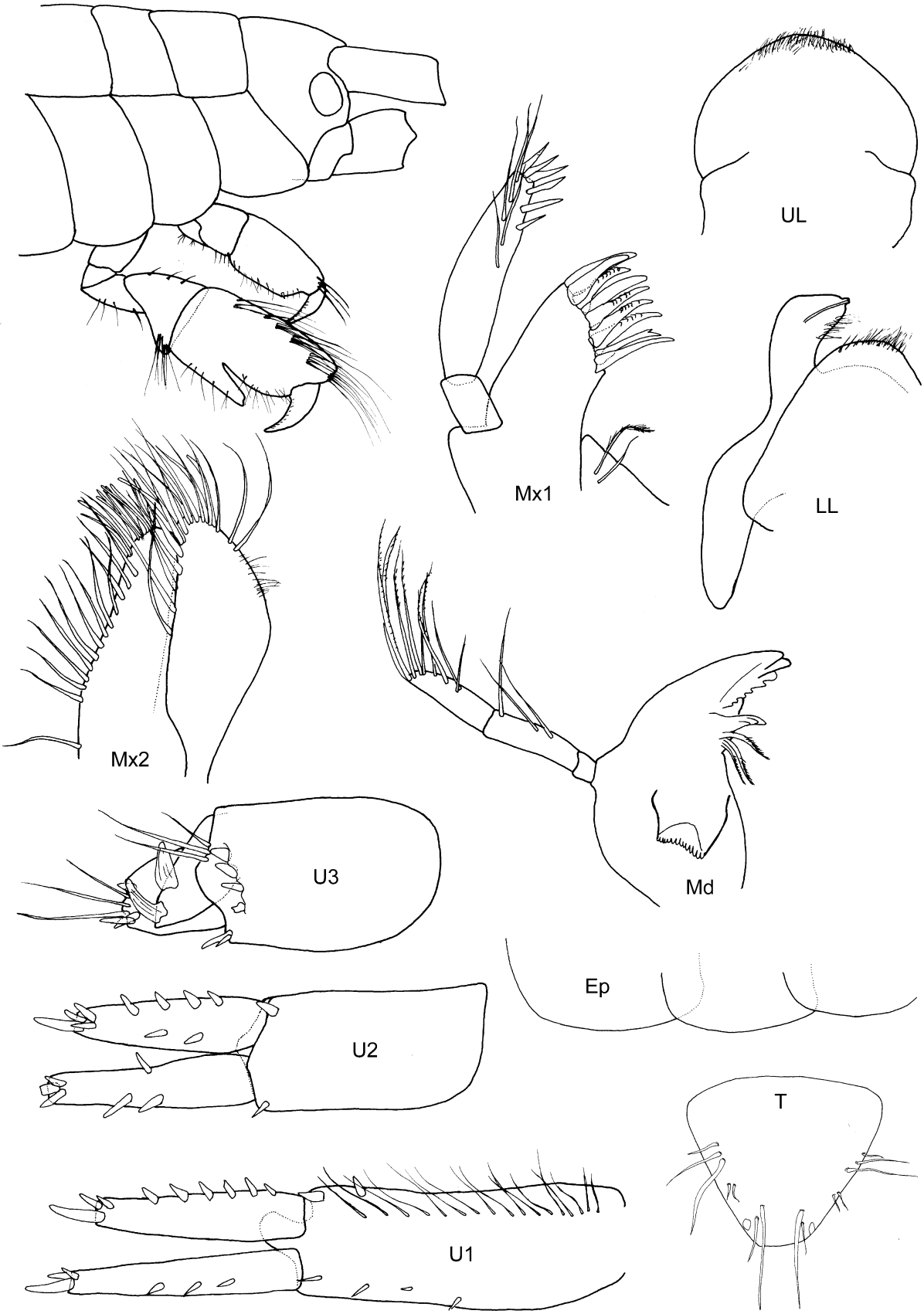

FIGURE 5. *Ampithoe kava* (Myers, 1985), male 'A', 6.0 mm, AM P76794, Lizard Island, Great Barrier Reef.

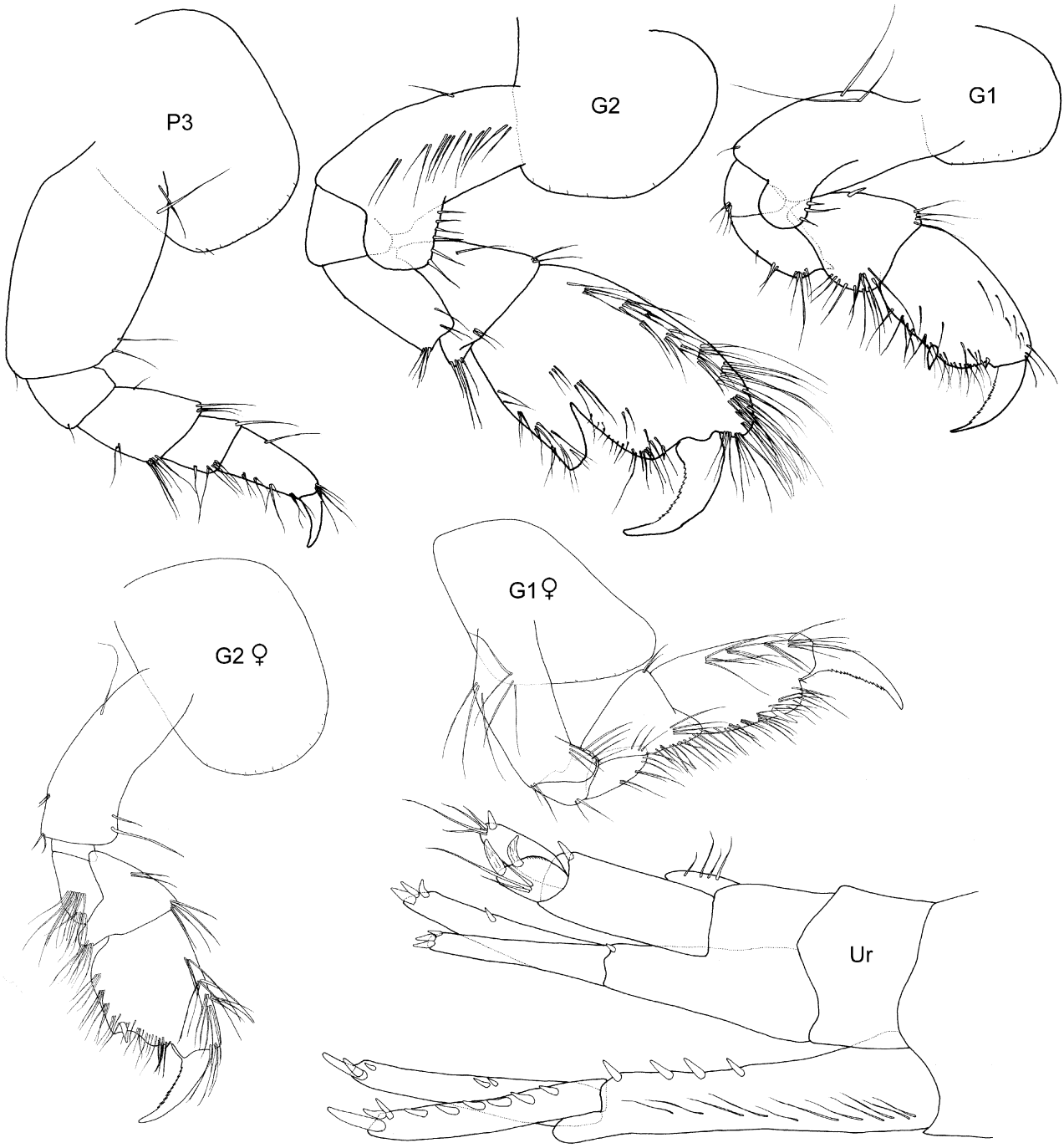

FIGURE 6. *Ampithoe kava* (Myers, 1985), male 'A', 6.0 mm, AM P76794, female 'D', 5.8 mm, AM P76795, Lizard Island, Great Barrier Reef.

Female (sexually dimorphic characters). Based on 'D' female, 5.8 mm, AM P76795. *Gnathopod 1* subequal in size to gnathopod 2. *Gnathopod 2* propodus not produced into an anterodistally setose lobe; palm sinusoidal, with posterodistal corner, subquadrate, with 1 robust seta defining palm.

Habitat. Living on macroalgae.

Remarks. *Ampithoe kava* with its long (length 3 x breadth) posterodistal blunt tooth on the propodus of gnathopod 2 (in males) is readily distinguished from all other GBR species. The GBR material differs slightly from the material figured from Port Jackson, New South Wales, Australia which has the gnathopod 1 palmar tooth abutting and overlapping the propodus, however this has since been found to be an artefact (A.G.B. Poore, pers. comm.). Material from both Port Jackson and the GBR most commonly have a slight gap between the propodus and the posterodistal tooth, as figured in the original description.

Distribution. *Australia*. Queensland: east of Carter and Yonge reefs, Great Barrier Reef (current study). New South Wales: Coffs Harbour (Peart 2007b); Port Jackson (Poore & Lowry 1997, Peart 2007b). *Fiji*. Viti Levu (Myers 1985). *Hawaii* (J.L. Barnard 1970). *Mauritius* (Appadoo & Myers 2004). *Red Sea* (Lyons & Myers 1990). *Tonga* (Myers 1986).

***Ampithoe meganae* Peart, 2007**
(Figs 7, 8)

Ampithoe meganae Peart, 2007b: 44, figs. 32–35 (key).
Ampithoe rotunda Peart, 2007b: 83, figs. 66–69 (key).

Material examined. Holotype, male, AM P61854 (QLD 1370). Paratypes. 1 female, AM P61855 (QLD 1370); 5 unsexed, AM P61857 (QLD 1397); 3 unsexed, AM P76972 (QLD 1637); 2 unsexed, AM P75874 (QLD 1851); 3 unsexed, AM P75876 (QLD 1860); many unsexed, AM P75875 (QLD 1894); 8 unsexed, AM P75661 (QLD 1938); 14 unsexed, AM P75663 (QLD 1941); 9 unsexed, AM P75666 (QLD 1944); 2 unsexed, AM P76971 (QLD 1952); many unsexed, AM P75669 (QLD 1966); many unsexed, AM P76798 (QLD 1966); 6 unsexed, AM P75664 (QLD 1969); 1 unsexed, AM P76970 (QLD 1969); 3 unsexed, AM P75667 (QLD 1980); 4 unsexed, AM 76799 (QLD 1980); 3 unsexed, AM P76968 (1983); 3 unsexed, AM P75665 (QLD 1983); 3 unsexed, AM P75668 (QLD 2003); 4 unsexed, AM P76969 (QLD 2006); 15 unsexed, AM P75662 (QLD 2006); many unsexed, AM P76973 (SEL/LZI-5-2).

Type locality. Mangrove Beach, Lizard Island, Queensland, Australia (14°40.99'S 145°27.63'E), living on *Turbinaria* sp., 3 m.

Description. Based on holotype, male, 2 mm, AM P61854.

Head. *Head* as long as deep. *Antenna 1* missing. *Antenna 2* missing. *Upper lip* directed nearly straight down, lateral margins each with midlateral notch. *Mandible* molar well developed, triturating, accessory setal row with 4 serrate setae; palp 3–articulate, apically setose; article 1 shorter than article 2; article 2 subequal in length to article 3, slender setae present. *Lower lip* outer plates notched, forming a deep distal cleft, lateral lobe distinctly longer than medial lobe; mandibular lobe with curved margins, subacute apically. *Maxilla 1* inner plate with 1 setae; palp article 2 slender. *Maxilla 2* inner plate narrower than outer plate. *Maxilliped* outer plate with row of small robust setae along medial margin.

Pereon. *Coxae 1–4* deeper than broad. *Gnathopod 1* smaller than gnathopod 2 ; coxa distinctly smaller than coxa 2, anteroventrally produced, anterior margin slightly concave, anteroventral corner rounded; basis shorter than coxa, anterodistal lobe rounded, with 1 slender seta; merus posterodistal lobe subacute; carpus about 1.5 x as long as broad, shorter than propodus, anterior margin with slender setae, posterior margin convex; propodus narrow, subovoid; palm acute, convex, without posterodistal corner with 1 robust seta defining palm; dactylus subequal in length to palm, inner margin crenate. *Gnathopod 2* coxa without long, plumose setal fringe on ventral margin; basis with sparse slender setae, with large, rounded anterodistal lobe with 3 robust setae along anterodistal margin; merus margin without anterodistal lobe; carpus much shorter than propodus, cup-shaped; propodus broad, less than 1.5 x as long as broad, subovoid, not produced into an anterodistally setose lobe; palm acute, entire, with posterodistal corner, subquadrate, without palm defining robust setae; dactylus overreaching palm, tapering evenly, apically acute, inner margin crenate. *Pereopods 3–4* basis slightly expanded; merus longer than carpus. *Pereopods 5–7* simple. *Pereopod 5* without medial slender setae; distal articles slender; propodus not expanded distally, with 1 anterodistal striated robust seta; dactylus strongly curved. *Pereopod 6* basis posterior margin straight. *Pereopod 7* similar to pereopod 6.

Pleon. *Epimera 2–3* posteroventral corner broadly rounded. *Uropod 1* peduncle with small rounded distoventral spine. *Uropod 2* peduncle with 2 robust setae; outer ramus with 3 lateral robust seta; inner ramus with 2 lateral robust setae. *Uropod 3* peduncle longer than broad, about 2 x length of rami, without marginal slender setae, with 3 distal peduncular robust setae, with 5 distal slender setae; outer ramus with 2 large

recurved distal robust setae, without lateral robust or slender setae; inner ramus with 2 distal slender setae, without lateral robust setae. *Telson* subtrapezoidal, apically truncated, with small apical cusp on each distolateral corner, with 2 pair of lateral and 1 pair of apical slender setae, and 1 pair of apical plumose setae.

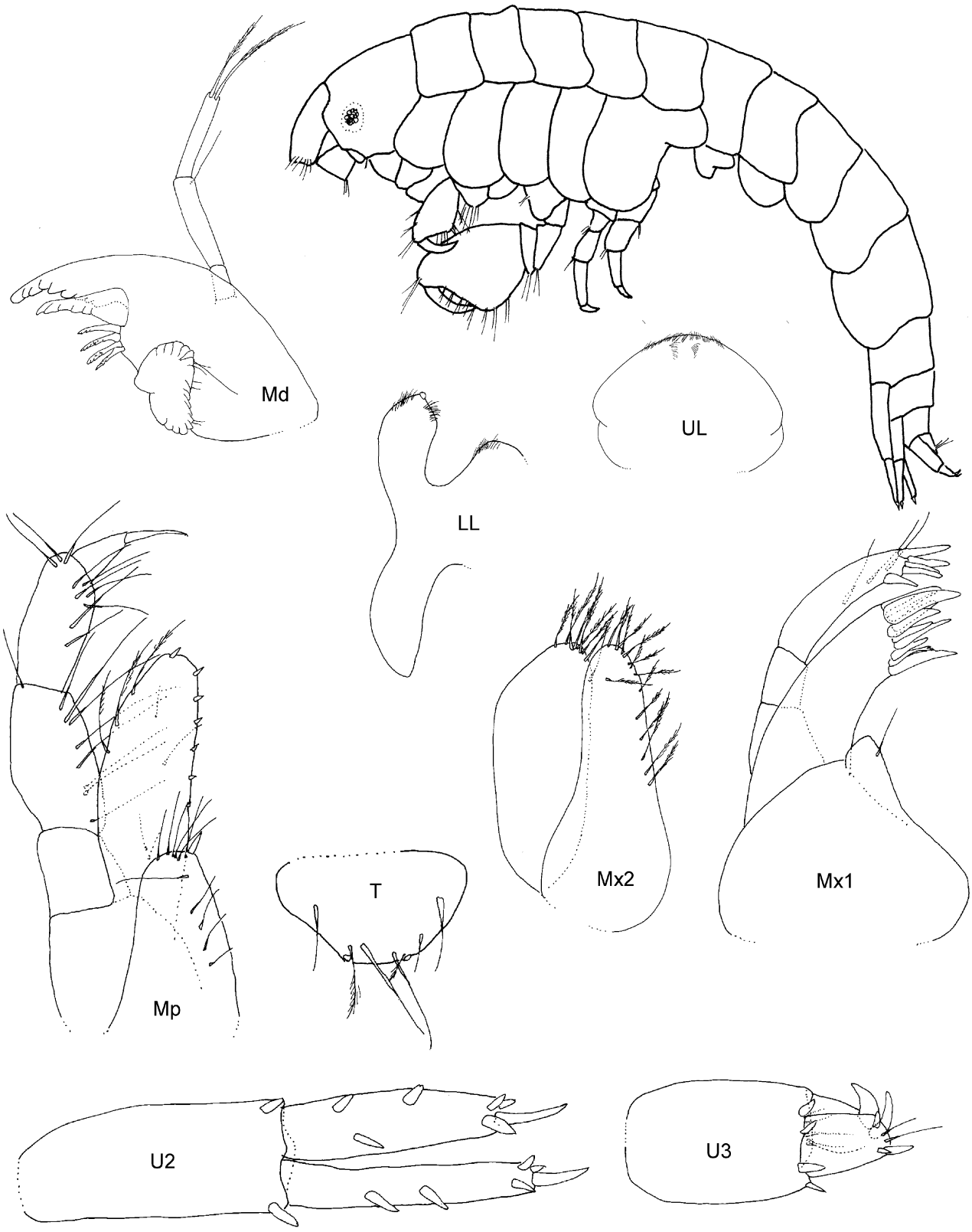

FIGURE 7. *Ampithoe meganae* Peart, 2007b, holotype, male, 2 mm, AM P61854, Lizard Island, Great Barrier Reef (based on Peart 2007b).

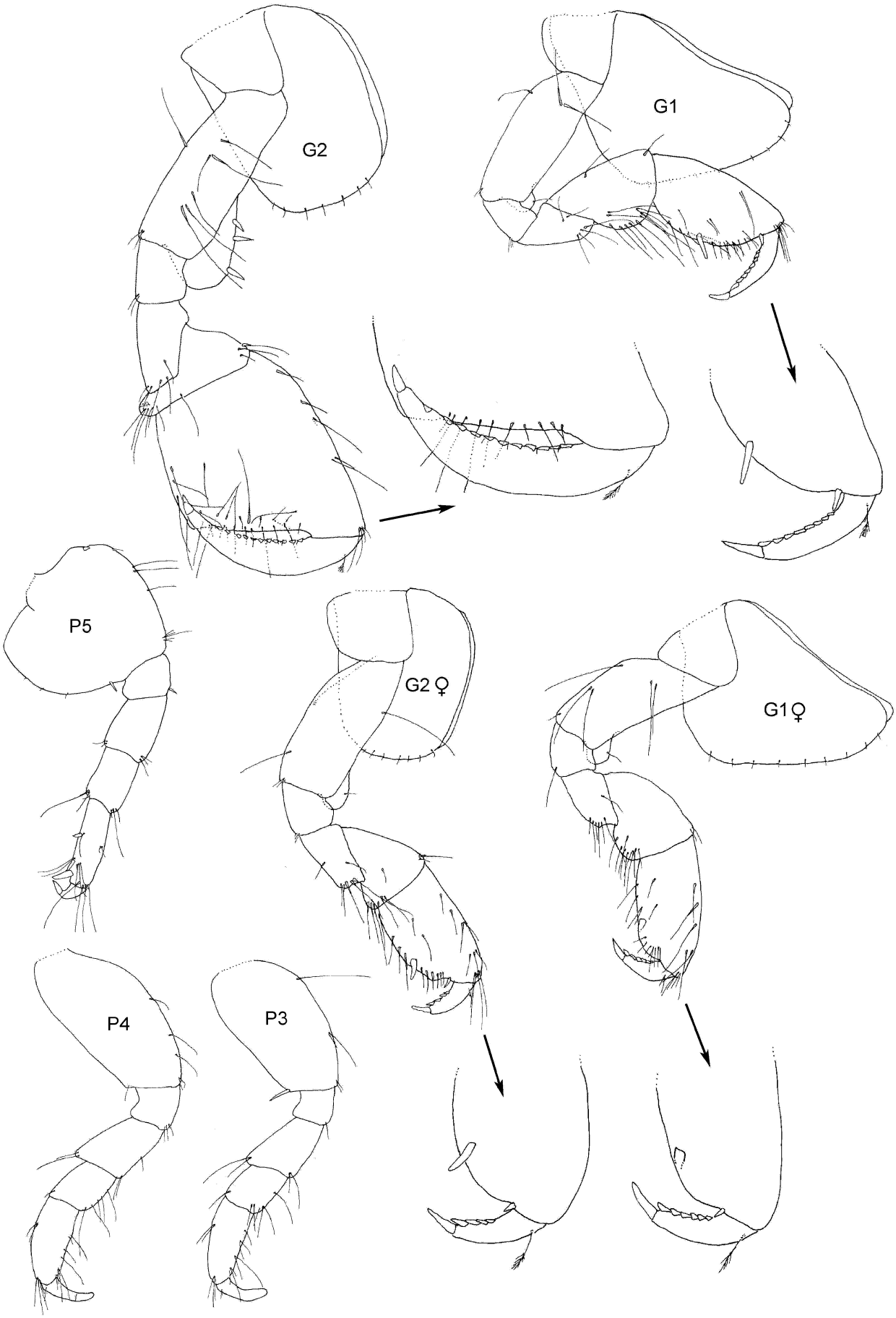

FIGURE 8. *Ampithoe meganae* Peart, 2007b, holotype, male, 2 mm, AM P61854, paratype, female, 3 mm, AM P61855, Lizard Island, Great Barrier Reef (based on Peart 2007b).

Female (sexually dimorphic characters). Based on paratype, female, 3 mm, AM P61855. *Gnathopod 1* subequal in size to gnathopod 2; coxa subequal to coxa 2; basis shorter than coxa; merus anterodistal lobe subacute. *Gnathopod 2* basis with small anterodistal lobe, anterodistal margin with 1 slender seta; carpus shorter than propodus, subtriangular; propodus narrow, greater than 1.5 x as long as broad; palm slightly sinusoidal, posterodistal corner rounded, with 1 robust seta defining palm; dactylus subequal in length to palm.

Habitat. Red, brown and green algae, including *Halimeda* sp. and also on dead coral covered with epiphytes.

Remarks. *Ampithoe rotunda* Peart, 2007b is placed in synonymy with *A. meganae*. The only difference between these taxa appears to be the size of the uropod 3 peduncle. Peart (2007b) lists several other differences including, the number of robust setae on the anterodistal lobe of the basis of male gnathopod 2 and the presence of slender setae on uropod 3. However, in the material examined here these differences are variable among individuals.

Ampithoe meganae is very similar to *A. kulafi* Barnard, 1970 and *A. lafkui* Appadoo & Myers, 2004, all of which have the distinctive subovoid-shaped propodus of male gnathopod 2. These three species vary mostly in the form of the gnathopod 1 coxa, which is produced and rounded in *A. meganae*, produced and acute in *A. kulafi* and not produced in *A. lafkui*. In *A. meganae* and *A. kulafi* the uropod 1 peduncle has a rounded, distoventral spine which is absent in *A. lafkui*.

Ampithoe meganae is most similar to *Ampithoe kulafi*, a variable species which has been recorded from localities across the Indo-Pacific. The description of *A. lafkui* by Appadoo & Myers (2004) has accounted for some of this variation, but there exists a range of material showing several shapes of the coxa of gnathopod 1 (anteroventrally produced or not produced, with a rounded or acute anteroventral corner) and uropod 3 with the rounded distoventral spine present or absent. There currently appears to be no species name for specimens with coxa 1 sub-acutely produced and the uropod 3 peduncle with a rounded distoventral spine (Sivaprakasam 1971). Furthermore, *A. kulafi* of Ledoyer (1979a) is figured without the uropod 1 rounded peduncular distoventral spine. These species remain with *A. kulafi* but need closer examination.

Ampithoe meganae can be distinguished from other GBR Ampithoidae by its small body size, by its proportionally large, subovoid propodus on male gnathopod 2 and by its dactylus which over-reaches the palm and often rests in a cross position along the medial surface.

Distribution. *Australia*. Queensland: Torres Strait (current study); Lizard Island (Peart 2007b; current study); Heron Island (Peart 2007b); One Tree Island (current study).

Ampithoe waialua J.L. Barnard, 1970

(Figs 9, 10, Pl. 1C)

Ampithoe waialua J.L. Barnard, 1970a: 53: figs 20, 21. –J.L. Barnard, 1970b: 34, 37: figs 9w, 10w, 11w, 12w, 13w. — Barnard & Karaman, 1991: 103.
Ampithoe hiana Peart, 2007b: 27, figs 18–21.

Material examined. 1 male, AM P61836 (QLD 1333); 1 female, AM P61837 (QLD 1333); 1 unsexed, photo 2, AM P70796 (QLD 1670); 1 dissected male, 8.0 mm, 4 slides, AM P76974 (QLD 1770); 1 dissected female, 7.5 mm, 5 slides, AM P76976 (QLD 1770); 1 unsexed, AM P76981 (QLD 1770); 9 unsexed, AM P76975 (QLD1894); 11 unsexed, AM P76978 (QLD 1897); 2 unsexed, AM P75660 (QLD 1945); 2 unsexed, AM P76980 (QLD 1948); 1 unsexed, AM P76979 (QLD 1966); 13 unsexed, AM P75658 (QLD 1966); 5 unsexed, AM P75657 (QLD 1967); 4 unsexed, AM P75659 (QLD 1969); many unsexed, AM P76977(QLD 2006).

Type locality. 1 mile north of Kualoa Point, Oahu, Hawaiian Islands (~21°30’00”N 157°50’00”W), intertidal in algae and dead coral heads.

Description. Based on male, 5 mm, AM P61836.

Head. *Head* as long as deep. *Antenna 1* longer than antenna 2; peduncular article 1 subequal to article 2; flagellum 18 articles; accessory flagellum absent. *Antenna 2* peduncle not densely setose on ventral margin; article 4 longer than article 5; flagellum 10 articles. *Upper lip* directed nearly straight down, lateral margins each with midlateral notch. *Mandible* molar well developed, triturating, accessory setal row with 4 serrate setae; palp 3–articulate, marginally setose; article 1 shorter than article 2; article 2 subequal in length to article 3, slender setae present. *Lower lip* outer plates forming a deep medial notch, lateral lobe distinctly longer than medial lobe; mandibular lobe with curved margins, rounded apically. *Maxilla 1* inner plate with 1 setae; palp article 2 slender. *Maxilla 2* inner plate narrower than outer plate. *Maxilliped* outer plate with row of large robust setae along medial margin.

Pereon. *Coxae 1–4* deeper than broad. *Gnathopod 1* subequal in size to gnathopod 2 ; coxa larger than coxa 2, anteroventrally produced, anterior margin straight, anteroventral corner rounded; basis subequal in length to coxa, anterodistal lobe rounded, with 1 slender seta; merus posterodistal lobe subacute; carpus about as long as broad, shorter than propodus, anterior margin with 2 robust setae, posterior margin subacute; propodus narrow, subrectangular; palm acute, excavate, with a posterodistal tooth, with 1 robust seta defining palm; dactylus overreaching palm, inner margin crenate. *Gnathopod 2* coxa without long, plumose setal fringe on ventral margin; basis with sparse slender setae, anterodistal corner with 2 robust setae; merus margin with short, subacute anterodistal lobe; carpus shorter than propodus, subtriangular, anterior margin with single robust seta; propodus broad, less than 1.5 x as long as broad, subovoid, produced into an anterodistally setose lobe, anterior margin with fringe of slender setae; palm acute, concave, with posterodistal tooth, short (length 1 x breadth), apically acute, without palm defining robust seta; dactylus equal in length to palm, tapering evenly, apically acute, inner margin crenate. *Pereopods 3–4* basis slightly expanded; merus longer than carpus. *Pereopods 5–7* weakly prehensile. *Pereopod 5* basis with 2 anteroproximal robust setae, without medial slender setae; distal articles slender; propodus not expanded distally, with 3 anterodistal striated robust setae; dactylus slightly curved. *Pereopod 6* basis posterior margin rounded, with several marginal robust setae; distal articles slender; propodus not expanded distally, with 3 anterodistal striated robust setae; dactylus slightly curved. *Pereopod 7* similar to pereopod 6.

Pleon. *Epimera 2–3* posteroventral corner broadly rounded. *Uropod 1* peduncle with 8 robust setae, with long fringe of slender setae (greater than 0.5 x length of peduncle), distoventral spine absent; outer ramus with 3 lateral robust setae; inner ramus with 3 lateral robust setae. *Uropod 2* peduncle with 3 robust setae; outer ramus with 3 lateral robust setae; inner ramus with 3 lateral robust setae. *Uropod 3* peduncle longer than broad, more than 2 x length of rami, without marginal slender setae, with 3 distal robust setae, without distal slender setae; outer ramus with 2 large recurved distal robust setae, without lateral robust or slender setae; inner ramus with 1 distal slender seta, with 3 lateral robust setae. *Telson* subtriangular, apically rounded, with small apical cusp on each distolateral corner, with 2 pair of lateral and 1 pair of apical slender setae and with 1 pair of apical plumose setae.

Female (sexually dimorphic characters). Based on female, 6 mm, AM P61837. *Gnathopod 1* subequal in size to gnathopod 2; basis subequal in length to coxa; carpus anterior margin with slender setae; palm straight, with posterodistal corner acute; dactylus subequal in length to palm. *Gnathopod 2* basis anterodistal corner with 1 slender setae; propodus not produced into an anterodistally setose lobe; palm straight, slightly produces at palmar defining robust setae; dactylus subequal in length to palm.

Colour. Body pale pink with small brown spots and large white spots.

Habitat. Brown algae, mainly *Dictyota* sp, as well as on red algae, submerged mooring rope and hydroids.

Remarks. *Ampithoe hiana* Peart, 2007b is placed in synonymy with *Ampithoe waialua* J.L. Barnard, 1970a, originally described from Hawaii. Great Barrier Reef material of *A. waialua* differs only slightly from the original description. Male and females of *Ampithoe waialua* from the GBR have slender setae present on the anterior margin of the gnathopod 1 propodus and more robust setae on the uropod 1 peduncle. In the Hawaiian types the slender setae are apparently absent and there more robust setae on uropod 2 rami.

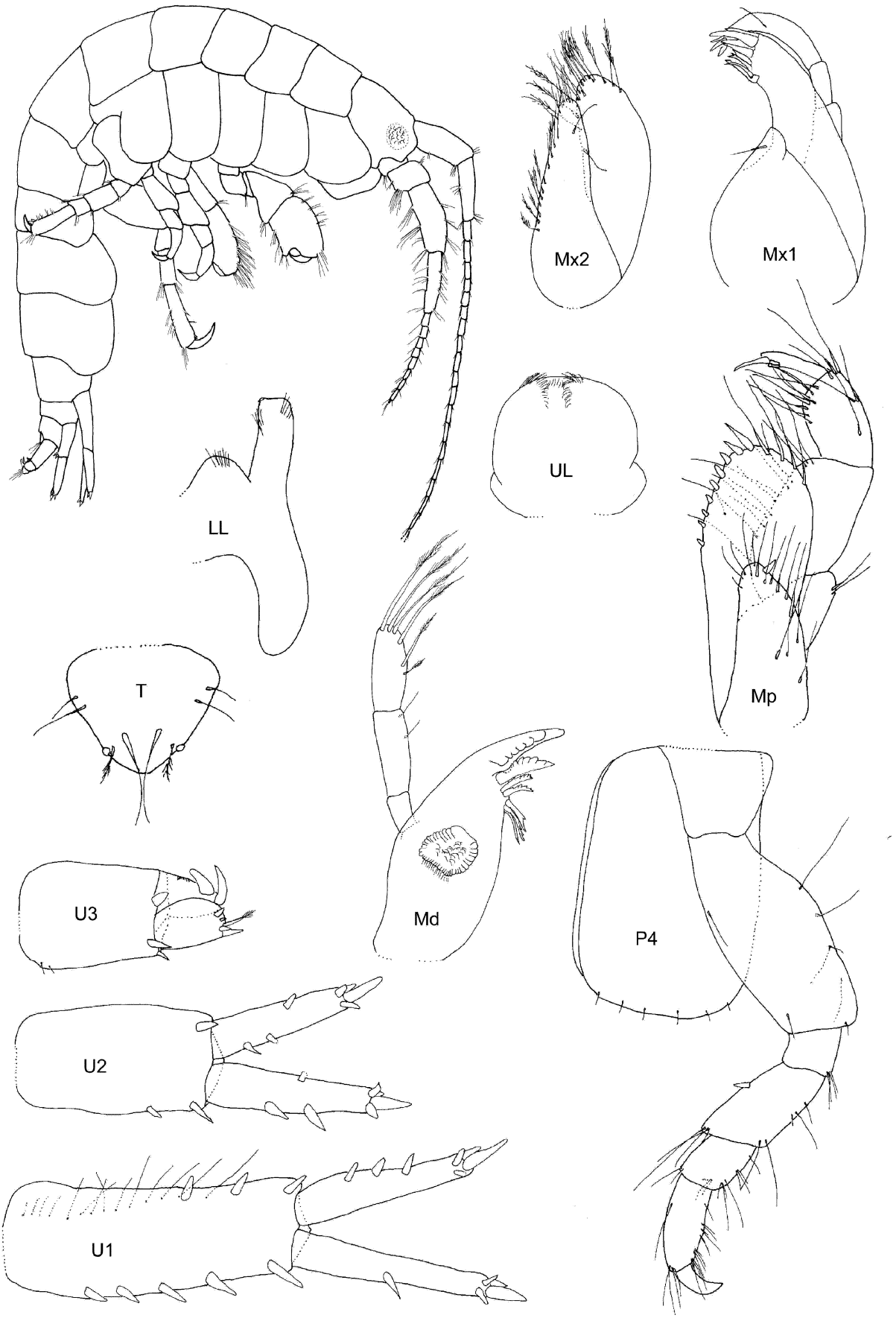

FIGURE 9. *Ampithoe waialua* J.L. Barnard, 1970**,** male, 5 mm, AM P61836, Heron Island, Great Barrier Reef (based on Peart 2007b).

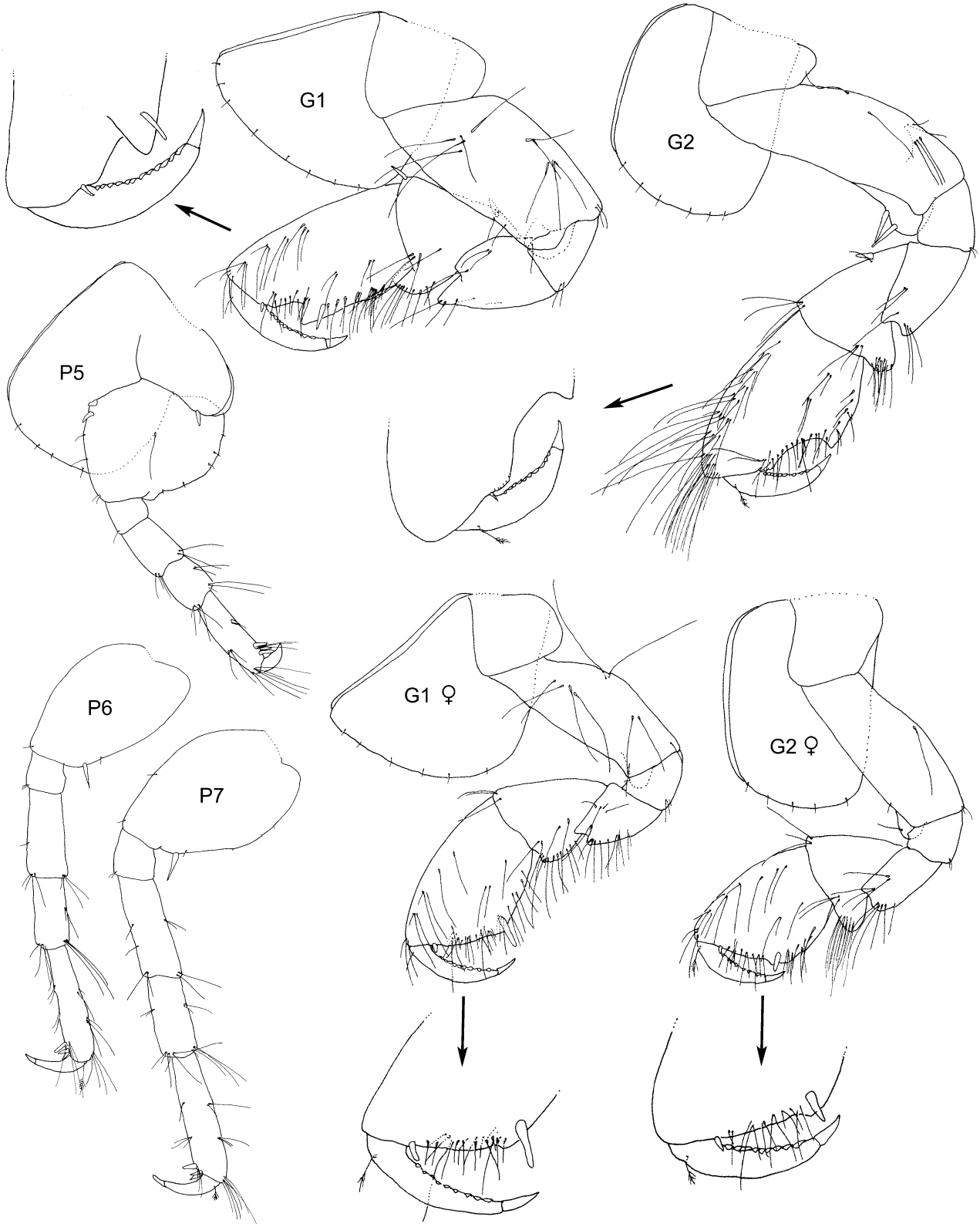

FIGURE 10. *Ampithoe waialua* J.L. Barnard, 1970**,** male, 5 mm, AM P61836, paratype, female, 6 mm, AM P61837, Heron Island, Great Barrier Reef (based on Peart 2007b).

Ampithoe waialua is superficially similar to two other GBR species, *A. katae* and *A. cookana*, in the form of the male gnathopods. However these species can be distinguished by the palm of male gnathopod 1, which is excavate in *A. waialua* and entire in *A. katae* and *A. cookana*. Living specimens *A. waialua* and *A. katae* can

be distinguished by colour. *Ampithoe waialua* is pale pink with small brown spots and larger white splotches, while *A. katae* is translucent orange.

Distribution. *Australia*. Queensland: Torres Strait (current study); Heron Island (Peart 2007b); One Tree Island (current study). *USA*. Hawaiian Islands: Kualoa Point, Oahu (J.L. Barnard 1970a).

Cymadusa Savigny, 1816

Cymadusa alyxis Hughes & Lowry sp. nov.
(Figs 11, 12, Pl. 1D)

Type material. Holotype, male, 7.7 mm, 6 slides, AM P76245 (QLD 1716) Picnic Beach, Palfrey Island, near Lizard Island (14°41.69'S 145°26.89'E), green alga *Codium* sp., reef flat, 2 m, T. Krapp-Schickel, 27 February 2005. Paratypes: female, 8.7 mm, 5 slides, AM P76246 (QLD 1716); 7 unsexed, AM P71098 (QLD 1716).

Additional material examined. 1 dissected male 'A', 3 slides, AM 76247 (QLD 1632); 1 dissected female 'C', 3 slides, AM P76248 (QLD 1632); 1 dissected juvenile 'B', 4 slides, AM P76249 (QLD 1632); 8 unsexed, AM P70166 (QLD 1704); 2 unsexed, photo 4, AM P70949 (QLD 1704); 6 unsexed, AM P71014 (QLD 1705); 4 unsexed, AM P71265 (QLD 1757); 2 unsexed, AM P71295 (QLD 1769); 13 unsexed, AM P76250 (SEL/LZI-5-2).

Type locality. Picnic Beach, Palfrey Island, near Lizard Island, Queensland, Australia (14°41.69'S 145°26.89'E), living on green alga *Codium* sp., 2 m.

Etymology. From the Latin *alyxis* – 'an escape' – in reference to the history of the type locality, Lizard Island, where the early English explorer Captain Cook climbed to the top of the island and charted a passage out of the Great Barrier Reef.

Description. Based on holotype, male, 7.7 mm, AM P76245.

Head. *Antenna 1* primary flagellum 20 articles, accessory flagellum with 1 article. *Antenna 2* peduncle not densely setose on ventral margin, flagellum 24 articles. *Upper lip* lateral margins each with midlateral notch. *Mandible* molar well developed, triturating, accessory setal row with 8 serrate setae; palp 3–articulate, article 3 marginally setose; article 1 subequal in length to article 2; article 2 shorter than article 3; article 3 longer than article 1. *Lower lip* outer plates notched, lateral lobe distinctly longer than medial lobe; mandibular lobe with curved margins, rounded apically. *Maxilla 1* inner plate with 4 setae. *Maxilla 2* inner plate narrower than outer plate; palp article 2 broad. *Maxilliped* outer plate with row of large robust setae along medial margin.

Pereon. *Coxae 1–4* deeper than broad. *Gnathopod 1* smaller than gnathopod 2 ; coxa distinctly larger than coxa 2, produced, anterior margin straight, anteroventral corner rounded, with tuft of long slender setae in posteroventral corner; basis shorter than coxa, anterodistal lobe absent, without setae; merus posterodistal lobe subacute; carpus about 2 x as long as broad, subequal in length to propodus, anterior margin without setae, posterior margin straight; propodus broad, subrectangular; palm acute, straight, with obtuse posterodistal corner, with 1 robust seta defining palm; dactylus subequal to palm, inner margin crenate. *Gnathopod 2* coxa with tuft of long slender setae in posteroventral corner; merus with short, acute anterodistal lobe; carpus much shorter than propodus, cup-shaped; propodus broad, less than 1.5 x as long as broad, subrectangular, not produced into an anterodistally setose lobe; palm acute, straight, without palm defining robust setae; dactylus slightly shorter than palm, tapering evenly, apically acute, inner margin crenate. *Pereopods 3–4* basis narrow; merus subequal in length to carpus. *Pereopods 5–7* weakly prehensile. *Pereopod 5* basis with medial slender setae; distal articles slender; propodus not expanded distally, with 2 anterodistal striated robust setae. *Pereopod 6* basis posterior margin rounded proximally, straight distally, with several marginal robust setae; distal articles slender; propodus not expanded distally, with 2 anterodistal striated robust setae. *Pereopod 7* similar to pereopod 6.

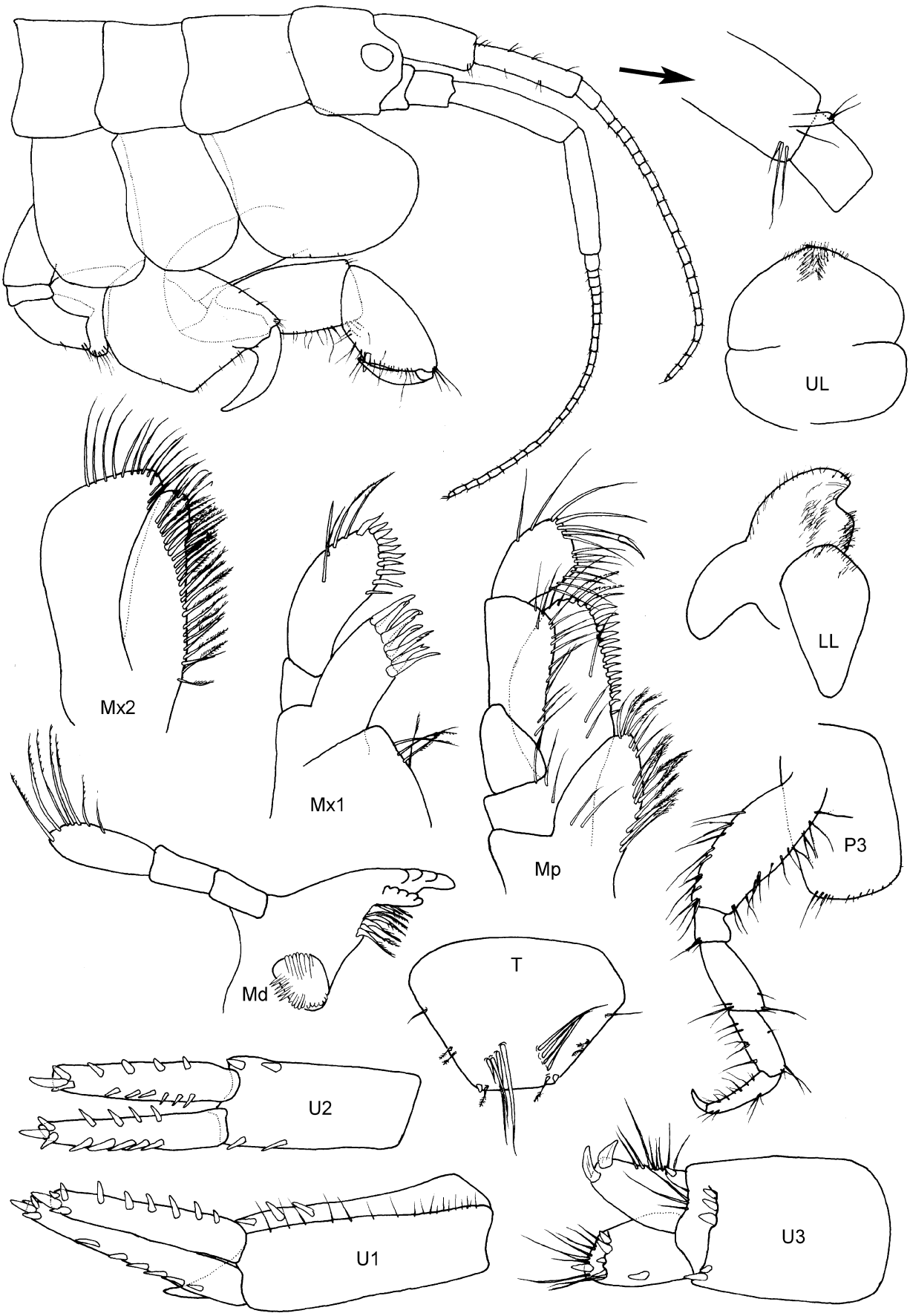

FIGURE 11. *Cymadusa alyxis* Hughes & Lowry **sp. nov.**, holotype, male, 7.7 mm, AM P76245, Palfrey Island, Great Barrier Reef.

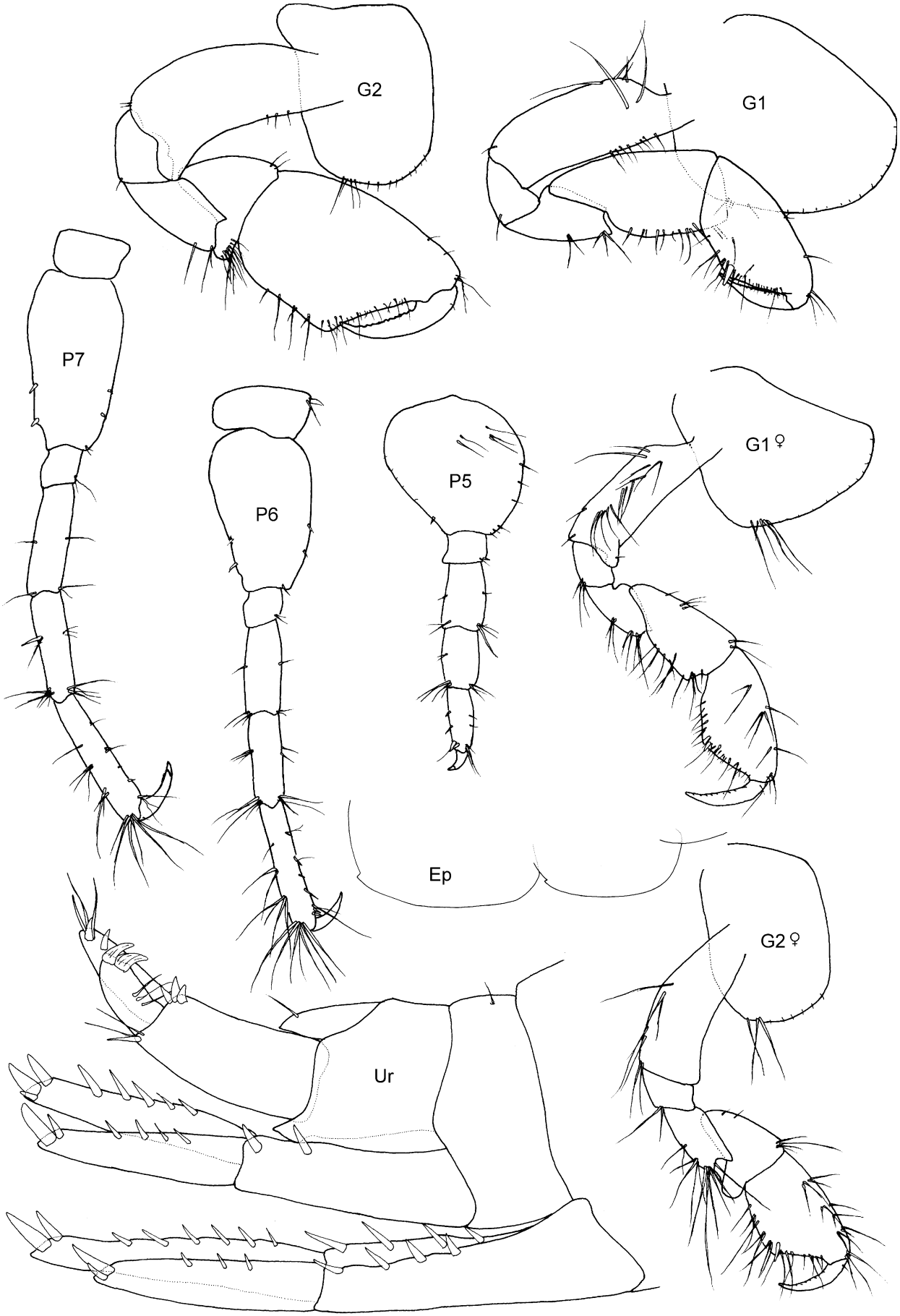

FIGURE 12. *Cymadusa alyxis* Hughes & Lowry **sp. nov.**, holotype, male, 7.7 mm, AM P76245, paratype, female, 8.7 mm, AM P76246, Palfrey Island, Great Barrier Reef.

Pleon. *Epimera 2–3* with small acute cusp. *Uropod 1* peduncle with 3–8 robust setae, with long fringe of slender setae (greater than 0.5 x length of peduncle), with large, acute distoventral spine; outer ramus length about 5–6 x as long as broad, with 6 lateral robust setae; inner ramus with 6 lateral robust setae. *Uropod 2* peduncle with 4 robust setae; outer ramus with 10 lateral robust setae; inner ramus with 9 lateral robust setae. *Uropod 3* peduncle longer than broad, less than 2 x length of rami, without marginal slender setae, with 5 distal robust setae, with 4 distal slender setae; outer ramus with 2 large striated recurved distal robust setae, with 1 lateral robust seta and 8 lateral slender setae; inner ramus with 5 distal robust setae, 9 distal slender setae and 1 lateral seta. *Telson* subtrapezoidal, apically truncated, with small apical cusp on each distolateral corner, with oblique medial rows of slender setae, with 1 pair of lateral slender setae, and with 2 pair of lateral and one pair of apical plumose setae.

Female (sexually dimorphic characters). Based on paratype, female, 8.7 mm, AM P76246. *Gnathopod 1* subequal is size to gnathopod 2; basis subequal in length to coxa, anterodistal lobe rounded, with 1 slender seta; carpus anterior margin with slender setae; propodus subtriangular; palm straight. *Gnathopod 2* propodus with 1 robust palm defining seta.

Colour. Body clear to white with mottle brown patches and white spots.

Habitat. Green alga, *Codium* sp.

Remarks. *Cymadusa alyxis* **sp. nov.** is similar to *C. panwa* Peart, 2002, from Thailand and *C. vadosa* Imbach, 1967, from Vietnam. In *C. alyxis* the male gnathopod 2 palm is straight, and in *C. panwa* and *C. vadosa* it is sinusoidal. These species can also be differentiated by the anterior margin of the gnathopod 1 coxa, which is convex in *C. alyxis*, straight in *C. panwa* and *C. vadosa*. The anterodistal corner of the gnathopod 1 coxa is also more broadly rounded in *C. alyxis* than in the other two species.

Cymadusa alyxis can be distinguished from other GBR *Cymadusa* species by the male gnathopod 2 which is not densely setose and has a straight, entire propodus palm.

Adults of *C. alyxis* are particularly large amphipods, 12+ mm. Subadult males (~10 mm) have a gnathopod 2 palm which is slightly sigmoidal.

Distribution. *Australia*. Queensland: Lizard Island (current study).

Cymadusa cavimana (Sivaprakasam, 1971)

(Figs 13, 14, Pl. 1E)

Ampithoe cavimana Sivaprakasam, 1971: 65, fig. 1. —Appadoo & Steele, 1998: 639.
Ampithoe kergueleni. —Rabindranath, 1972: 166, figs 3, 4.
Amphithoe cavimana. —Ledoyer, 1978: 218, fig. 7. —Ledoyer, 1979a: 144, fig. 5. —Ledoyer, 1979b: 17, figs 4, 5. —Ledoyer, 1983: 116, fig. 37.
Cymadusa cavimana. —Appadoo & Myers, 2004: 343 (key).
Cymadusa jiigurru Peart, 2007a: 19, figs 15–18 (key).

Material examined. 4 unsexed, AM P61919 (QLD 1374); 2 unsexed, AM P61920 (QLD 1376); 2 unsexed, AM P61921 (QLD 1382); 1 male, 7.0 mm, AM P61916 (QLD 1391); 1 male, AM P61916 (QLD 1391); 1 female, AM P61917 (QLD 1391); 1 dissected female, 7.0 mm, AM P61918 (QLD 1391); 4 unsexed, P61918 (QLD 1391); 6 unsexed, AM P61922 (QLD 1396); 4 unsexed, AM P61923 (QLD 1397); 1 juvenile male 7.5 mm, 4 slides, AM P76233 (QLD 1637); 2 unsexed, AM P70861 (QLD 1653); 2 unsexed, AM P70891 (QLD 1653); 1 male, photo 3, AM P70795 (QLD 1670); 1 unsexed, AM P70812 (QLD 1670); 1 unsexed, AM P71056 (QLD 1670); 1 unsexed, AM P76234 (QLD 1670); 3 unsexed, AM P71203 (QLD 1720); 2 unsexed, AM P71124 (QLD 1730); 2 unsexed, AM P76236 (QLD 1730); 8 unsexed, AM P71164 (QLD 1751); many unsexed, AM P71177 (QLD 1751); 1 unsexed, AM P76235 (QLD 1757); 1 unsexed, AM P71261 (QLD 1757); 4 unsexed, AM P75871 (QLD 1856); 3 unsexed, AM P75873 (QLD 1888); 1 unsexed, AM P75870 (QLD 1914); 7 unsexed, AM P75872 (QLD 1917).

Type locality. Kilakkarai, Gulf of Mannar, India (~9.14°N 78.47°E).

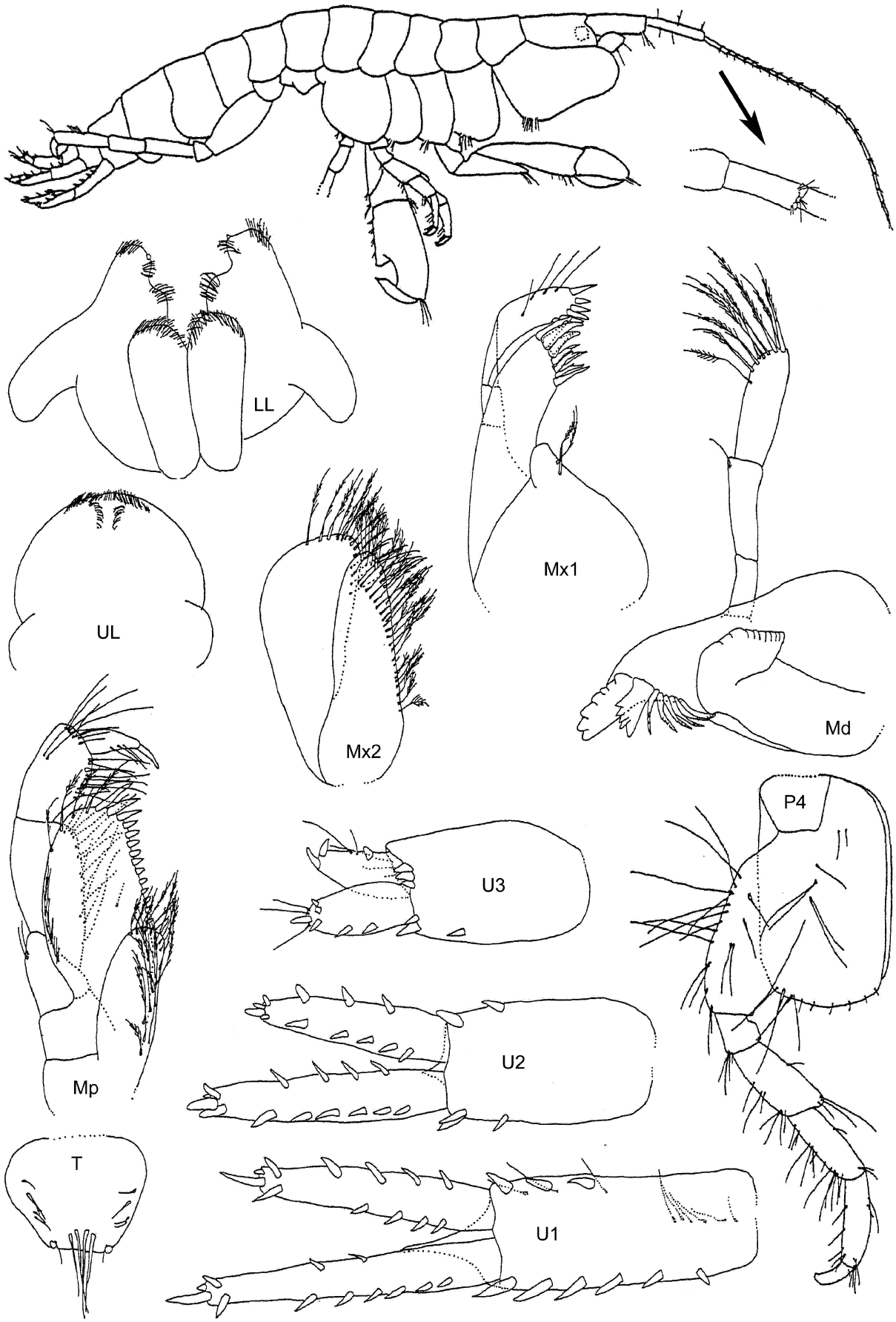

FIGURE 13. *Cymadusa cavimana* (Sivaprakasam, 1971), male, 7.0 mm, AM P61916, paratype, female, 7.0 mm, AM P61917, Lizard Island, Great Barrier Reef (based on Peart 2007a).

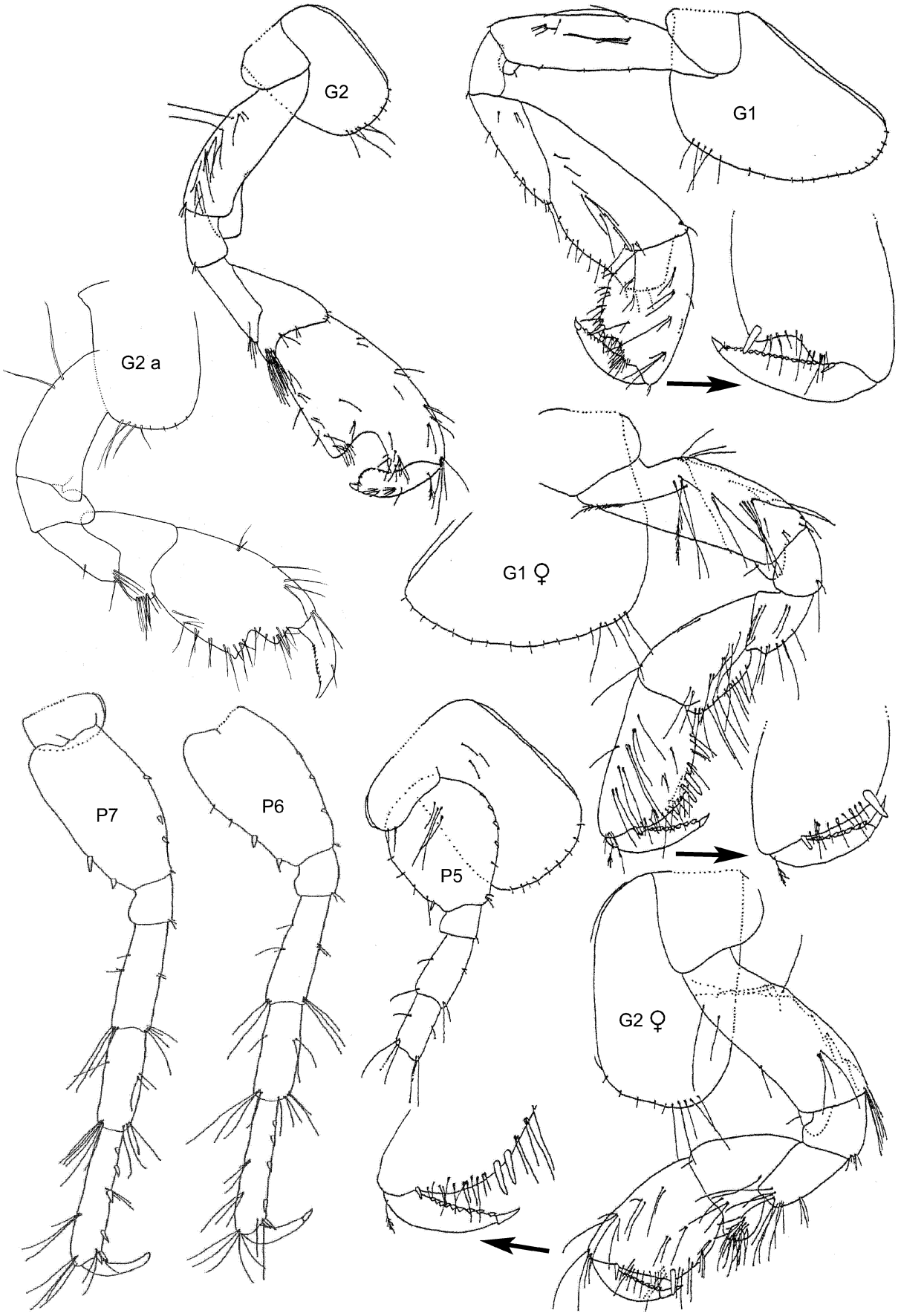

FIGURE 14. *Cymadusa cavimana* (Sivaprakasam, 1971), male, 7.0 mm, AM P61916, juvenile male 'a', 7.5 mm, AM P76233, paratype female, 7.0 mm, AM P61917, juvenile, AM P76233 (QLD 1637), Lizard Island, Great Barrier Reef (based, in part, on Peart 2007a).

Description. Based on male, 7.0 mm, AM P61916.

Head. *Head* as long as deep. *Antenna 1* longer than antenna 2; peduncular article 1 subequal to article 2; primary flagellum 21 articles; accessory flagellum scale-like with 1 article. *Upper lip* directed nearly straight down, lateral margins each with midlateral notch. *Mandible* molar well developed, triturating, accessory setal row with 5 serrate setae; palp 3–articulate, marginally setose; article 1 shorter than article 2; article 2 subequal to article 3, slender setae present. *Lower lip* outer plates notched, forming a medial excavation, lateral lobe distinctly longer than medial lobe; mandibular lobe with curved margins, rounded apically. *Maxilla 1* inner plate with 2 setae; palp article 2 broad. *Maxilla 2* inner plate narrower than outer plate. *Maxilliped* outer plate with row of large robust setae along medial margin.

Pereon. *Coxae 1–4* deeper than broad. *Gnathopod 1* smaller than gnathopod 2; coxa distinctly larger than coxa 2, produced, anterior margin straight, anteroventral corner rounded, with tuft of long slender setae in posteroventral corner; basis longer than coxa, anterodistal lobe rounded, with 1 slender seta; merus posterodistal lobe acute; carpus longer than propodus, anterior margin with slender setae, posterior margin straight; propodus subrectangular; palm acute, excavate, with posterodistal corner subquadrate, with 1 robust seta defining palm; dactylus overreaching palm, inner margin crenate. *Gnathopod 2* coxa with tuft of long slender setae in posteroventral corner; basis with medial fringe of long, slender setae, anterodistal corner without setae; merus margin with short, acute anterodistal lobe; carpus much shorter than propodus, cup-shaped; propodus subrectangular, greater than 1.5 x as long as broad; palm acute, excavate, with posterodistal corner, subquadrate, without palm defining robust setae; dactylus much shorter than palm, not tapering, apically blunt, unguis minute, inner margin crenate. *Pereopods 3–4* basis narrow; merus subequal in length to carpus. *Pereopods 5–7* simple. *Pereopod 5* basis with medial slender setae; distal articles slender; propodus slightly expanded distally. *Pereopod 6* basis posterior margin straight, with several marginal robust setae; distal articles slender; propodus not expanded distally, with 1 anterodistal striated robust seta; dactylus slightly curved. *Pereopod 7* similar to pereopod 6.

Pleon. *Epimera 2–3* posteroventral corner broadly rounded. *Uropod 1* peduncle with 9 robust setae, with long fringe of slender setae (greater than 0.5 x length of peduncle), with large, acute distoventral spine; outer ramus with 8 lateral robust setae; inner ramus with 8 lateral robust setae. *Uropod 2* peduncle with 5 robust setae; outer ramus with 8 lateral robust setae; inner ramus with 10 lateral robust setae. *Uropod 3* peduncle longer than broad, less than 2 x length of rami, without marginal slender setae, with 5 distal robust setae, with 3 distal slender setae; outer ramus with 2 large recurved distal robust setae, with 1 lateral robust seta and 4 lateral slender setae; inner ramus with 3 distal slender setae, 4 apical and 2 lateral robust setae. *Telson* subtrapezoidal, apically truncated, with small apical cusp on each distolateral corner, with 2 pair of lateral and 2 pair of apical slender setae, and with 2 pair of lateral and 1 pair of apical plumose setae.

Female (sexually dimorphic characters). Based on female, 7.0 mm, AM P61918. *Gnathopod 1* subequal in size to gnathopod 2; basis shorter than coxa; merus anterodistal lobe subacute; carpus subequal in length to propodus, posterior margin truncated; propodus subovoid; palm convex, with rounded corner, with robust seta defining palm; dactylus subequal in length to palm. *Gnathopod 2* basis with sparse slender setae, anterodistal corner with 1 slender seta; carpus subequal to propodus, subtriangular; propodus broad, less than 1.5 x as long as broad; palm entire, corner rounded, with 2 robust setae defining palm; dactylus subequal in length to palm, tapering evenly, apically acute.

Colour. Body clear to white with sparse brown and white spots, eyes with red ommatidia in a white matrix.

Habitat. Red and green algae, including the brown alga *Turbinaria* sp.

Remarks. Peart (2007a) apparently overlooked *Cymadusa cavimana* when she described *C. jiigurru*. We can find no morphological differences between these species and place *C. jiigurru* in synonymy with *C. cavimana*.

Until Appadoo & Myers (2004) *C. cavimana* was referred to the genus *Ampithoe*, but it confounds the generic diagnoses. Apparently the Indian Ocean population has no accessory flagellum (Appadoo & Myers 2004), a character of *Ampithoe*, but it has a well developed distoventral spine on the peduncle of uropod 1, a

character of *Cymadusa*. Gnathopods 1 and 2 are well-developed and enlarged, also a *Cymadusa* character. The material of *C. cavimana* from the Great Barrier Reef has a minute 1–articulate accessory flagellum, possibly overlooked in the Indian Ocean population.

Until now *C. cavimana* has been recorded from places in the Indian Ocean and Indonesia. This is the first record from Australian waters. It is possible that the record of Ren (2001) of *C. brevidactyla* (Chevreux, 1907) might be *C. cavimana*.

Cymadusa cavimana is most similar to *C. brevidactyla* and the GBR species *C. smilodonta*. In *Cymadusa cavimana* and *C. brevidactyla* the male gnathopod 2 palm is defined by a right angle excavation. In *C. smilodonta* the excavation is rounded. *Cymadusa cavimana* and *C. brevidactyla* can also be distinguished from each other by the palm shape of male gnathopod 1, concave in *C. cavimanus* and convex in *C. brevidactyla*.

Distribution. *India*. Gulf of Mannar, Madras Coast (Sivaprakasam 1971). *Australia*. Queensland: Torres Strait (current study), Lizard Island (Peart 2007a; current study). *Indonesia*. Misool Island, Banda Sea (Ledoyer 1979a). *Madagascar.* Tulear (Ledoyer 1979b). *Mauritius* (Ledoyer 1978, Appadoo & Myers 2004).

***Cymadusa heronensis* Peart, 2007**
(Figs 15, 16)

Cymadusa heronensis Peart, 2007a: 13, figs 8–11.

Material examined. Holotype, male, 4 mm, AM P61906 (QLD 1343); 7 unsexed, AM P75511 (QLD 1318); 8 unsexed, AM P75511 (QLD 1318); 6 unsexed, AM P75512 (QLD 1326); 6 unsexed, AM P75513 (QLD 1326); 3 unsexed, AM P75514 (QLD 1329); many unsexed, AM P76753 (QLD 1938); 2 unsexed, AM P76755 (QLD 1941); 1 unsexed, AM P76754 (QLD 2006).

Type locality. Northern reef flat, Heron Reef, Heron Island, Queensland, Australia (23º27'S 151º55'E), living on *Sargassum* sp., 0.5 m.

Description. Based on holotype, male, 4 mm, AM P61906.

Head. *Head* as long as deep. *Antenna 1* longer than antenna 2; peduncular article 1 subequal to article 2; flagellum 20 articles; accessory flagellum with 1 article. *Antenna 2* peduncle not densely setose on ventral margin; article 4 longer than article 5; flagellum 9 articles. *Upper lip* directed nearly straight down, lateral margins each with midlateral notch. *Mandible* molar well developed, triturating, accessory setal row with 5 serrate setae; palp 3–articulate, apically setose; article 1 shorter than article 2; article 2 longer than article 3; article 3 longer than article 1. *Lower lip* outer plates notched, forming a deep distal cleft, lateral lobe distinctly longer than medial lobe; mandibular lobe with curved margins, rounded apically. *Maxilla 1* inner plate with 1 seta; palp article 2 broad. *Maxilla 2* inner plate narrower than outer plate. *Maxilliped* outer plate with row of large robust setae along medial margin.

Pereon. *Coxae 1–4* deeper than broad. *Gnathopod 1* smaller than gnathopod 2; coxa subequal to coxa 2, slightly produced, anterior margin straight, anteroventral corner subacute, with row of slender setae of varying length along ventral margin; basis subequal to coxa in length, anterodistal lobe rounded, with 1 slender seta; merus posterodistal lobe acute; carpus about as long as broad, shorter than propodus, anterior margin with slender setae, posterior margin subacute; propodus broad, subtriangular; palm acute, sinusoidal, with subquadrate posterodistal corner, with 1 robust seta defining palm; dactylus subequal in length to palm, inner margin crenate. *Gnathopod 2* coxa with row of slender setae of varying length along ventral margin; basis with sparse slender setae, anterodistal corner with 1 slender seta; merus margin with short, subacute anterodistal lobe; carpus shorter than propodus, cup-shaped; propodus broad, less than 1.5 x as long as broad, subovoid, not produced into an anterodistally setose lobe, anterior margin with fringe of slender setae; palm acute, excavate, with subquadrate posterodistal corner, without defining palm robust seta; dactylus subequal in length to palm, tapering evenly, apically acute, inner margin crenate. *Pereopods 3–4* basis narrow; merus

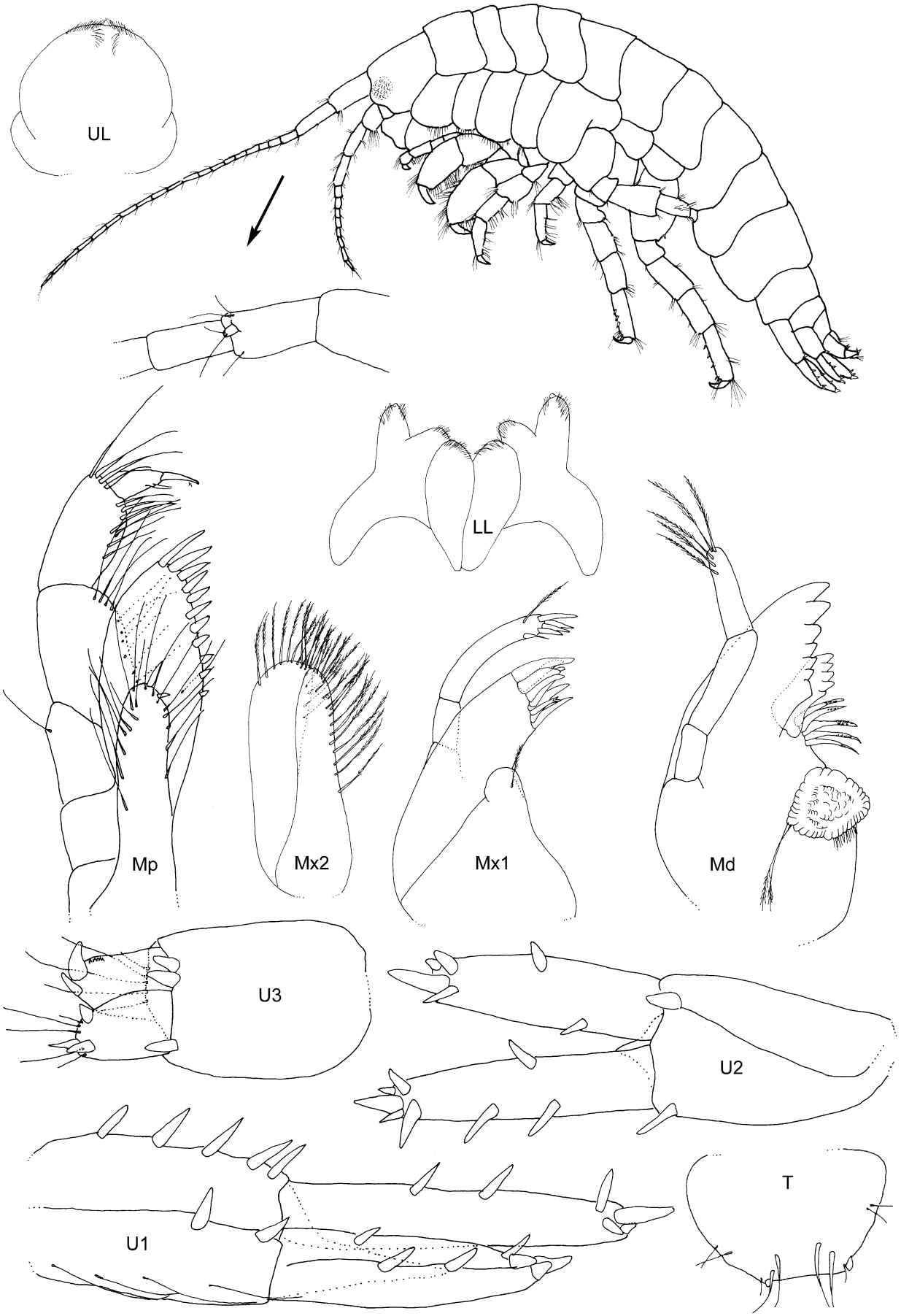

FIGURE 15. *Cymadusa heronensis* Peart 2007a, holotype, male, 4 mm, AM P61906, Heron Island, Great Barrier Reef (based on Peart 2007a).

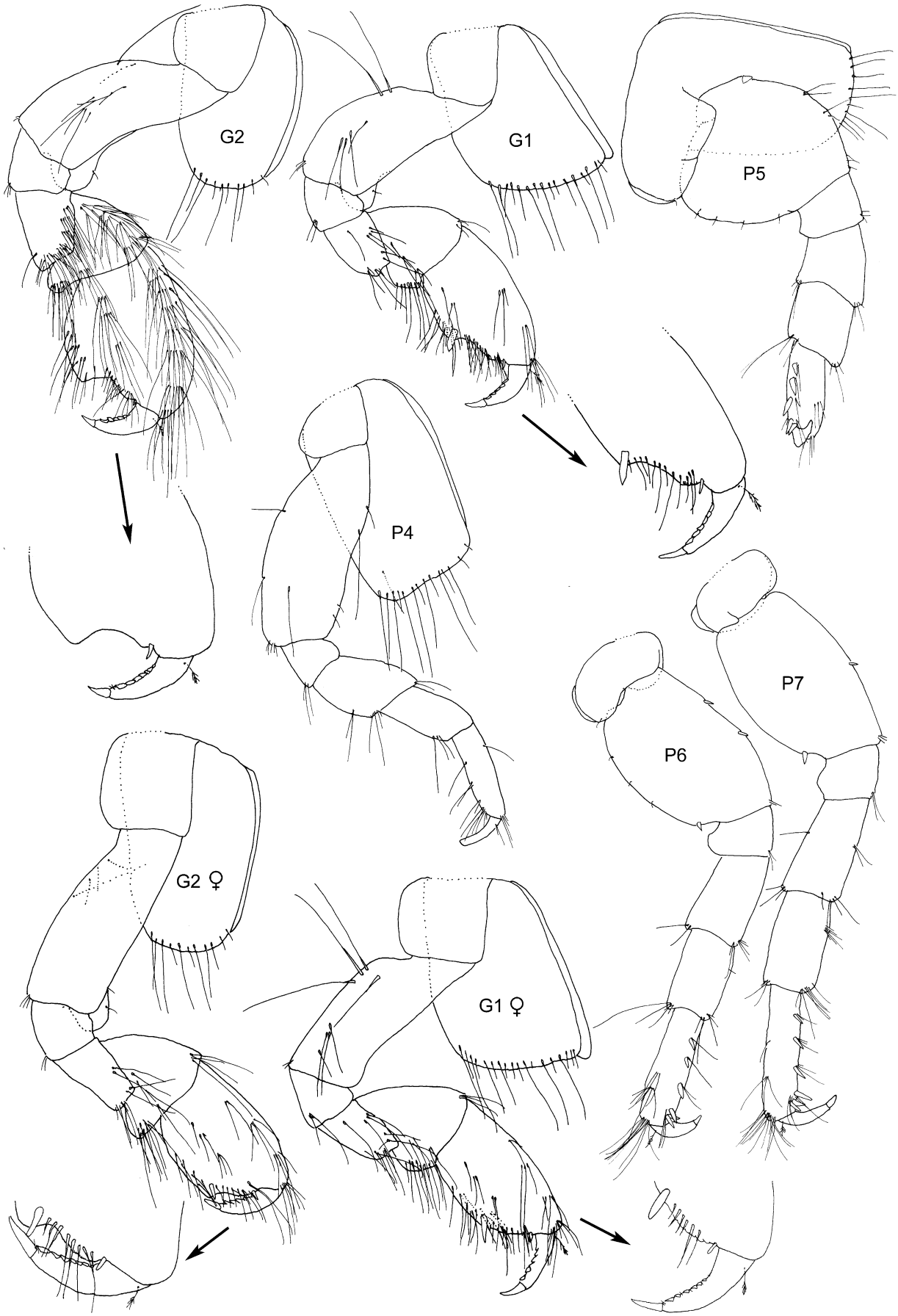

FIGURE 16. *Cymadusa heronensis* Peart 2007a, holotype, male, 4 mm, AM P61906, paratype, female, 4 mm, AM P61907, Heron Island, Great Barrier Reef (based on Peart 2007a).

subequal in length to carpus. *Pereopods 5–7* weakly prehensile. *Pereopod 5* without medial slender setae; distal articles broad; propodus slightly expanded distally, with 2 anterodistal striated robust setae; dactylus strongly curved. *Pereopod 6* basis posterior margin rounded, with a single marginal robust seta; distal articles slender; propodus slightly expanded distally, with 3 anterodistal striated robust setae; dactylus strongly curved. *Pereopod 7* similar to pereopod 6.

Pleon. *Epimera 2–3* posteroventral corner narrowly rounded. *Uropod 1* peduncle with 7 robust setae, with long fringe of slender setae (greater than 0.5 x length of peduncle), with large, acute distoventral spine; outer ramus with 3 lateral robust setae; inner ramus with 2 lateral robust setae;. *Uropod 2* peduncle with 2 robust setae; outer ramus with 2 marginal robust setae; inner ramus with 3 marginal robust setae. *Uropod 3* peduncle longer than broad, less than 2 x length of rami, without marginal slender setae, with 3 distal robust setae, with 5 distal slender setae; outer ramus with 2 weakly curved distal robust setae, without lateral robust or slender setae; inner ramus with 5 distal slender setae, without lateral robust setae. *Telson* subtrapezoidal, apically truncated, with small apical cusp on each distolateral corner, with 2 pair of apical slender setae and with 2 pair of lateral and 1 pair of apical plumose setae.

Female (sexually dimorphic characters). Based on paratype, female, 4 mm, AM P61907. *Gnathopod 1* subequal in size to gnathopod 2; basis subequal in length to coxa, anterodistal lobe absent; carpus posterior margin convex; propodus subovoid; palm convex, with rounded corner. *Gnathopod 2* palm sinusoidal, with 1 robust seta defining palm.

Habitat. Brown algae *Dictyota* sp., *Padina* sp., *Sargassum* sp. and Green alga *Caulerpa* sp.

Remarks. *Cymadusa heronensis* is very similar to *C. aungtonyae* Peart, 2002 from Thailand and *C. thagaay* Peart, 2007a from the northern end of the GBR. *Cymadusa aungtonyae* can be differentiated by mandibular palp article two which has a dense cluster of setae, absent in the two GBR species. *Cymadusa heronensis* and *C. thagaay* are also similar to *C. mauritiensis* (Ledoyer, 1978) though the later species has less setae along the male gnathopod 2 carpus and propodus anterior margin. The lateral cephalic lobe in *C. heronensis* and *C. thagaay* is rounded while in *C. mauritiensis* it is truncate.

The more heavily calcified broadly rounded propodus shape and absence of the distal robust setae on the palm of male gnathopod 2 distinguishes *C. heronensis* from *C. thagaay* which has gnathopod 2 propodus margins straight and palm with a distal robust seta.

Distribution. *Australia*. Queensland: Heron Island (Peart 2007a, current study); One Tree Island (current study).

***Cymadusa hoeyae* Hughes & Lowry sp. nov.**
(Figs 17, 18)

Type material. Holotype, male, 7.5 mm, 1 slide, AM P76761. Paratype, female, 4 unsexed, AM P71037, Picnic Beach, Palfrey Island, near Lizard Island (14°41.69’S 145°26.89’E), algal mat and fine sediment from rubble bottom, reef flat, 3 m, S. LeCroy, 27 February 2005 (QLD 1708).

Additional material examined. 1 dissected male, AM P76764 (QLD 1704); 1 dissected female, AM P76763 (QLD 1704); 1 unsexed, AM P76765 (QLD 1704); 1 unsexed, AM P76766 (QLD 1730); 5 unsexed, AM P76762 (QLD 1757).

Type locality. Picnic Beach, Palfrey Island, near Lizard Island, Queensland, Australia (14°41.69’S 145°26.89’E), living on the reef flat in algal mats and fine sediment from rubble bottoms, 3 m.

Etymology. Named for Jessica Hoey (GBRMPA), in appreciation for her help in the organisation of our collecting permits for the GBR project.

Description. Based on holotype, male, 7.5 mm, AM P76761.

Head. *Antenna 1* shorter than antenna 2; peduncular article 1 subequal to article 2; flagellum 19 articles; accessory flagellum with 1 article. *Upper lip* lateral margins each with midlateral notch. *Mandible* molar well developed, triturating, accessory setal row with 8 serrate setae; palp 3–articulate, article 3 apically setose;

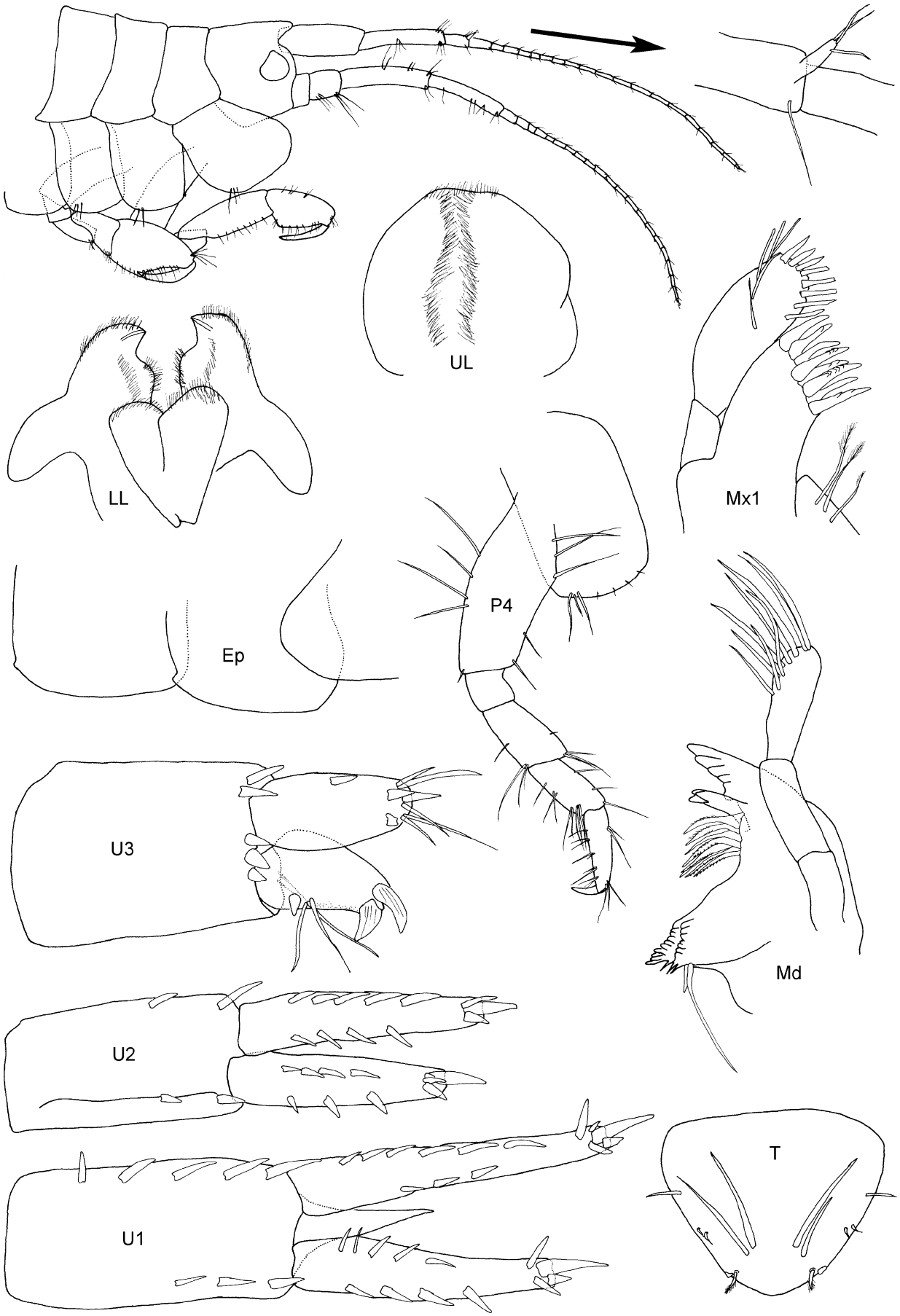

FIGURE 17. *Cymadusa hoeyae* Hughes & Lowry **sp. nov.**, holotype, male, 7.5 mm, AM P76761, Palfrey Island, Great Barrier Reef.

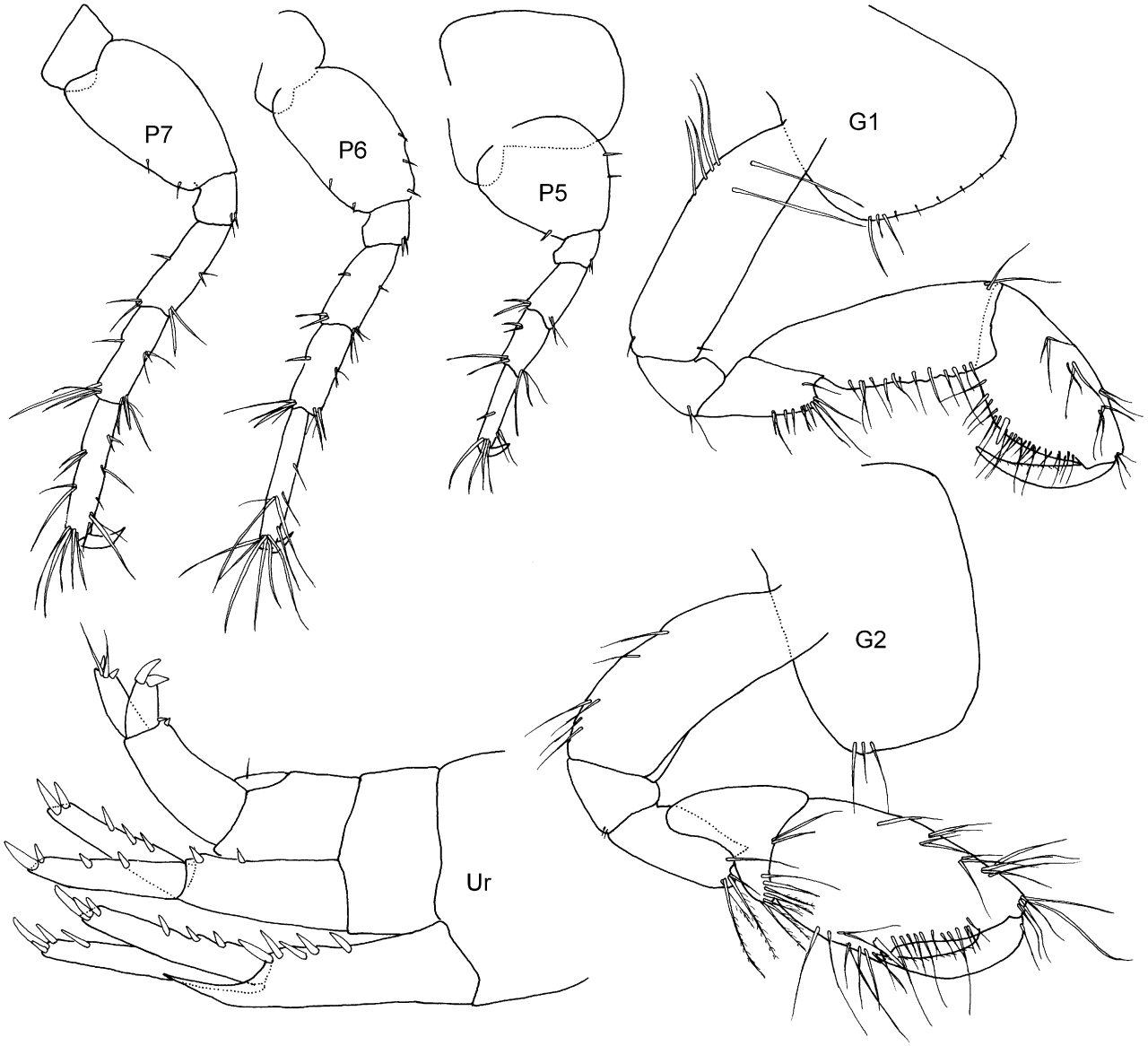

FIGURE 18. *Cymadusa hoeyae* Hughes & Lowry **sp. nov.**, holotype, male, 7.5 mm, AM P76761, Palfrey Island, Great Barrier Reef.

article 1 shorter than article 2; article 2 shorter than article 3; article 3 longer than article 1. *Lower lip* outer plates notched, forming medial excavation, lateral lobe distinctly longer than medial lobe; mandibular lobe with curved margins, rounded apically. *Maxilla 1* inner plate with 3 setae; palp article 2 broad. *Maxilla 2* inner plate narrower than outer plate. *Maxilliped* outer plate with row of large robust setae along medial margin.

Pereon. *Coxae 1–4* deeper than broad. *Gnathopod 1* longer than gnathopod 2; coxa distinctly larger than coxa 2, produced, anterior margin straight, anteroventral corner rounded, with a tuft of long or short slender setae in the posteroventral corner; basis longer than coxa, anterodistal lobe absent, with 1 slender seta; merus posterodistal lobe subacute; carpus about 3 x as long as broad, longer and more narrow than propodus, anterior margin without setae, posterior margin straight; propodus broad, subovoid; palm acute, convex, with rounded posterodistal corner, with 1 robust seta defining palm; dactylus subequal in length to palm, inner margin crenate. *Gnathopod 2* , coxa with a tuft of slender setae in the posteroventral corner; basis with sparse slender setae, anterodistal corner without setae; merus margin with short, subacute anterodistal lobe; carpus shorter than propodus, cup-shaped; propodus broad, less than 1.5 x as long as broad, subrectangular, not

produced into an anterodistally setose lobe; palm acute, sinusoidal, with posterodistal corner, subquadrate, with 1 robust seta defining palm; dactylus subequal in length to palm, tapering evenly, apically acute, inner margin crenate. *Pereopods 3–4* basis narrow; merus subequal in length to carpus. *Pereopods 5–7* simple. *Pereopod 5* without medial slender setae; distal articles slender; propodus not expanded distally, without anterodistal striated robust setae; dactylus strongly curved. *Pereopod 6* basis posterior margin straight, with several marginal robust setae; distal articles slender; propodus not expanded distally, without anterodistal striated robust setae; dactylus strongly curved. *Pereopod 7* similar to pereopod 6.

Pleon. *Epimera 2–3* posteroventral corner with small acute cusp. *Uropod 1* peduncle with 8 robust setae, without fringe of long slender setae, with large, acute distoventral spine (half the length of outer ramus); outer ramus length about 5–6 x as long as broad, with 9 lateral robust setae; inner ramus with 9 marginal robust setae;. *Uropod 2* peduncle with 4 robust setae; outer ramus with 7 lateral robust setae; inner ramus with 9 lateral robust setae. *Uropod 3* peduncle longer than broad, less than 2 x length of rami, without marginal slender setae, with 5 distal robust and 2 distal slender setae; outer ramus with 2 large recurved distal robust setae, with 1 lateral robust seta and 3 lateral slender setae; inner ramus with 3 distal slender setae, with 1 lateral robust seta. *Telson* subtrapezoidal, apically rounded, with small apical cusp on each distolateral corner, with 2 oblique medial slender setae, with 1 pair of lateral setae, and with 2 pair of lateral and 1 pair of apical plumose setae.

Habitat. Algal mat and fine sediment from rubble bottom.

Remarks. *Cymadusa hoeyae* **sp. nov.** belongs to a group of six species with an elongate rectolinear carpus on gnathopod 1 of males and includes: *C. brevidactyla* (Chevreux, 1907); *C. cavimana* (Sivaprakasam, 1971); *C. filosa* Savigny, 1816; *C. khbarnardi* **sp. nov.** and *C. setosa* (Haswell, 1879).

Cymadusa filosa and *C. setosa* are distinguished from other members of the group by the densely plumose setae of their gnathopods and from *Cymadusa brevidactyla*, *C. cavimana* and *C. khbarnardi* **sp. nov.** by the large excavation on the palm of the male gnathopod 2. The sinusoidal palm of the male gnathopod 2 and lack of dense plumose setae along the margins of the gnathopods distinguishes *Cymadusa hoeyae* from these and all other GBR species.

Distribution. *Australia*. Queensland: Lizard Island (current study).

Cymadusa imbroglio Rabindranath, 1972

(Figs 19, 20, Pl. 1F)

Cymadusa imbroglio Rabindranath, 1972: 175, fig 9. —Myers, 1985: 29, figs 20, 21 (key). —Peart, 2004: 320, figs 12–15 (key).
Cymadusa filosa forme *imbroglio*. —Ledoyer, 1984: 5, 15, figs 5, 6 (male, 11 mm, stn 70).

Material examined. Male, photo 5, AM P70682 (QLD 1640); male, 7.8 mm, 3 slides, AM P76749 (QLD 1648); female, 8.6 mm, 2 slides, AM P76750 (QLD 1648); 1 'C' male, AM P76751, 12 mm, (SEL/LZI-5-2); many unsexed, AM P76752 (SEL/LZI-5-2).

Type locality. Manoli Island, Gulf of Mannar, India (~9°12'N 79°7'E), intertidal.

Description. Based on male, 7.8 mm, AM P76749.

Head. *Head* as long as deep. *Antenna 1* longer than antenna 2; primary flagellum 46 articles; accessory flagellum with 1 article. *Antenna 2* flagellum 17 articles. *Upper lip* directed nearly straight down, lateral margins each with midlateral notch. *Mandible* molar well developed, triturating, accessory setal row with 8 serrate setae; palp 3–articulate, article 3 apically setose; article 1 shorter than article 2; article 2 slightly shorter than article 3; article 3 longer than article 1. *Lower lip* outer plates notched, forming a medial excavation; mandibular lobe with straight margins, rounded apically. *Maxilla 1* inner plate with 4 setae; palp article 2 broad. *Maxilla 2* inner plate narrower than outer plate. *Maxilliped* outer plate with row of large robust setae along medial margin.

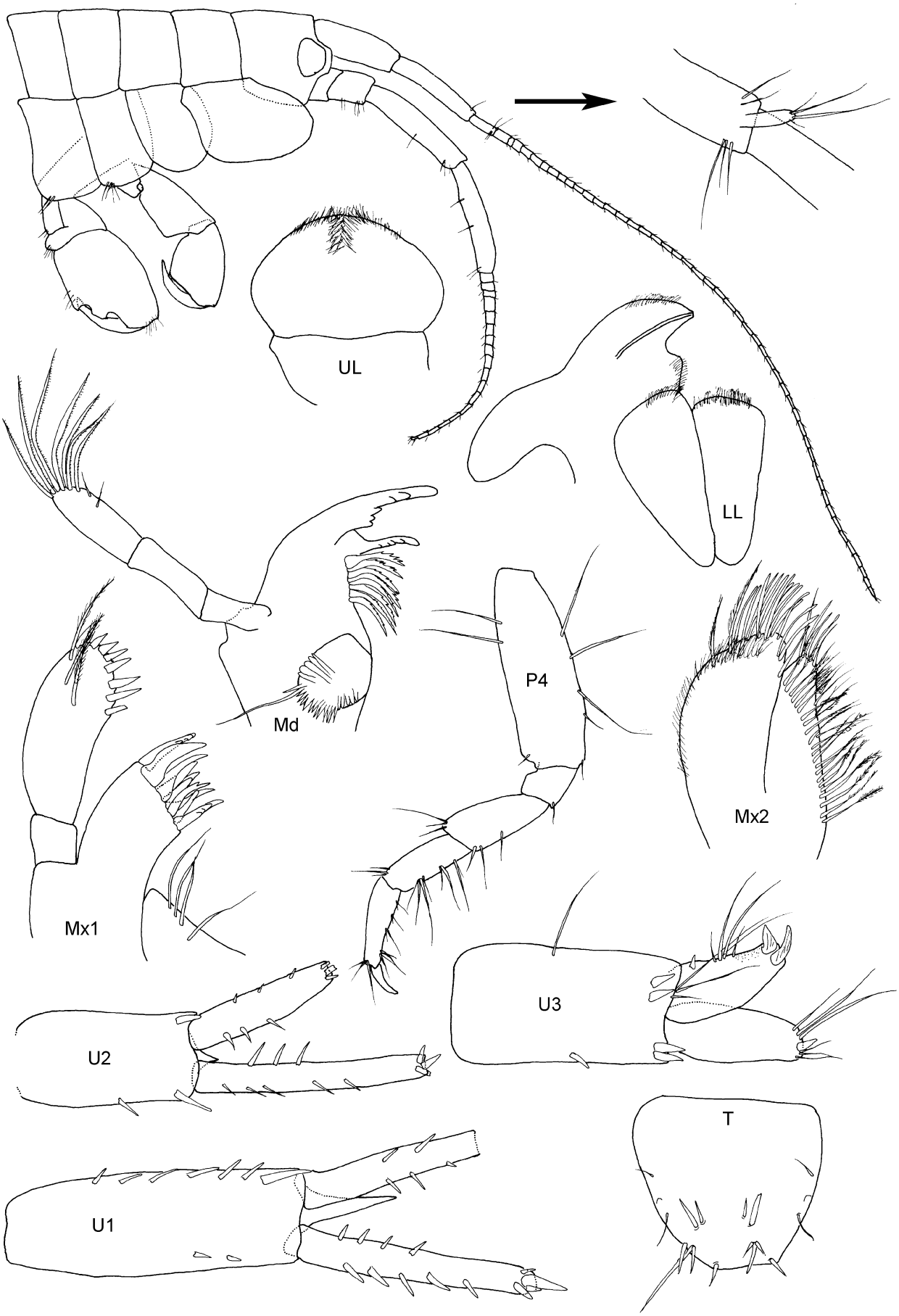

FIGURE 19. *Cymadusa imbroglio* Rabindranath 1972, male, 7.8 mm, AM P76749, Lizard Island, Great Barrier Reef.

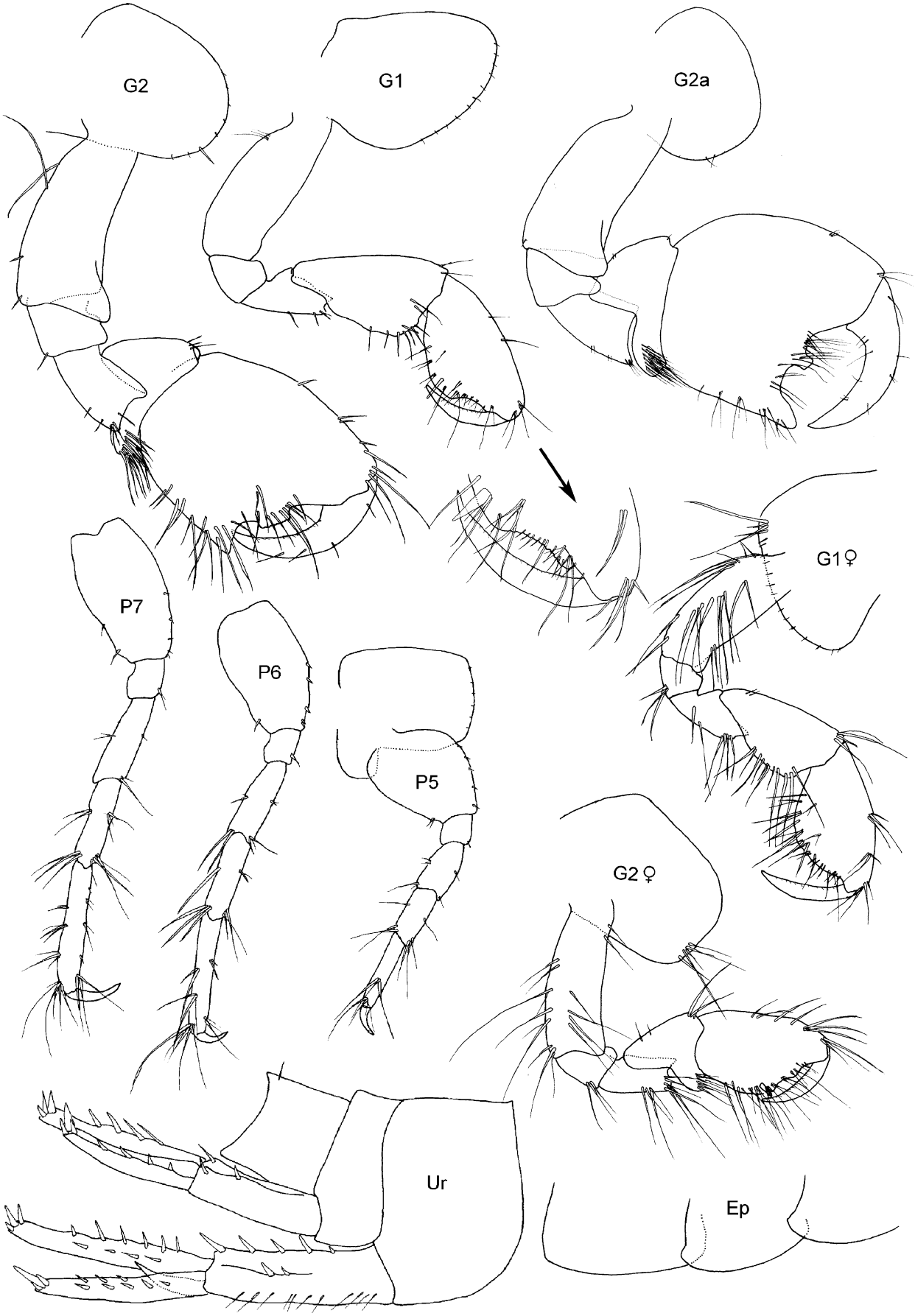

FIGURE 20. *Cymadusa imbroglio* Rabindranath 1972**,** male, 7.8 mm, AM P76749, male 'a', 12 mm, female, 8.6 mm, AM P76750, Lizard Island, Great Barrier Reef.

Pereon. *Coxae 1–4* deeper than broad. *Gnathopod 1* smaller than gnathopod 2 ; coxa distinctly larger than coxa 2, anteroventrally produced, anterior margin convex, anteroventral corner rounded; basis subequal in length to coxa, anterodistal lobe absent; merus posterodistal lobe subacute; carpus about 2 x as long as broad, subequal in length to propodus, anterior margin with slender setae, posterior margin convex; propodus broad, subovoid; palm acute, sinusoidal, with rounded posterodistal corner, with 1 robust seta defining palm; dactylus subequal in length to palm, inner margin crenate. *Gnathopod 2* basis with sparse slender setae, anterodistal lobe small, rounded, not reaching beyond ischium, corner without setae; merus margin with short, rounded anterodistal lobe; carpus much shorter than propodus, subtriangular; propodus broad, less than 1.5 x as long as broad, subquadrate, not produced into an anterodistally setose lobe; palm acute, excavate, with midmedial, subquadrate projection, with short posterodistal tooth, (length 1 x breadth), apically subacute, without palm defining robust setae; dactylus shorter than palm, tapering evenly, apically acute, inner margin crenate. *Pereopods 3–4* basis narrow; merus subequal in length to carpus. *Pereopods 5–7* simple. *Pereopod 5* basis without medial slender setae; distal articles slender; propodus not expanded distally, without anterodistal striated robust setae; dactylus strongly curved. *Pereopod 6* basis posterior margin weakly sinusoidal, with several marginal robust setae; distal articles slender; propodus not expanded distally, without anterodistal striated robust setae; dactylus strongly curved. *Pereopod 7* similar to pereopod 6.

Pleon. *Epimeron 2* posteroventral corner forming a small rounded cusp. *Epimeron 3* posteroventral corner narrowly rounded. *Uropod 1* peduncle with 9 robust setae, with long fringe of slender setae (greater than 0.5 x length of peduncle), with large, acute distoventral spine; outer ramus with 5 lateral robust setae; outer ramus with 9 lateral robust setae. *Uropod 2* peduncle with 3 robust setae; outer ramus with 6 lateral robust setae; inner ramus with 8 lateral robust setae. *Uropod 3* peduncle longer than broad, less than 2 x length of rami, marginal slender setae rounded, with 4 distal peduncular robust setae, with 3 distal slender setae; outer ramus with 2 large recurved distal robust setae, with 1 lateral robust seta and 4 lateral slender setae; inner ramus with 5 apical slender setae and 1 robust seta, without lateral robust setae. *Telson* subtrapezoidal, apically truncated, without apicolateral cusp on each distolateral corner, 2 pair of oblique medial slender setae, 3 pair of apical slender setae, and with 1 pair of lateral and 1 pair of apical plumose setae.

Female (sexually dimorphic characters). Based on female, 8.6 mm, AM P76750. *Gnathopod 1* subequal in size to gnathopod 2; coxa anterior margin concave, with a tuft of long and short slender setae in the posteroventral corner; basis with fringe of long, slender marginal and medial setae; anterodistal lobe absent, with 1 slender seta; merus anterodistal lobe subacute; palm convex, without robust setae defining palm; dactylus overreaching palm. *Gnathopod 2* coxa with a tuft of long or short slender setae in the posteroventral corner; basis with fringe of long, slender setae; carpus shorter than propodus; propodus with shallow midmedial tooth, posterodistal corner, acute; dactylus overreaching palm.

Colour. Body clear to white with green-brown patches and spots, eyes with red ommatidia in a white matrix.

Habitat. Green algae, *Udotea* sp.

Remarks. The original description of *C. imbroglio* Rabindranath, 1972, based on specimens from the Gulf of Manaar in south-eastern India, is not extensive, but the species is distinctive. The only reports of the species since Rabindranath (1972) have been Ledoyer (1984), based on specimens from New Caledonia, Myers (1985) on specimens from Fiji and Peart (2004) on specimens from New South Wales, Australia. The most apparent differences between the Indian Ocean population and the Pacific Ocean populations are the shape of the palm of male gnathopod 2 and the number of distal robust setae on the peduncle of uropod 3. Myers (1985) considered these differences as variation. We have material representing a range of sizes. Our observations indicate that the distinctive midmedial projection reduces with increasing size/age of the male individuals. In specimens ~8 mm in length the tooth is a long subquadrate platform that eventually reduces to a tiny vestigial tooth in males 12 mm long. The overall propodus becomes increasingly calcified and more subovoid with age.

Peart (2007a) considered that the Indian and Pacific Ocean populations might not be conspecific. However, our material shows that changes with growth stages encompasses the variation figured by all

authors. The Indian population of *C. imbroglio* (Rabindranath, 1972) are hyperadults at 8.4 mm. In the GBR populations males are mature at 7.8 mm and hyperadults at 12 mm.

Distribution. *Australia*. Queensland: Lizard Island (current study). New South Wales: Botany Bay (Peart 2004). *Fiji*. Viti Levu: Momi Bay, Nasese, Mburelevu, Nananui Ra (Myers 1985). *India*. Gulf of Mannar, Manoli Island (Rabindranath 1972). *New Caledonia*. Récif Abore (Ledoyer 1984).

***Cymadusa khbarnardi* Hughes & Lowry sp. nov.**
(Figs 21, 22, Pl. 1G)

Type material. Holotype, male, 9.0 mm, 2 slides, AM P76756, Mermaid Cove, Lizard Island (14°38.91'S 145°27.26'E), mixed brown algae, sand with rubble bottom, 3.5 m, T. Krapp-Schickel, 28 February 2005 (QLD 1732). Paratypes: female, 11.0 mm, 3 slides, AM P76757 (QLD 1732); 3 unsexed, AM P76758 (QLD 1732).

Additional material examined. 1 unsexed, AM P76760 (JDT/LIZ-14); male, photo 6, AM P71123 (QLD 1730); 1 unsexed, AM P71321 (QLD 1787); 1 unsexed, AM 76759 (QLD 1799).

Type locality. Mermaid Cove, Lizard Island (14°38.91'S 145°27.26'E), mixed brown algae, sand with rubble bottom, 3.5 m depth.

Etymology. Named for Keppel Harcourt Barnard, the first student of Great Barrier Reef amphipods.

Description. Based on holotype, male, 9.0 mm, AM P76756.

Head. *Head* slightly longer than deep. *Antenna 1* longer than antenna 2; peduncular article 1 subequal to article 2; flagellum 30 articles; accessory flagellum with 1 article. *Antenna 2* peduncle not densely setose on ventral margin; article 4 subequal in length to article 5; flagellum 26 articles. *Mandible* molar well developed, triturating; accessory setal row with 5 robust serrate setae; palp 3–articulate, article 3 apically setose; article 1 longer than article 2; article 2 shorter than article 3; article 3 longer than article 1. *Lower lip* outer plates notched, forming a slight medial excavation; mandibular lobe with curved margins, rounded apically. *Maxilla 1* inner plate with 2 setae; palp article 2 broad. *Maxilla 2* inner plate narrower than outer plate. *Maxilliped* outer plate with row of large robust setae along medial margin.

Pereon. *Coxae 1–4* deeper than broad. *Gnathopod 1* subequal in size to gnathopod 2; coxa subequal to coxa 2, slightly produced, anterior margin convex, anteroventral corner rounded, with a tuft of slender setae in the posteroventral corner; basis longer than coxa, anterodistal lobe absent; merus posterodistal lobe subacute; carpus about 3 x as long as broad, longer than propodus, anterior margin with slender setae distally, posterior margin straight; propodus broad, subtriangular; palm acute, straight, with posterodistal corner rounded, with 1 robust seta defining palm; dactylus subequal in length to palm, apically acute, inner margin crenate. *Gnathopod 2*, coxa with a tuft of slender setae in the posteroventral corner; basis with sparse slender setae, anterodistal corner with 1 slender seta; merus margin with long, rounded anterodistal lobe; carpus much shorter than propodus, subtriangular; propodus broad, less than 1.5 x as long as broad, subquadrate, not produced into an anterodistally setose lobe; palm acute, excavate, with posterodistal corner subquadrate, without palm defining robust setae; dactylus shorter than palm, tapering evenly, apically acute, inner margin crenate, with 3 groups of long slender setae on anterior margin. *Pereopods 3–4* basis narrow; merus subequal in length to carpus. *Pereopods 5–7* simple. *Pereopod 5* without medial slender setae; distal articles slender; propodus not expanded distally, without anterodistal striated robust setae; dactylus slightly curved. *Pereopod 6* basis posterior margin straight, with several marginal robust setae; distal articles slender; propodus not expanded distally, without anterodistal striated robust setae; dactylus slightly curved. *Pereopod 7* similar to pereopod 6.

Pleon. *Epimera 2–3* posteroventral corner broadly rounded. *Uropod 1* peduncle with 7 robust setae, with short fringe of slender setae (less than 0.5 x length of peduncle), with large, acute distoventral spine; outer ramus length about 5–6 x as long as broad, with 9 lateral robust setae; inner ramus with 10 lateral robust setae. *Uropod 2* peduncle with 3 robust setae; outer ramus with 7 lateral robust setae; inner ramus with 12 lateral

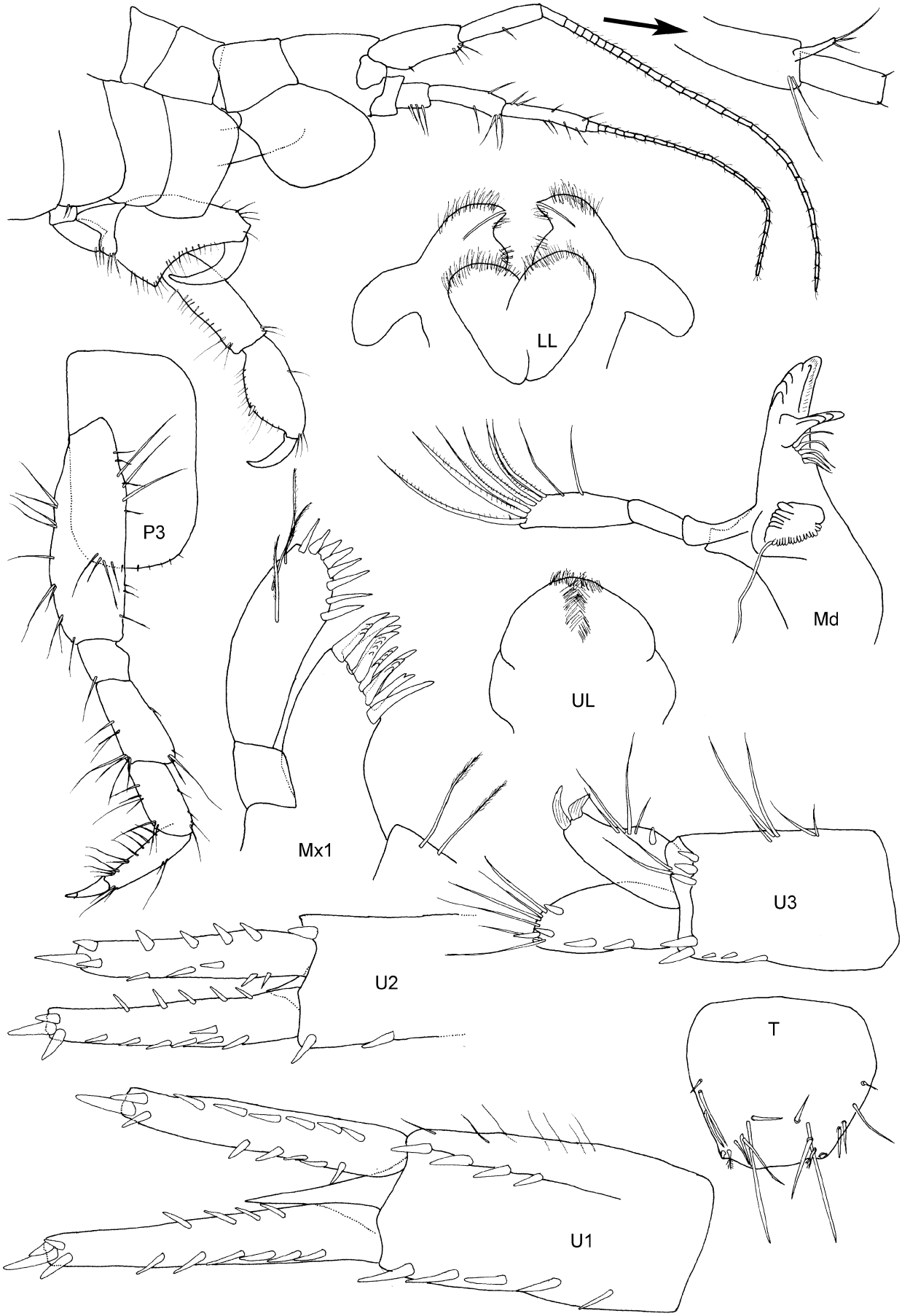

FIGURE 21. *Cymadusa khbarnardi* Hughes & Lowry **sp. nov.**, holotype, male, 9.0 mm, AM P76756, Lizard Island, Great Barrier Reef.

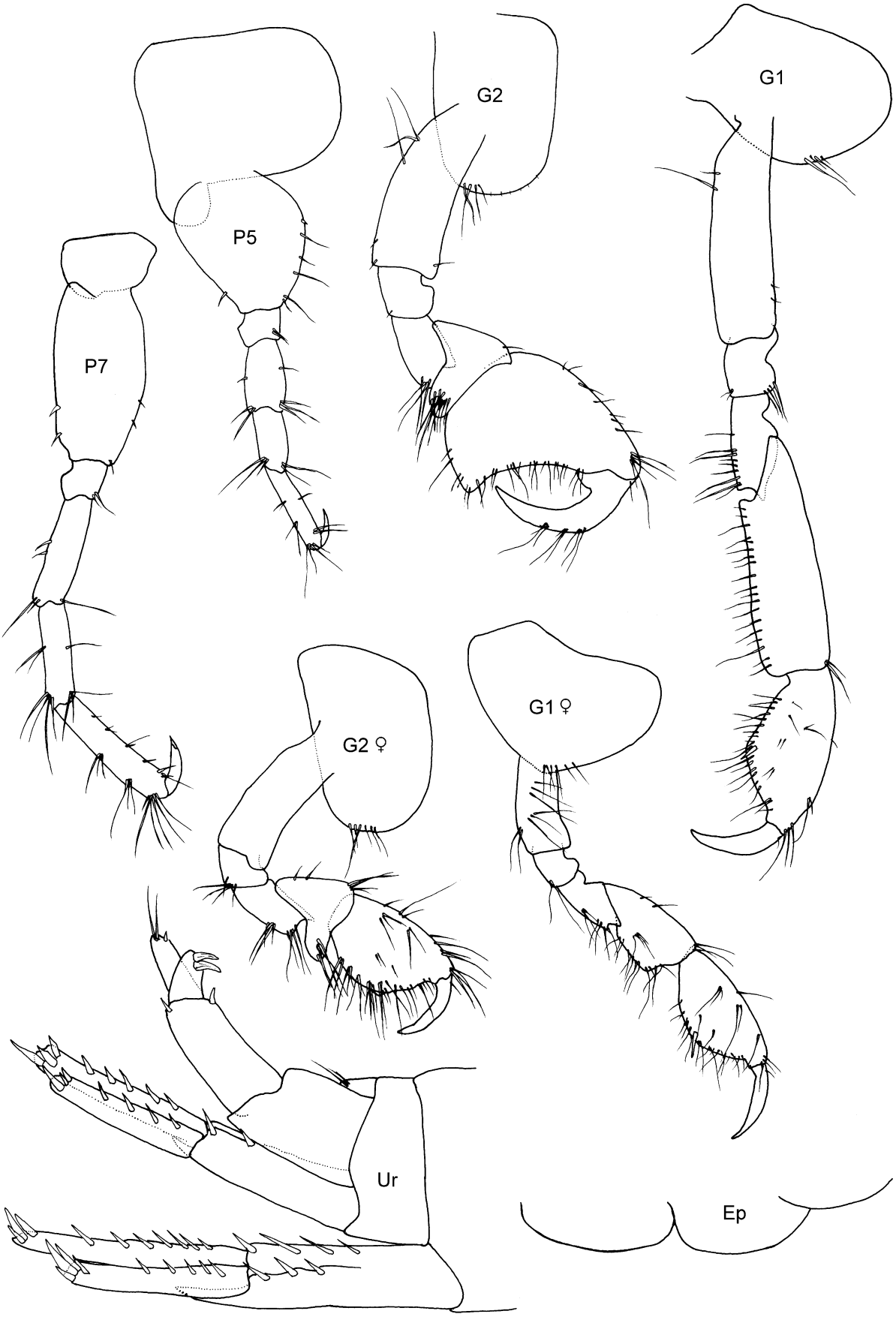

FIGURE 22. *Cymadusa khbarnardi* Hughes & Lowry **sp. nov.**, holotype, male, 9.0 mm, AM P76756, paratype, female, 11.0 mm, AM P76757, Lizard Island, Great Barrier Reef.

robust setae. *Uropod 3* peduncle longer than broad, less than 2 x length of rami, marginal slender setae present, with 5 distal and 2 lateral robust setae, with 2 distal slender setae; outer ramus with 2 large recurved distal robust setae, with 1 lateral robust seta and 4 lateral slender setae; inner ramus with 6 distal slender setae, with 2 lateral robust setae. *Telson* subtrapezoidal, apically truncated, with small apical cusp on each distolateral corner, with 4 pair of oblique medial slender setae, with 4 pair of lateral slender setae, and 1 pair of apical plumose setae.

Female (sexually dimorphic characters). Based on paratype, female, 11.0 mm, AM P76757. *Gnathopod 1* subequal in size to gnathopod 2; coxa anteroventrally produced, anterior margin concave; basis shorter than coxa, anterodistal lobe rounded, without setae; merus anterodistal lobe acute; carpus about 2 x as long as broad, shorter than propodus. *Gnathopod 2* basis without setae, anterodistal lobe without setae; carpus shorter than propodus; propodus subrectangular; palm straight; dactylus subequal in length to palm, inner margin crenate.

Colour. Body clear to white with small dark brown and white spots, eyes with red ommatidia in a white matrix.

Habitat. Brown algae.

Remarks. *Cymadusa khbarnardi* **sp. nov**. is similar to *C. grossimana* Ledoyer, 1984 from New Caledonia, in the propodus and palm shape of gnathopod 2. These species differ as follows: in *C. khbarnardi* the carpus of gnathopod 1 is extremely elongate (longer than the propodus) and rectolinear, while in *C. grossimana* it is subequal in length to the propodus.

Cymadusa khbarnardi **sp. nov.** forms a group with two other GBR species *C. imbroglio* Rabindranath, 1972 and *C. smilodonta* **sp. nov.** based on the large sized individuals with submassive, broadly rounded propodus of male gnathopod 2. These species may be distinguished from one another by the sculpting on the palm of gnathopod 2. In *Cymadusa khbarnardi* the palm of gnathopod 2 is excavate and smooth, while in *C. imbroglio* it has a midmedial projection and in *C. smilodonta* it has a proximal palmar projection.

Distribution. *Australia*. Queensland: Lizard Island (current study).

***Cymadusa mariabyrneae* Hughes & Lowry sp. nov.**
(Figs 23, 24)

Type material. Holotype, male, 6.4 mm, 3 slides, AM P76767 outer reef slope, south of One Tree Island (23°30.79'S 152°5.181'E), large sticks of coral rubble, 13.8 m, I. Takeuchi & L.E. Hughes, 28 October 2006 (QLD 1994). Paratypes: female, 7.0 mm, 3 slides, AM P76768 (QLD 1994); 5 unsexed, AM P76769 (QLD 1994).

Additional material examined. One Tree Island: 2 unsexed, AM P76771 (QLD 1959); 1 unsexed, AM P76770 (QLD 1960).

Etymology. Named for Professor Maria Byrne, director of the One Tree Island Research Station.

Type locality. Outer reef slope, south of One Tree Island, Great Barrier Reef, Queensland, Australia (23°30.79'S 152°5.181'E), living on large sticks of coral rubble, 13.8 m.

Description. Based on holotype, male, 6.4 mm, AM P76767.

Head. *Head* as long as deep. *Antenna 1 and 2* missing. *Upper lip* lateral margins each with midlateral notch. *Mandible* molar well developed, triturating, accessory setal row with 6 serrate setae; palp 3–articulate, apically setose and marginally setose; article 1 shorter than article 2; article 2 slightly longer than article 3; article 3 longer than article 1. *Lower lip* outer plates notched, forming a medial excavation, medial and lateral lobes subequal in size; mandibular lobe with curved margins, rounded apically. *Maxilla 1* inner plate with 1 seta; palp article 2 broad. *Maxilliped* outer plate with row of large robust setae along medial margin.

Pereon. *Coxae 1–4* deeper than broad. *Gnathopod 1* subequal in size to gnathopod 2; coxa distinctly larger than coxa 2, produced, anterior margin concave, anteroventral corner rounded, with a tuft of slender setae in the posteroventral corner; basis anterodistal lobe absent, with 2 slender setae; merus posterodistal lobe

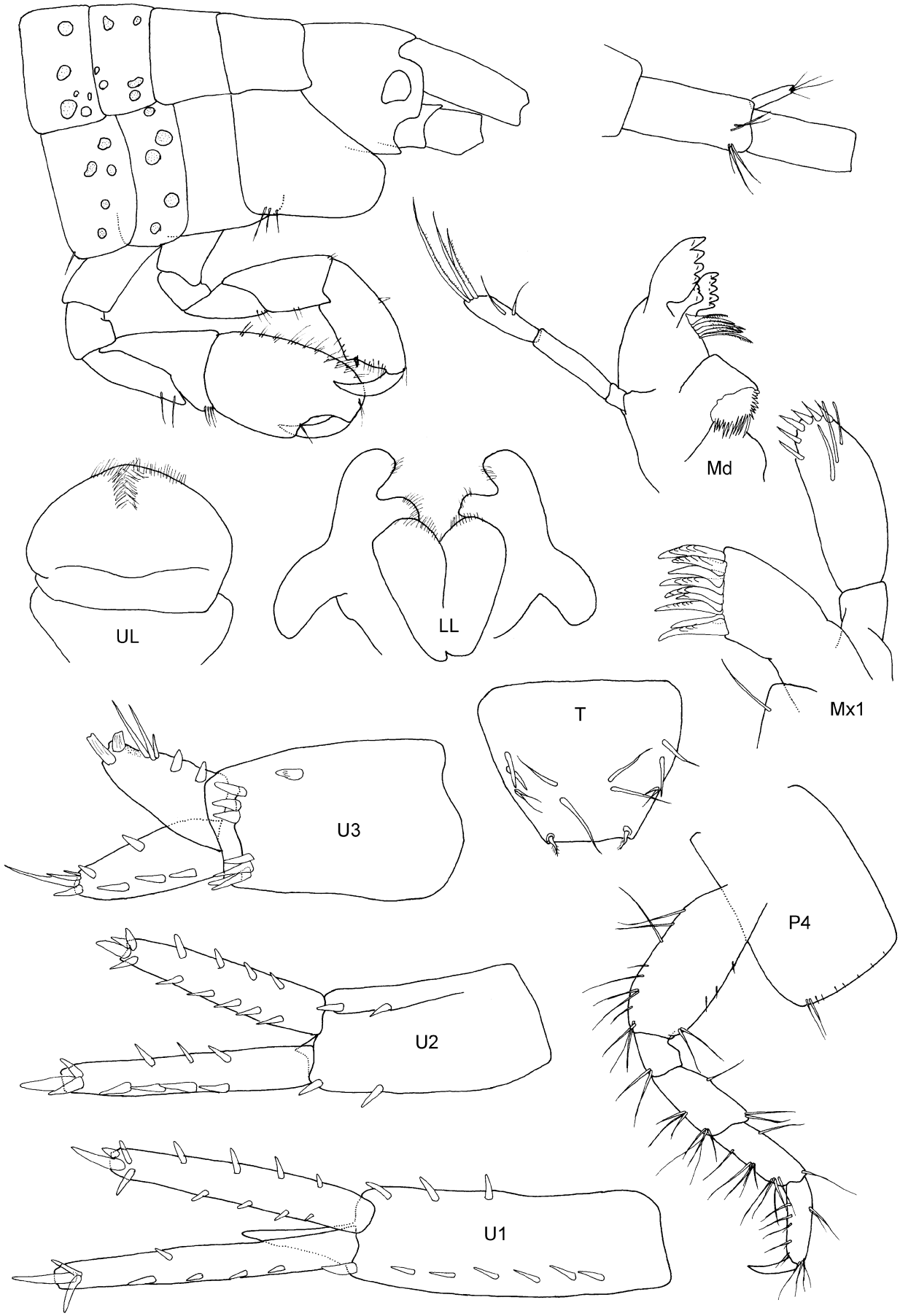

FIGURE 23. *Cymadusa mariabyrneae* Hughes & Lowry **sp. nov.**, holotype, male, 6.4 mm, AM P76767, One Tree Island, Great Barrier Reef.

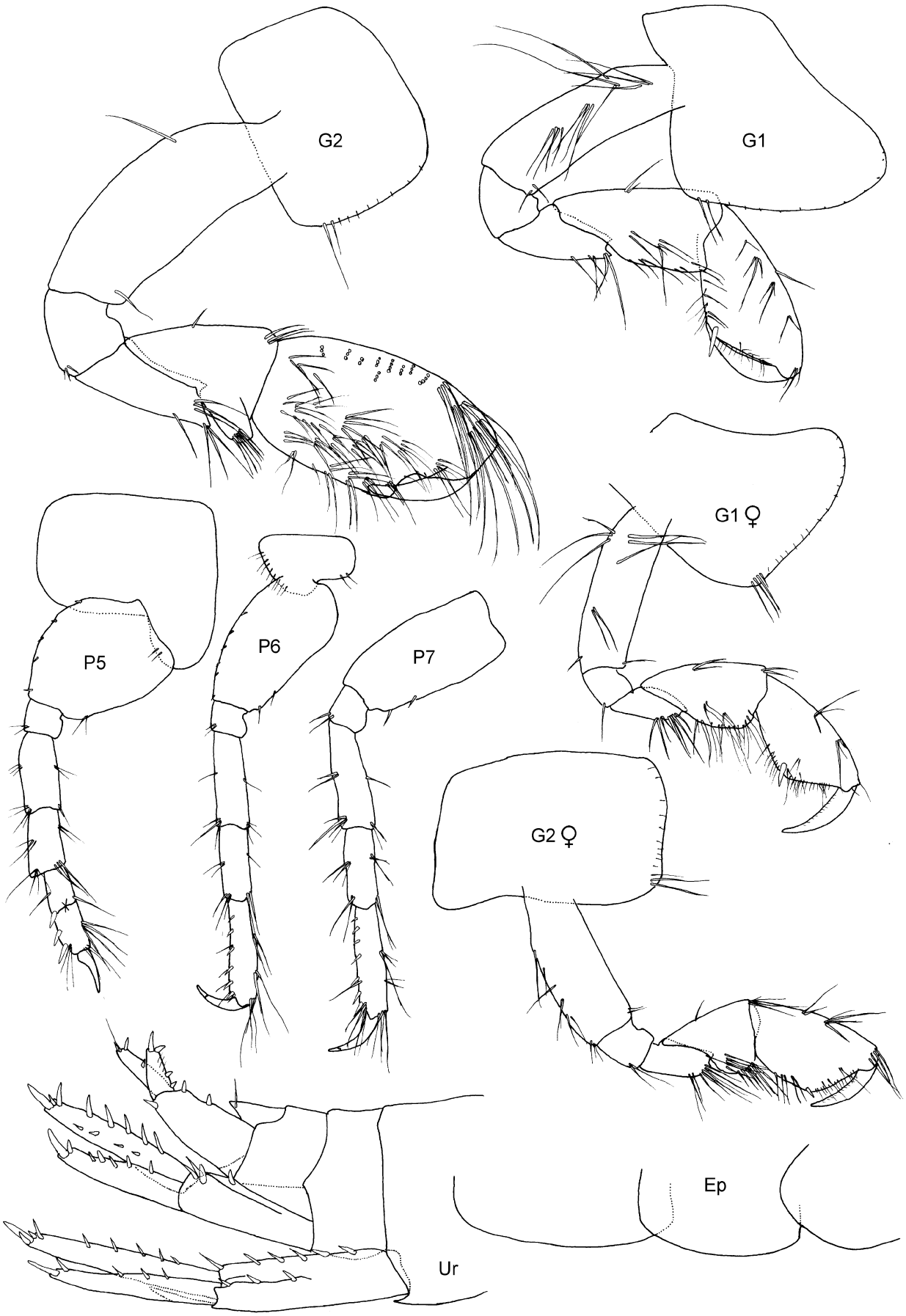

FIGURE 24. *Cymadusa mariabyrneae* Hughes & Lowry **sp. nov.**, holotype, male, 6.4 mm, AM P76767, paratype, female, 7.0 mm, AM P76768, One Tree Island, Great Barrier Reef.

subacute; carpus about 2 x as long as broad, subequal in length to propodus, anterior margin with slender setae, posterior margin straight; propodus broad, subtriangular; palm acute, straight, with rounded posterodistal corner, with 1 robust seta defining palm; dactylus subequal in length to palm, tapering evenly, apically acute, inner margin crenate. *Gnathopod 2* coxa with a tuft of slender setae in the posteroventral corner; basis without setae, anterodistal corner lobe absent, with 1 slender seta; merus margin with short, subacute anterodistal lobe; carpus shorter than propodus, subtriangular; propodus broad, less than 1.5 x as long as broad, subrectangular, anterior margin with fringe of slender setae; palm acute, excavate, with posterodistal corner subquadrate, without palm defining robust setae; dactylus overreaching palm, tapering evenly, apically acute, inner margin crenate. *Pereopods 3–4* basis narrow; merus subequal in length to carpus. *Pereopods 5–7* simple. *Pereopod 5* without medial slender setae; distal articles slender; propodus not expanded distally, with 1 anterodistal striated robust seta; dactylus slightly curved. *Pereopod 6* basis posterior margin straight, with several marginal slender setae; merus distal articles slender; propodus slightly expanded distally, with 1 anterodistal striated robust seta; dactylus slightly curved. *Pereopod 7* similar to pereopod 6.

Pleon. *Epimera 2–3* posteroventral corner broadly rounded. *Uropod 1* peduncle with 9 robust setae, without fringe of slender setae, with large, acute distoventral spine; outer ramus length about 8 x as long as broad, with 8 lateral robust setae; inner ramus with 5 lateral robust setae. *Uropod 2* peduncle with 4 robust setae; outer ramus with 8 lateral robust setae; inner ramus with 7 lateral robust setae. *Uropod 3* peduncle longer than broad, less than 2 x length of rami, without marginal slender setae, with 7 distal and 1 mid-dorsal peduncular robust setae, without distal slender setae; outer ramus with 2 large recurved distal robust setae, with 2 lateral robust setae and 3 lateral slender setae; inner ramus with 1 distal slender and 3 lateral robust setae. *Telson* subtrapezoidal, apically truncated, with small apical cusp on each distolateral corner, with2 pair of oblique medial slender setae, with 2 pair of lateral slender setae, 2 pair of lateral and 1 pair of apical plumose setae.

Female (sexually dimorphic characters). Based on paratype, female, 7.0 mm, AM P76768. *Gnathopod 1* subequal in size to gnathopod 2; basis slightly shorter than coxa, with 1 slender anterodistal seta; dactylus slightly overreaching palm. *Gnathopod 2* basis anterodistal corner with 2 slender setae; palm straight, with 1 robust seta defining palm; dactylus subequal in length to palm.

Habitat. Coral rubble.

Remarks. *Cymadusa mariabyrneae* **sp. nov.** is most similar to *C. aungtonyae* Peart 2002 from Thailand, in the form and setosity of male gnathopod 2 propodus. Coxae 2–3 in *C. mariabyrneae* however, are more subquadrate than in *C. aungtonyae*. The gnathopod 1 palm is straight in *C. mariabyrneae* and sculptured in *C. aungtonyae*. Overall the uropods of *C. mariabyrneae* are more slender with a greater number of robust setae relative to those of *C. aungtonyae*.

Cymadusa mariabyrneae is superficially similar to the GBR species *C. thagaay* Peart, 2007a, with respect to the setose anterior margin of the male gnathopod 2. These species differ in two male gnathopod 1 characters: the anterior margin of the coxa which is concave in *C. mariabyrneae* and straight in *C. thagaay*; and the propodus palm which is straight in *C. mariabyrneae* and sinusoidal in *C. thagaay.*

Distribution. *Australia*. Queensland: One Tree Island (current study).

***Cymadusa smilodonta* Hughes & Lowry sp. nov.**
(Figs 25, 26)

Type material. Holotype, male, 7.9 mm, 4 slides, AM P76772, south end of Yonge Reef, Yonge Reef (14°36.954'S 145°37.184'E), filamentous red algae, back reef, 7 m, L. Hughes, 3 March 2005 (QLD 1799). Paratypes: female, 7.5 mm, 4 slides, AM P76773 (QLD 1799); 8 unsexed, AM P71367 (QLD 1799).

Additional material examined. 1 unsexed, AM P76774 (QLD 1916); many unsexed, AM P76775 (QLD 1948).

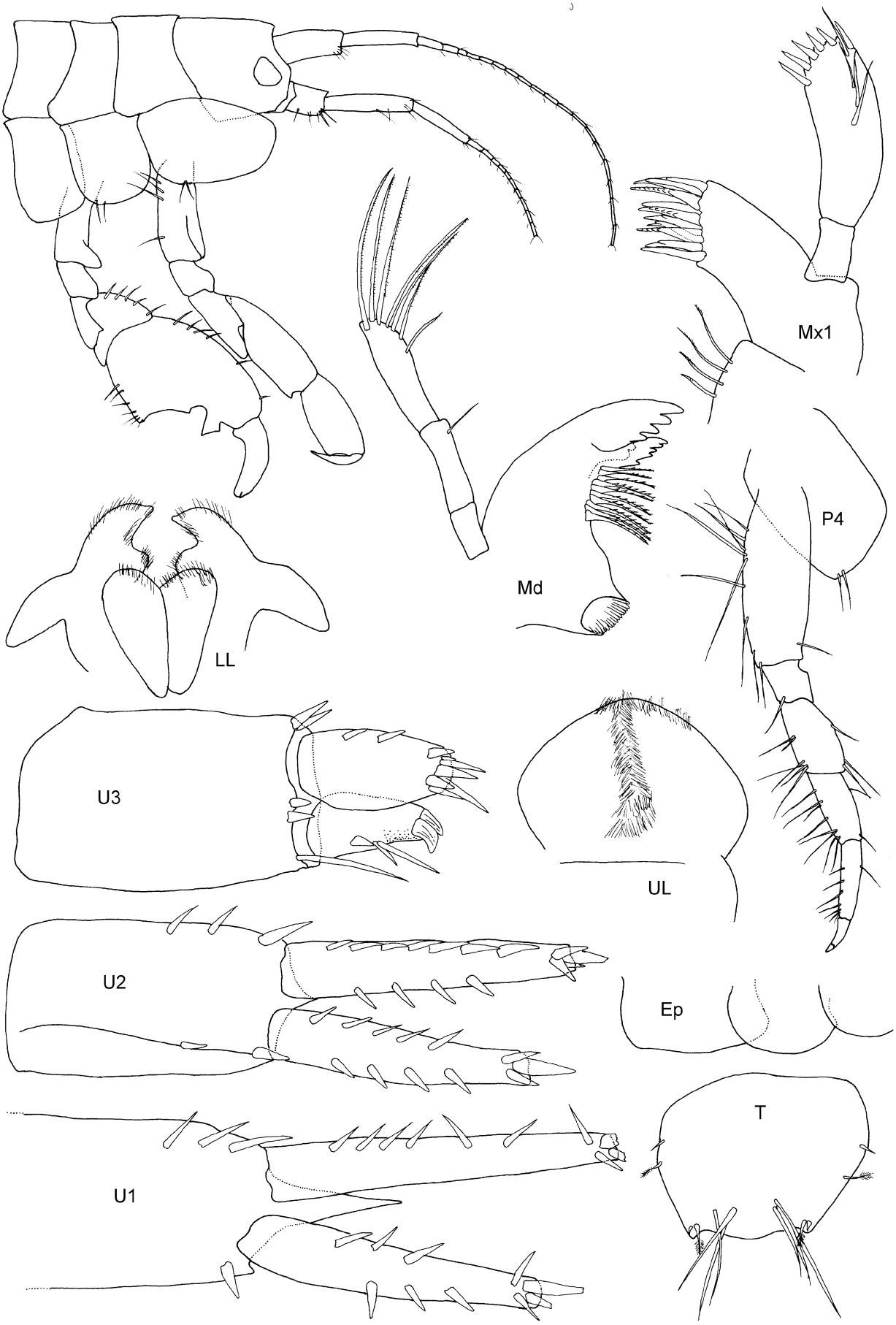

FIGURE 25. *Cymadusa smilodonta* Hughes & Lowry **sp. nov.**, holotype, male, 7.9 mm, AM P76772, Yonge Reef, Great Barrier Reef.

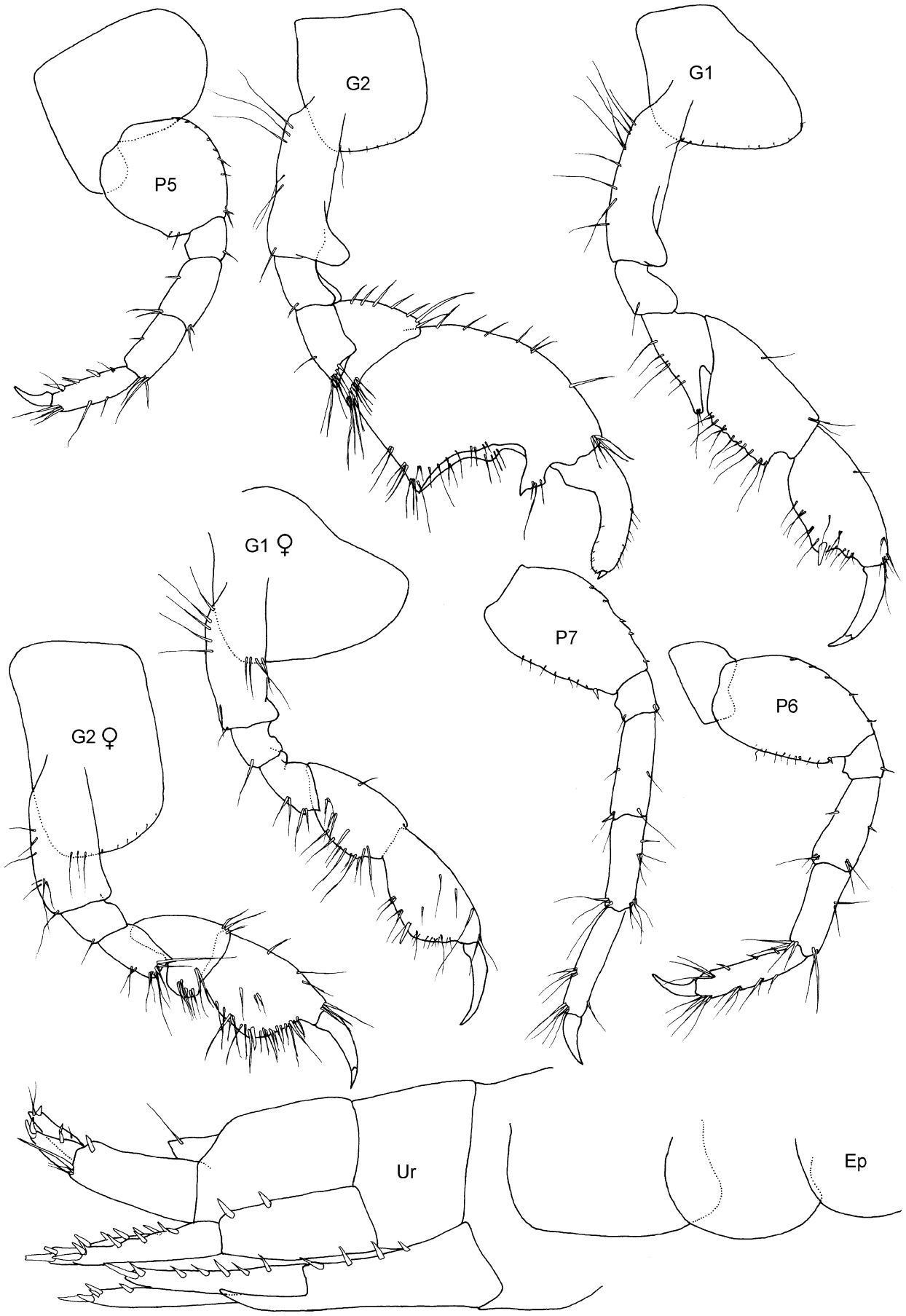

FIGURE 26. *Cymadusa smilodonta* Hughes & Lowry **sp. nov.**, holotype, male, 7.9 mm, AM P76772, paratype, female, 7.5 mm, AM P76773, Yonge Reef, Great Barrier Reef.

Type locality. South end of Yonge Reef, Yonge Reef, near Lizard Island, Queensland, Australia (14°36.954'S 145°37.184'E), filamentous red algae, back reef, 7 m depth.

Etymology. Named derived from the sabre-toothed cat genus *Smilodon – greek* 'knife tooth', referring to the large "tooth" projecting from the male gnathopod two.

Description. Based on holotype, male, 7.9 mm, AM P76772.

Head. *Head* as long as deep. *Antenna 1* slightly longer than antenna 2; peduncular article 1 subequal to article 2; primary flagellum 19 articles; accessory flagellum absent. *Antenna 2* peduncle not densely setose on ventral margin; article 4 longer than article 5; flagellum 14 articles. *Upper Lip* lateral margins each with midlateral notch. *Mandible* molar well developed, triturating, accessory setal row with 10 serrate setae; palp 3–articulate, apically setose; article 1 shorter than article 2; article 2 shorter than article 3, slender setae present; article 3 longer than article 1. *Lower lip* outer plates notched, forming a medial excavation, lateral lobe distinctly longer than medial lobe; mandibular lobe with curved margins, subacute apically. *Maxilla 1* inner plate with 4 setae; palp article 2 broad. *Maxilliped* outer plate with row of large robust setae along medial margin.

Pereon. *Coxae 1–4* deeper than broad. *Gnathopod 1* longer than gnathopod 2; coxa distinctly larger than coxa 2, anteriorly produced, anterior margin convex, anteroventral corner rounded, with a tuft of slender setae in the posteroventral corner; basis longer than coxa, anterodistal lobe rounded, without setae; merus posterodistal lobe acute; carpus about 2 x as long as broad, subequal in length to propodus, anterior margin with slender setae, posterior margin straight; propodus broad, subrectangular; palm acute, sinusoidal, with posterodistal corner subquadrate, with 1 robust seta defining palm; dactylus overreaching palm, inner margin crenate. *Gnathopod 2* coxa with a tuft of slender setae in the posteroventral corner; basis with fringe of long, slender setae, with large rounded anterodistal lobe, without setae; merus margin without lobe; carpus much shorter than propodus, cup-shaped, anterior margin with 7 robust setae; propodus broad, less than 1.5 x as long as broad; palm acute, excavate, with proximal, columnar subquadrate projection near base of dactylus, with posterodistal corner, subquadrate, without palm defining robust setae; dactylus much shorter than palm, not tapering, apically blunt, unguis minute, inner margin crenate. *Pereopods 3–4* basis narrow; merus subequal in length to carpus. *Pereopods 5–7* simple. *Pereopod 5* without medial slender setae; distal articles slender; propodus not expanded distally, without anterodistal striated robust setae; dactylus slightly curved. *Pereopod 6* basis posterior margin straight, with several marginal robust setae; distal articles slender; propodus not expanded distally, without anterodistal striated robust setae; dactylus slightly curved. *Pereopod 7* similar to pereopod 6.

Pleon. *Epimera 2–3* posteroventral corner broadly rounded. *Uropod 1* peduncle with 4 robust setae, without fringe of slender setae, with large, acute distoventral spine; outer ramus length about 5–6 x as long as broad, with 6 lateral robust setae; inner ramus with 6 lateral setae. *Uropod 2* peduncle with 5 robust setae; outer ramus with 9 lateral robust setae; inner ramus with 11 lateral robust setae. *Uropod 3* peduncle longer than broad, more than 2 x length of rami, without marginal slender setae, with 4 distal peduncular robust setae, with 1 distal slender seta; outer ramus with 2 large recurved distal robust setae, with 1 lateral robust seta and 2 lateral slender setae; inner ramus without distal slender setae, with 2 lateral robust setae. *Telson* subtrapezoidal, apically rounded, with small apical cusp on each distolateral corner, with 3 pair of apical slender setae, and with 2 pair of lateral and 1 pair of apical plumose setae.

Female (sexually dimorphic characters). Based on paratype, female, 7.5 mm, AM P76773. *Gnathopod 1* subequal in size to gnathopod 2; coxa anterior margin concave; basis shorter than coxa; merus anterodistal lobe acute; merus anterodistal lobe truncate; carpus posterior margin convex; propodus palm convex, with rounded corner. *Gnathopod 2* basis without anterodistal lobe; carpus shorter than propodus, subtriangular; propodus palm straight, posterodistal corner rounded, with 1 robust seta defining palm; dactylus subequal in length to palm, tapering evenly, apically acute.

Habitat. Filamentous red algae.

Remarks. *Cymadusa smilodonta* **sp. nov.** is similar to the Andaman Sea species, *C. chalongana* Peart 2002. However *C. smilodonta* has no accessory flagellum (an unusual characteristic in *Cymadusa*), a setose

anterior margin on the carpus, and a better developed excavation in the palm of male gnathopod 2. The male gnathopod 2 palmar projection is in a similar proximal position in both species, but it is columnar and subquadrate in *C. smilodonta* and apically rounded and shorter in *C. chalongana*.

See remarks under *C. khbarnardi* for comparison of other GBR species.

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

Cymadusa tattersalli Peart, 2004

(Figs 27, 28)

Cymadusa setosa. —Tattersall, 1922: 19, figs.
Cymadusa filosa. —Ledoyer, 1983: 130, figs. 44–45 (form A).
Cymadusa tattersalli Peart, 2004: 314, figs 8–11. —Peart, 2007a: 33, figs 27–28.

Material examined. 4 unsexed, AM P61927 (QLD 1342).

Type locality. Woodman Point, Cockburn Sound, Western Australia, Australia (~32°9'S 115°46'E).

Description. Based on male, 11 mm, AM P61927.

Head. *Head* as long as deep. *Antenna 1* subequal to antenna 2; peduncular article 1 subequal to article 2; primary flagellum 38 articles; accessory flagellum with 2 articles. *Antenna 2* peduncle with short, dense slender setae on ventral margin; article 4 subequal in length to article 5; flagellum 35 articles. *Upper lip* directed nearly straight down, lateral margins each with midlateral notch. *Mandible* molar well developed, triturating, accessory setal row with 7 serrate setae; palp 3–articulate, marginally setose; article 1 shorter than article 2; article 2 subequal in length to article 3, slender setae present. *Lower lip* outer plates notched, forming a medial excavation, lateral lobe distinctly longer than medial lobe; mandibular lobe with curved margins, rounded apically. *Maxilla 1* inner plate with 7 setae; palp article 2 broad. *Maxilla 2* inner plate narrower than outer plate. *Maxilliped* outer plate with row of large robust setae along medial margin.

Pereon. *Coxae 1–4* deeper than broad. *Gnathopod 1* smaller than gnathopod 2, margins lined with long slender setae; coxa distinctly larger than coxa 2, anteroventrally produced, anterior margin straight, anteroventral corner rounded, with long setal fringe on ventral margin; basis shorter than coxa, anterodistal lobe absent; merus posterodistal lobe subacute; carpus about 1.75 x as long as broad, longer than propodus, anterior margin with slender setae, posterior margin truncated; propodus broad, subovoid, anterior margin with fringe of long slender setae; palm acute, convex, with rounded posterodistal corner, with 1 robust seta defining palm; dactylus subequal in length to palm, inner margin crenate. *Gnathopod 2* coxa with long, plumose setal fringe on ventral margin; basis with fringe of long, slender setae; merus margin with short, subacute distal lobe; carpus shorter than propodus, subtriangular; propodus broad, less than 1.5 x as long as broad, subovoid, not produced into an anterodistally setose lobe; palm acute, entire, with proximal broad subquadrate projection near base of dactylus, with short (length 1 x breadth) posterodistal tooth, apically subacute, without palm defining robust setae; dactylus shorter than palm, tapering evenly, apically acute, inner margin crenate. *Pereopods 3–4* basis slightly expanded; merus subequal in length to carpus. *Pereopods 5–7* weakly prehensile. *Pereopod 5* with medial slender setae; distal articles slender; propodus not expanded distally, with 3 anterodistal striated robust setae; dactylus slightly curved. *Pereopod 6* basis posterior margin straight, with several marginal robust setae; distal articles slender; propodus not expanded distally, with 3 anterodistal striated robust setae; dactylus slightly curved. *Pereopod 7* similar to pereopod 6.

Pleon. *Epimera 2–3* posteroventral corner with small acute cusp. *Uropod 1* peduncle with 12 robust setae, with short fringe of slender setae (less than 0.5 x length of peduncle), with large, acute distoventral spine; outer ramus with 11 lateral setae; inner ramus with 10 lateral robust setae. *Uropod 2* peduncle with 5 robust setae; outer ramus with 9 lateral robust setae; inner ramus with 10 lateral robust setae. *Uropod 3* peduncle longer than broad, more than 2 x length of rami, marginal slender setae rounded, with 7 distal peduncular

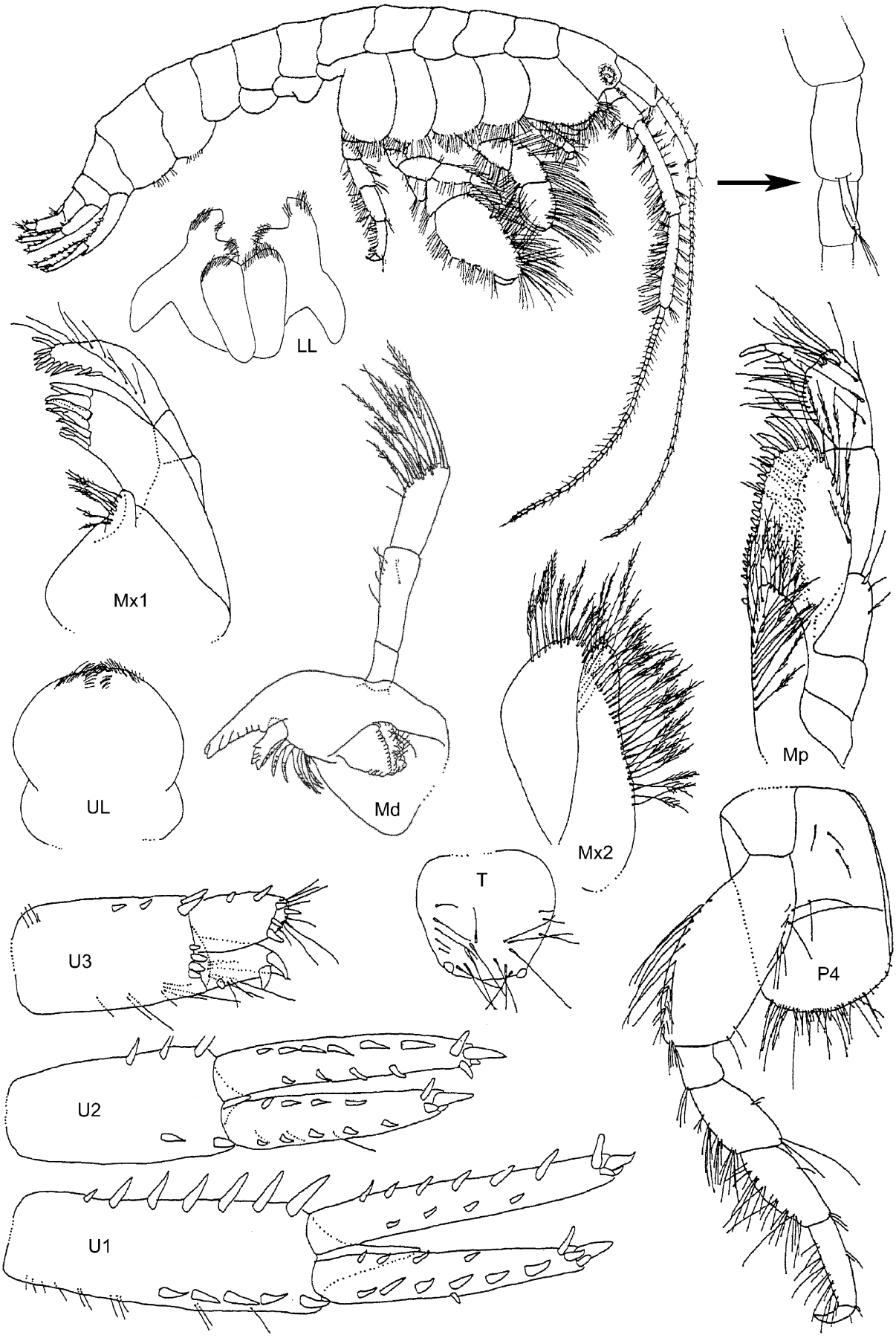

FIGURE 27. *Cymadusa tattersalli* Peart, 2004, male, 11 mm, AM P61927, Heron Island, Great Barrier Reef (based on Peart 2007a).

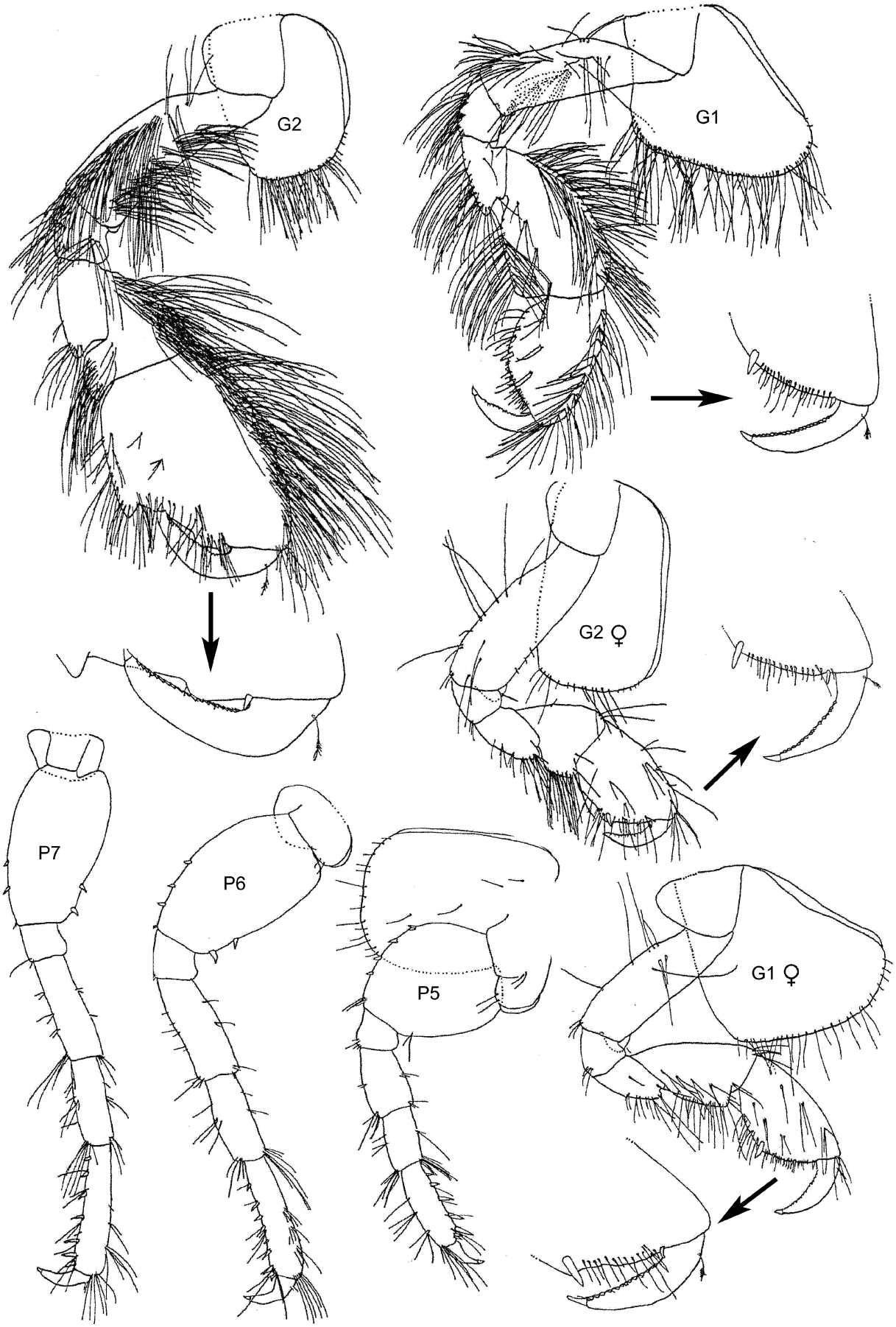

FIGURE 28. *Cymadusa tattersalli* Peart, 2004, male, 11 mm, AM P61927, female, 12 mm, AM P61927, Heron Island (based on Peart 2007a).

robust setae, with 4 slender setae; outer ramus with 2 large recurved distal robust setae, with 1 lateral robust seta and 4 lateral slender setae; inner ramus with 8 distal slender setae, with 2 lateral robust setae. *Telson* subrectangular, apically truncated, with small apical cusp on each distolateral corner, with more than 8 pairs of oblique slender setae.

Female (sexually dimorphic characters). Based on paratype, female, 12 mm, AM P61927. *Gnathopod 1* subequal in size to gnathopod 2; coxa subequal to coxa 2; basis anterodistal lobe with 1 slender seta; carpus about 2 x as long as broad, subequal in length to propodus, anterior margin without setae, posterior margin truncated; palm convex, posterodistal corner rounded. *Gnathopod 2* coxa with ventral row of slender setae of varying lengths; basis rounded anterodistal lobe, anterodistal corner without setae; palm with posterodistal corner, rounded, with 1 robust seta defining palm; dactylus subequal in length to palm.

Habitat. Brown algae.

Remarks. *Cymadusa tattersalli* is closely related to *Cymadusa setosa* (Haswell, 1879) and *Cymadusa filosa* Savigny, 1816. According to Peart (2004) *C. tattersalli* differs from both species in the gnathopod 1 merus which is produced to form a small, subacute or rounded anteroventral lobe (short and acute in *C. filosa* and *C. setosa*) and the carpus which is short and robust (elongate and narrow in *C. filosa* and *C. setosa*).

Cymadusa tattersalli is distinct from all other GBR ampithoids, except *C. wistari*, because of the dense plumose setae lining the margins of gnathopods 1 and 2 and pereopods 3 and 4. *Cymadusa tattersalli* has a sculptured palm on the propodus of gnathopod 2, which is entire in *C. wistari*.

Distribution. *Australia*. Queensland: Heron Island (Peart 2007a). Western Australia: Cockburn Sound; Abrolhos Islands; Dampier Archipelago (Peart 2007a). *Madagascar* (Ledoyer 1983).

Cymadusa thagaay Peart, 2007
(Figs 29, 30)

Cymadusa thagaay Peart, 2007a: 36, figs 29–32.

Material examined. Holotype, male, AM P62518 (QLD 1370); paratype, female, AM P62519 (QLD 1371).

Type locality. Mangrove Beach, Lizard Island, Great Barrier Reef, Queensland, Australia (14°40.99'S 145°27.63'E), living on *Turbinaria* sp. and green algae, 3 m.

Description. Based on holotype, male, 4 mm, AM P62518 (QLD 1370).

Head. *Head* as long as deep. *Antenna 1* longer than antenna 2; peduncular article 1 subequal to article 2; flagellum 25 articles; accessory flagellum with 1 article. *Antenna 2* peduncle not densely setose on ventral margin; article 4 subequal in length to article 5; flagellum 16 articles. *Upper lip* directed nearly straight down, lateral margins each with midlateral notch. *Mandible* molar well developed, triturating, accessory setal row with 5 robust serrate setae; palp 3–articulate, article 3 apically setose; article 1 shorter than article 2; article 2 longer than article 3, slender setae present; article 3 subequal in length to article 1. *Lower lip* outer plates notched, with deep distal cleft, lateral lobe distinctly longer than medial lobe; mandibular lobe with curved margins, subacute apically. *Maxilla 1* inner plate with 1 seta; palp article 2 broad. *Maxilla 2* inner and outer plates subequal in width. *Maxilliped* outer plate with row of large robust setae along medial margin.

Pereon. *Coxae 1–4* deeper than broad. *Gnathopod 1* smaller than gnathopod 2; coxa subequal to coxa 2, weakly produced anteriorly, anterior margin straight, anteroventral corner acute, with ventral row of slender setae of varying lengths; basis shorter than coxa, anterodistal lobe rounded, without setae; merus posterodistal lobe subacute; carpus shorter than propodus, anterior margin with slender setae, posterior margin subacute; propodus broad, subovoid; palm acute, sinusoidal, posterodistal corner rounded, with 1 robust seta defining palm; dactylus subequal in length to palm, apically acute, inner margin crenate. *Gnathopod 2* coxa with ventral row of slender setae of varying lengths; basis with sparse medial slender setae, with rounded anterodistal lobe, with 1 slender seta; merus margin with short, subacute distal lobe; carpus shorter than propodus, subtriangular; propodus broad, less than 1.5 x as long as broad, subovoid, anterior margin with

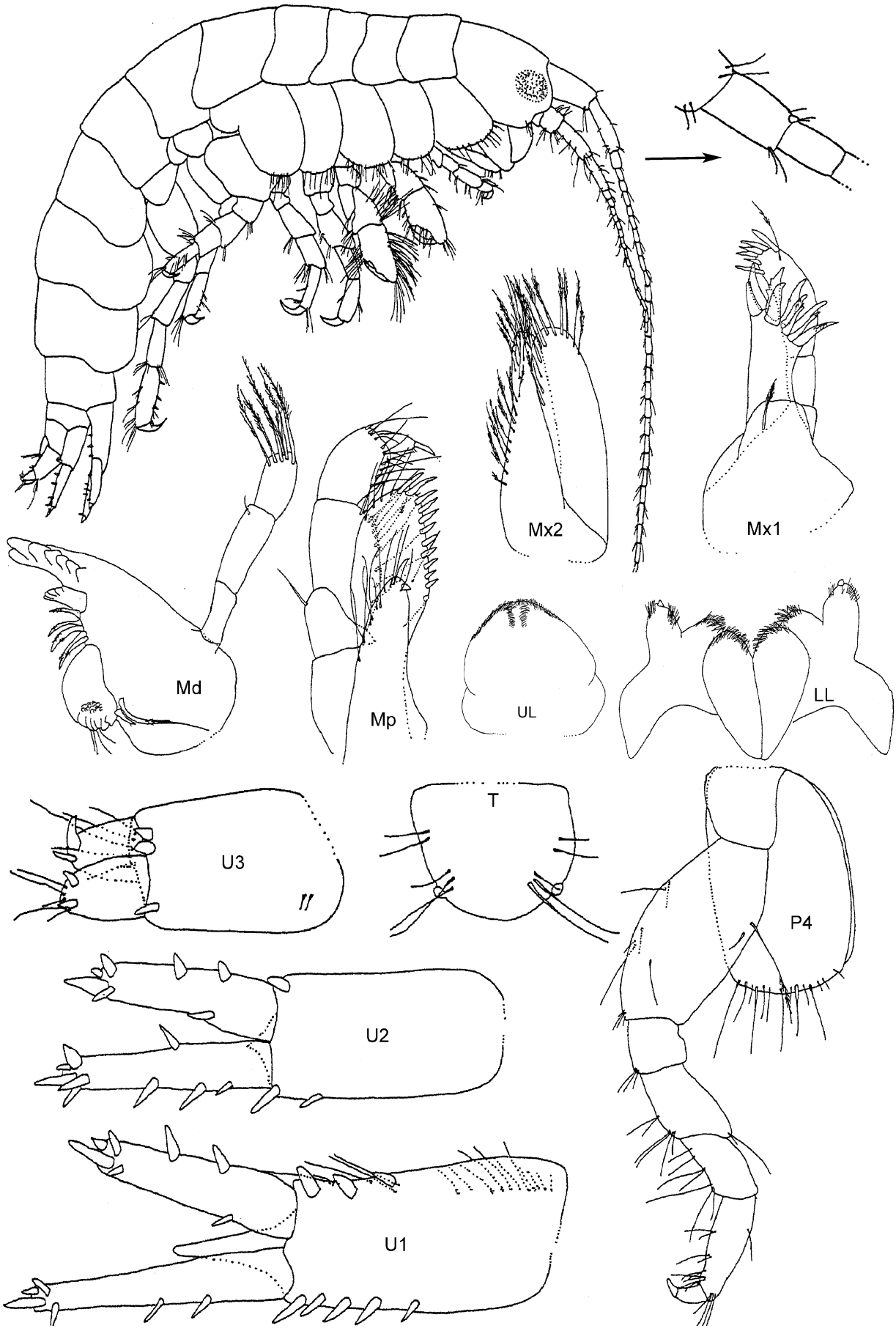

FIGURE 29. *Cymadusa thagaay* Peart, 2007a, holotype, male, 4 mm, AM P62518, paratype, female, 4 mm, AM P62519, Lizard Island, Great Barrier Reef (based on Peart 2007a).

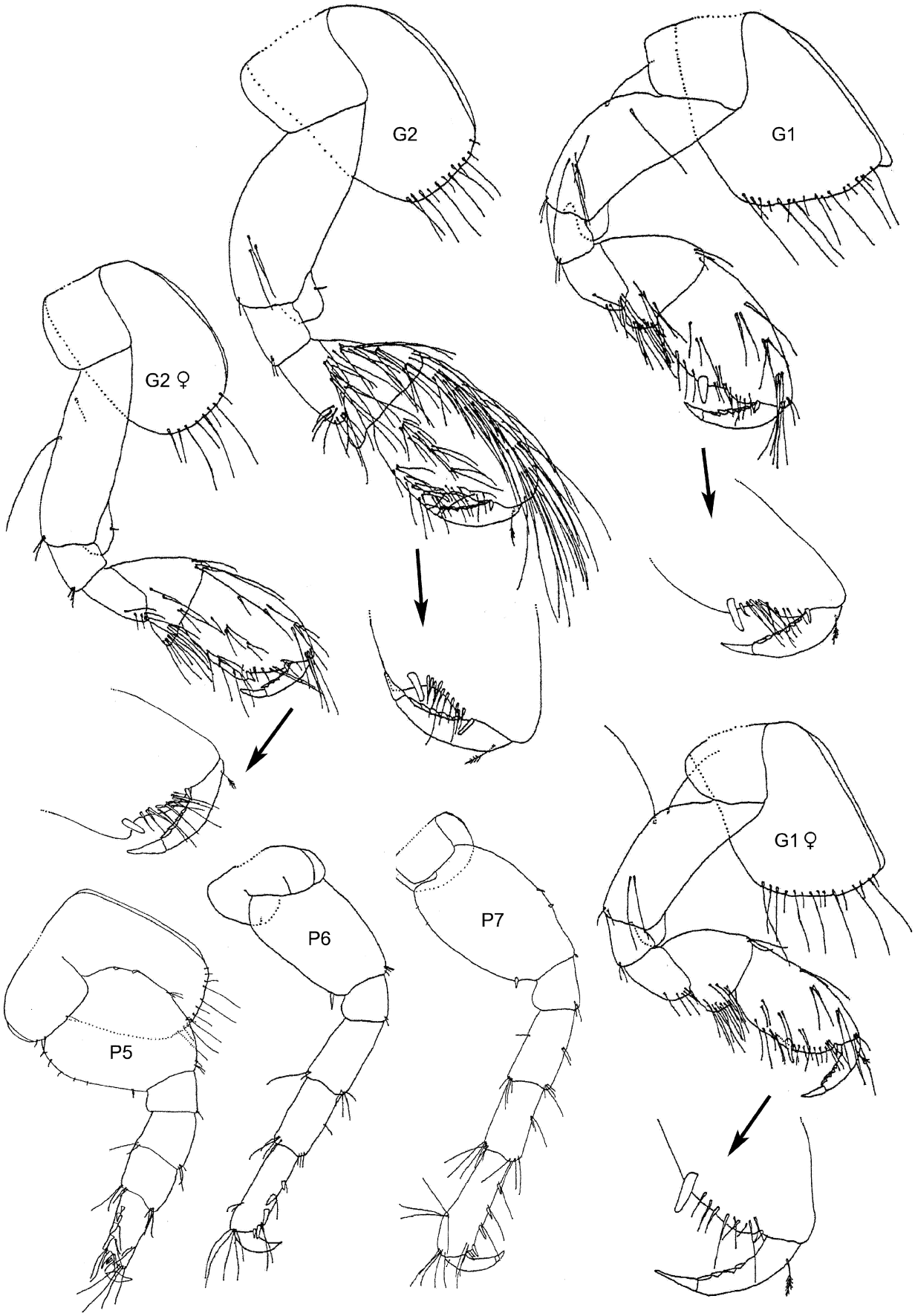

FIGURE 30. *Cymadusa thagaay* Peart, 2007a, holotype, male, 4 mm, AM P62518, paratype, female, 4 mm, AM P62519, Lizard Island, Great Barrier Reef (based on Peart 2007a).

fringe of slender setae; palm acute, concave, with posterodistal corner, subquadrate, with 1 robust seta defining palm; dactylus subequal in length to palm, tapering evenly, apically acute, inner margin crenate. *Pereopods 3–4* basis narrow; merus subequal in length to carpus. *Pereopods 5–7* weakly prehensile. *Pereopod 5* without medial slender setae; distal articles broad; propodus slightly expanded distally, with 2 anterodistal striated robust setae; dactylus strongly curved. *Pereopod 6* basis posterior margin straight, with a single marginal robust seta; distal articles slender; propodus not expanded distally, with 2 anterodistal striated robust setae; dactylus slightly curved. *Pereopod 7* similar to pereopod 6.

Pleon. *Epimera 2–3* posteroventral corner broadly rounded. *Uropod 1* peduncle with 8 robust setae, with long fringe of slender setae (greater than 0.5 x length of peduncle), with large, acute distoventral spine; outer ramus with 3 lateral robust setae; inner ramus with 2 lateral robust setae. *Uropod 2* peduncle with 3 robust setae; outer ramus with 3 lateral robust setae; inner ramus with 4 lateral robust setae. *Uropod 3* peduncle longer than broad, more than 2 x length of rami, without marginal slender setae, with 3 distal peduncular robust setae, with 4 distal slender setae; outer ramus with 2 large recurved distal robust setae, without lateral robust or slender setae; inner ramus with 5 distal slender setae and 2 distal robust setae, without lateral robust setae. *Telson* subrectangular, apically rounded, with small apical cusp on each distolateral corner, with 2 pair of lateral and 3 pairs of apical slender setae.

Female (sexually dimorphic characters). Based on paratype, female, 4 mm, AM P62519 (QLD 1371). *Gnathopod 1* subequal in size to gnathopod 2; merus distal lobe rounded; propodus narrow, subrectangular; palm convex. *Gnathopod 2* palm sinusoidal, with posterodistal tooth, short, apically subacute.

Habitat. Red, green and brown algae, *Turbinaria* sp. and *Sargassum* sp.

Remarks. See remarks for *Cymadusa heronensis.*

Distribution. *Australia*. Queensland: Lizard Island (Peart 2007a).

***Cymadusa wistari* Peart, 2007**
(Figs 31, 32)

Cymadusa wistari Peart, 2007a: 46, figs 37–40.

Material examined. Holotype, male, AM P62534 (QLD 1336); paratype, female, 8 mm, AM P62535 (QLD 1371).

Type locality. Northern Reef Flat, Heron Island, Queensland, Australia (23º27'S 151º55'E), living on *Dictyota* sp., *Padina* sp. and *Sargassum* sp., 0.5 m.

Description. Based on holotype, male, 6 mm, AM P62534.

Head. *Head* as long as deep. *Antenna 1* longer than antenna 2; peduncular article 1 subequal to article 2; flagellum 45 articles; accessory flagellum with 1 article. *Antenna 2* peduncle not densely setose on ventral margin; article 4 subequal in length to article 5; flagellum 33 articles. *Upper lip* directed nearly straight down, lateral margins each with midlateral notch. *Mandible* molar well developed, triturating, accessory setal row with 7 serrate setae; palp 3–articulate, marginally setose; article 1 shorter than article 2; article 2 subequal in length to article 3, slender setae present. *Lower lip* outer plates notched, forming a medial excavation, lateral lobe distinctly longer than medial lobe; mandibular lobe with curved margins, subacute apically. *Maxilla 1* inner plate with 4 setae; palp article 2 broad. *Maxilla 2* inner plate narrower than outer plate. *Maxilliped* outer plate with row of large robust setae along medial margin.

Pereon. *Coxae 1–4* deeper than broad. *Gnathopod 1* smaller than gnathopod 2, with long, dense, setae on margins; coxa larger than coxa 2, produced, anterior margin concave, anteroventral corner rounded, with ventral row of slender setae of varying lengths; basis shorter than coxa, with small anterodistal lobe, anterodistal corner without setae; merus posterodistal lobe subacute; carpus about 1.75 x as long as broad, longer than propodus, anterior margin with slender setae, posterior margin subacute; propodus narrow, subovoid; palm acute, convex, with posterodistal corner rounded, with 1 robust seta defining palm; dactylus

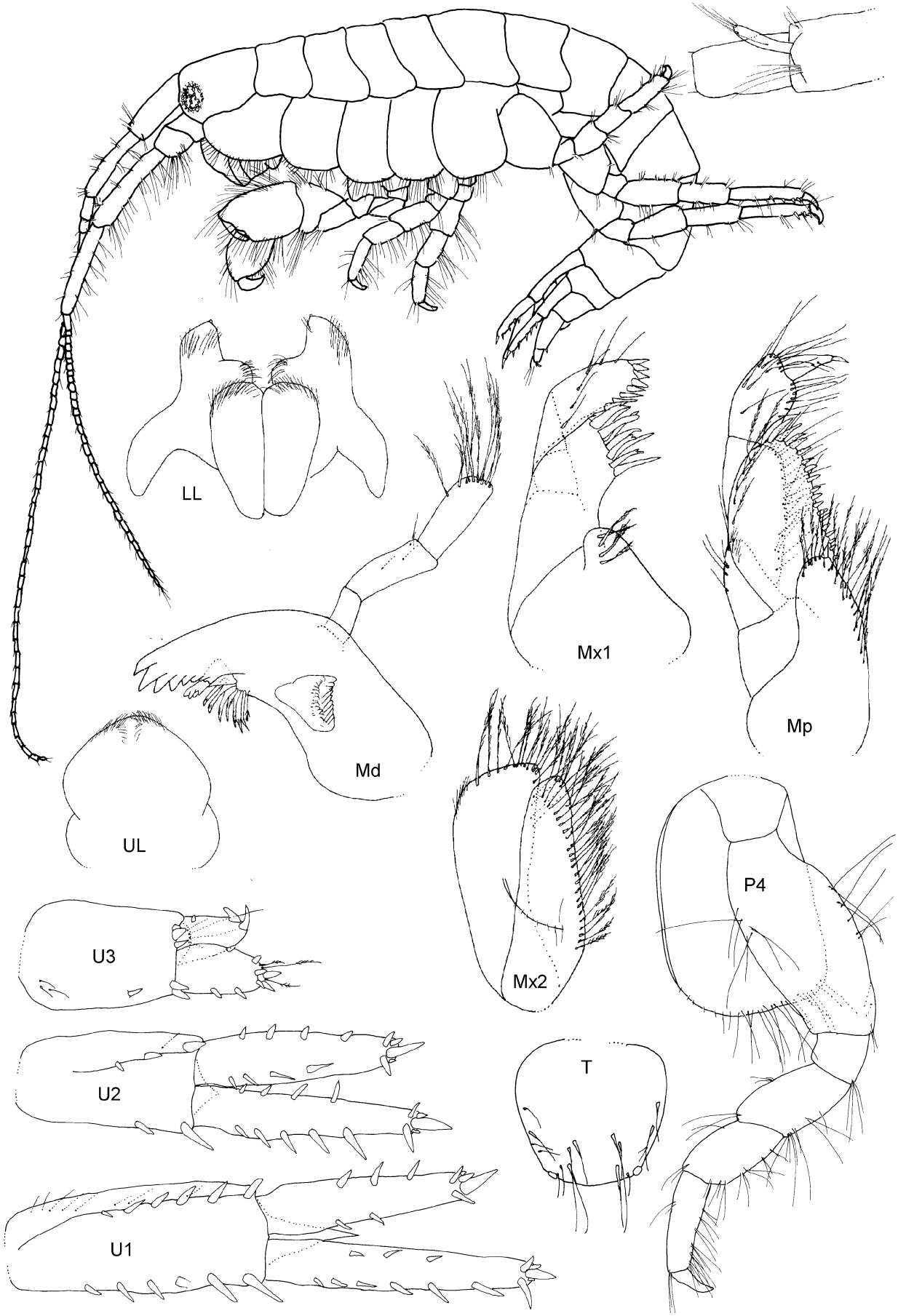

FIGURE 31. *Cymadusa wistari* Peart, 2007a, holotype, male, 8 mm, AM P62534, paratype female, 6 mm, AM P62535, Heron Island, Great Barrier Reef (based on Peart 2007a).

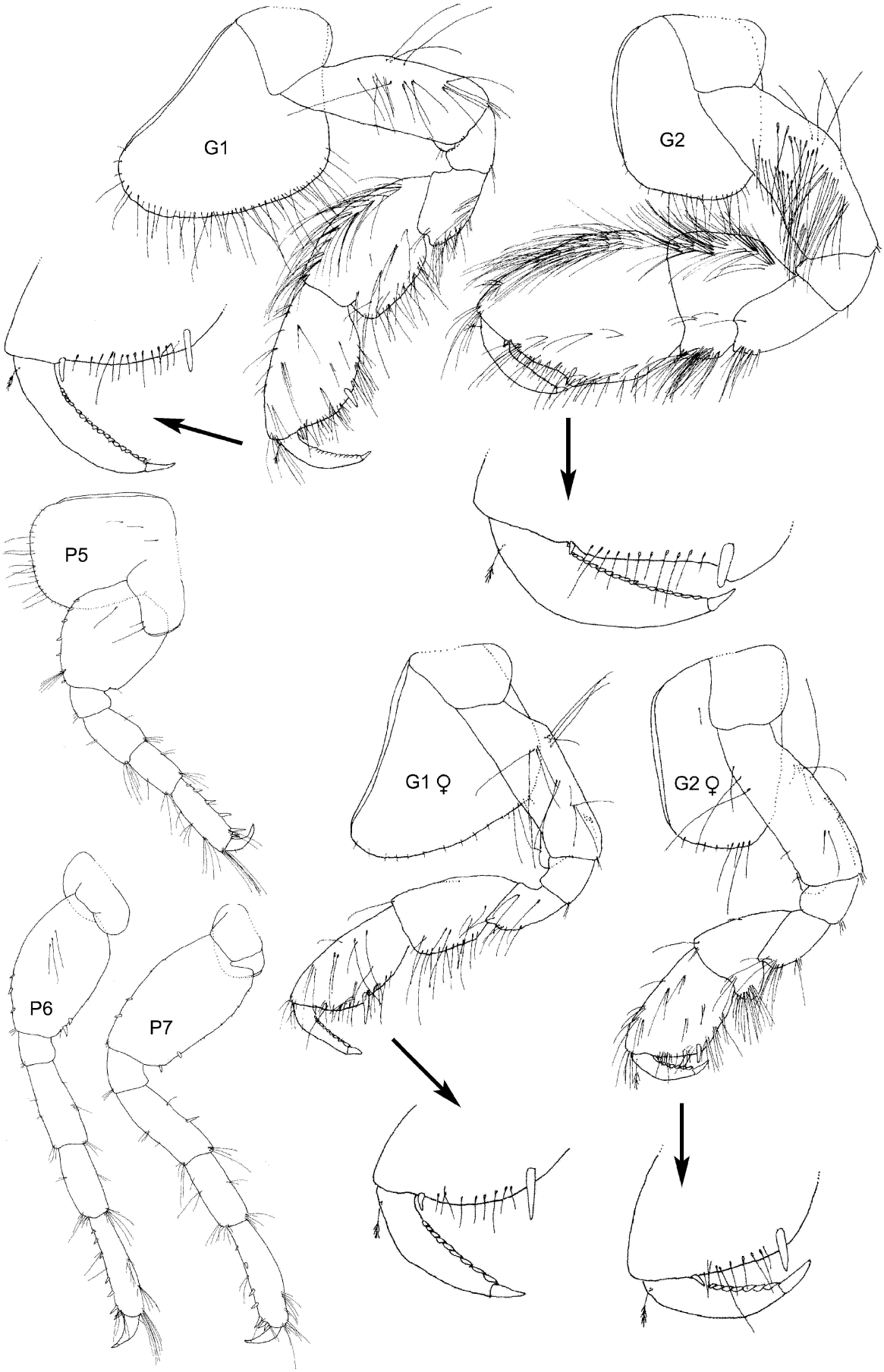

FIGURE 32. *Cymadusa wistari* Peart, 2007a, holotype, male, 6 mm, AM P62534, paratype female, 8 mm, AM P62535, Heron Island, Great Barrier Reef (based on Peart 2007a).

subequal in length to palm, tapering evenly, inner margin crenate. *Gnathopod 2* with long, dense, setae on margins, coxa with long, plumose setal fringe on ventral margin, basis with medial fringe of long, slender setae, anterodistal lobe absent, anterodistal corner without setae; merus margin with short, subacute distal lobe, anterior margin with fringe of slender setae; carpus shorter than propodus, subtriangular; propodus broad, less than 1.5 x as long as broad, subovoid, not produced into an anterodistally setose lobe, anterior margin with fringe of slender setae; palm acute, entire, with short (length 1 x breadth) posterodistal tooth, apically subacute, with 1 robust seta defining palm; dactylus subequal in length to palm, tapering evenly, apically acute, inner margin crenate. *Pereopods 3–4* basis slightly expanded; merus subequal in length to carpus. *Pereopods 5–7* simple. *Pereopod 5* without medial slender setae; distal articles slender; propodus not expanded distally, with 3 anterodistal striated robust setae; dactyl us slightly curved. *Pereopod 6* basis posterior margin straight, with several marginal robust setae; distal articles slender; propodus slightly expanded distally, with 3 anterodistal striated robust setae; dactylus slightly curved. *Pereopod 7* similar to pereopod 6.

Pleon. *Epimera 2–3* posteroventral corner broadly rounded. *Uropod 1* peduncle with 12 robust setae, with short fringe of slender setae (less than 0.5 x length of peduncle), with large, acute distoventral spine; outer ramus with 5 lateral robust setae; inner ramus with 9 lateral robust setae. *Uropod 2* peduncle with 5 robust setae; outer ramus with 8 lateral robust setae; inner ramus with 9 lateral robust setae. *Uropod 3* peduncle longer than broad, less than 2 x length of rami, without marginal slender setae, with 5 distal robust setae, with 3 distal slender setae; outer ramus with 2 large recurved distal robust setae, with 1 lateral robust seta, without lateral slender setae; inner ramus with 3 distal slender setae, with 2 lateral and 1 medial robust setae. *Telson* subrectangular, apically rounded, with small apical cusp on each distolateral corner, with 4 pairs of oblique medial slender setae, with 4 pair of lateral and 2 pair of apical slender setae.

Female (sexually dimorphic characters). Based on paratype, female, 8 mm, AM P62535. *Gnathopod 1* subequal in size to gnathopod 2; coxa with a tuft of slender setae in the posteroventral corner; basis subequal in length to coxa; merus anterior margin without fringe of slender setae; carpus about 2 x as long as broad, subequal in length to propodus. *Gnathopod 2* coxa with cluster of slender setae on posterodistal margin; basis with sparse slender setae, anterodistal lobe rounded, anterodistal corner with 1 slender seta; merus anterior margin without fringe of slender setae; carpus subequal to propodus; palm with posterodistal corner rounded.

Habitat. Brown algae *Padina australis*, *Dictyota* sp. and *Sargassum* sp.

Remarks. *Cymadusa wistari* is one of the densely setose group of *Cymadusa* species which includes: *C. filosa* Savigny, 1816; *C. setosa* (Haswell, 1879); *C. tattersalli* Peart, 2004 and *C. thagaay* Peart, 2007a. *Cymadusa wistari* is most similar to *C. tattersalli* and *C. thagaay* which all have a rectolinear carpus on the male gnathopod 1 which is subequal in length to the propodus. In *C. filosa* and *C. setosa* the male carpus is extremely elongate and greater than 1.5 times the propodus.

Cymadusa wistari and *C. tattersalli* can be separated from *C. thagaay*, which has less setae along the medial margins of the basis of the male gnathopods 1 and 2. *Cymadusa wistari* differs from *C. tattersalli* by the ratio of antenna 1 to 2. Antenna 1 is longer than 2 in *C. wistari* and subequal in *C. tattersalli*. Also the straight palm on the propodus of the male gnathopod 2 in *C. wistari* is distinct from the acute palm with proximal subquadrate projection in *C. tattersalli.*

Distribution. *Australia.* Queensland: Heron Island (Peart 2007a).

Paragrubia Chevreux, 1901

Paragrubia edgari Peart sp. nov.

(Figs 33, 34)

Type material. Holotype, female, ovigerous, 10.0 mm, AM P51258, Cape Cleveland, Queensland, Australia (19°11'S 147°01'E), on *Sargassum* sp., 1 m, G. Edgar, 24 August 1996 (CA 12). Paratypes: male, 11.0 mm, AM P51259 (CA 12); juvenile, 4 mm, AM P51260 (CA 12).

Additional material examined. 1 dissected male, 4 slides, AM P76984 (JDT/LIZ 15h); 8 unsexed, AM P76985 (SEL/LZI-4-2).

Type locality. Cape Cleveland, Queensland, Australia (19°11'S 147°01'E), on *Sargassum* sp., 1 m.

Etymology. This species is named for the collector, Graham Edgar.

Description. Based on holotype, female, 10.0 mm, AM P51258.

Head. *Head* longer than deep. *Antenna 1* longer than antenna 2; peduncular article 1 longer than article 2; flagellum 49 articles; accessory flagellum with 5 articles. *Antenna 2* peduncle not densely setose on ventral margin; article 4 longer than article 5; flagellum 24 articles. *Upper lip* lateral margins each with midlateral notch. *Mandible* molar well developed, triturating, accessory setal row with 5 serrate setae; palp 3–articulate, apically setose; article 1 shorter than article 2; article 2 subequal in length to article 3. *Lower lip* outer plates entire, lateral lobe distinctly longer than medial lobe; mandibular lobe with curved margins, apically subacute. *Maxilla 1* inner plate with 1 seta; palp article 2 slender. *Maxilla 2* inner plate narrower than outer plate. *Maxilliped* outer plate with row of small robust setae along medial margin.

Pereon. *Coxae 1–4* deeper than broad. *Gnathopod 1* subequal in size to gnathopod 2; coxa subequal to coxa 2, anteroventrally produced, anterior margin slightly concave, anteroventral corner subacute, with a tuft of slender setae in the posteroventral corner; basis subequal in length to coxa, anterodistal lobe large, rounded, anterodistal corner without setae; merus posterodistal lobe subacute; posterior margin convex; carpus subequal in length to propodus, anterior margin without setae; propodus narrow, subovoid; palm acute, slightly convex, posterodistal corner rounded, with 1 robust seta defining palm; dactylus subequal in length to palm, tapering evenly, inner margin crenate. *Gnathopod 2* with long, simple setae on margins; coxa with a tuft of slender setae in the posteroventral corner; basis with sparse slender setae, basis anterodistal lobe absent, anterodistal corner without setae; merus margin with subacute anterodistal lobe; carpus subequal to propodus, subtriangular; propodus narrow, greater than 1.5 x as long as broad, subovoid; palm acute, entire, with posterodistal corner, rounded, with 1 robust seta defining palm; dactylus subequal in length to palm, tapering evenly, apically acute, inner margin crenate. *Pereopods 3–4* basis narrow; merus subequal in length to carpus. *Pereopods 5–7* simple. *Pereopod 5* basis with medial slender setae; propodus not expanded distally, with 3 anterodistal striated robust seta; dactylus slightly curved. *Pereopod 6* basis posterior margin straight, with several marginal slender setae; propodus not expanded distally, with 3 anterodistal striated robust setae; dactylus slightly curved. *Pereopod 7* similar to pereopod 6.

Pleon. *Epimera 2–3* posteroventral corner broadly rounded, or narrowly rounded. *Uropod 1* peduncle with 5 robust setae, without slender setal fringe, with large, acute distoventral spine; outer ramus with 6 lateral robust setae; inner ramus with 6 lateral robust setae. *Uropod 2* peduncle with 3 robust setae; outer ramus with 5 lateral robust setae; inner ramus with 6 lateral robust setae. *Uropod 3* peduncle longer than broad, less than 2 x length of rami, without marginal slender setae, with 4 distal peduncular robust setae, without distal slender setae; outer ramus with 1 weakly curved distal robust setae, with 2 lateral robust setae and 8 lateral slender setae; inner ramus with 3 distal slender setae, with 1 lateral robust seta. *Telson* subtrapezoidal, apically rounded, with small apical cusp on each distolateral corner, with 5 pair of oblique medial slender setae and 2 pair of lateral slender setae.

Male (sexually dimorphic characters). Based on paratype, male, 11.0 mm, AM P51259. *Antenna 1* primary flagellum 64 articles. *Antenna 2* flagellum 30 articles. *Gnathopod 1* larger and stouter than gnathopod 2; basis longer than coxa, anterodistal corner with 1 slender seta; carpus shorter than propodus, anterior margin with slender setae; propodus broad, subrectangular; palm excavate, posterodistal corner subquadrate. *Gnathopod 2* ; anterodistal lobe large, rounded, reaching beyond ischium, anterodistal corner with 2 slender setae.

Habitat. Brown alga, *Sargassum sp.*

Remarks. *Paragrubia edgari* **sp. nov.** is most similar to *P. latipoda* Ren, 2001 and *P. vorax* Chevreux, 1901. In *P. edgari* the male gnathopod 1 propodus is subrectangular with a medially excavate palm, while in *P. latipoda* and *P. vorax* the propodus is subovoid with a convex palm.

Distribution. *Australia*. Queensland: Lizard Island (current study); Cape Cleveland (current study).

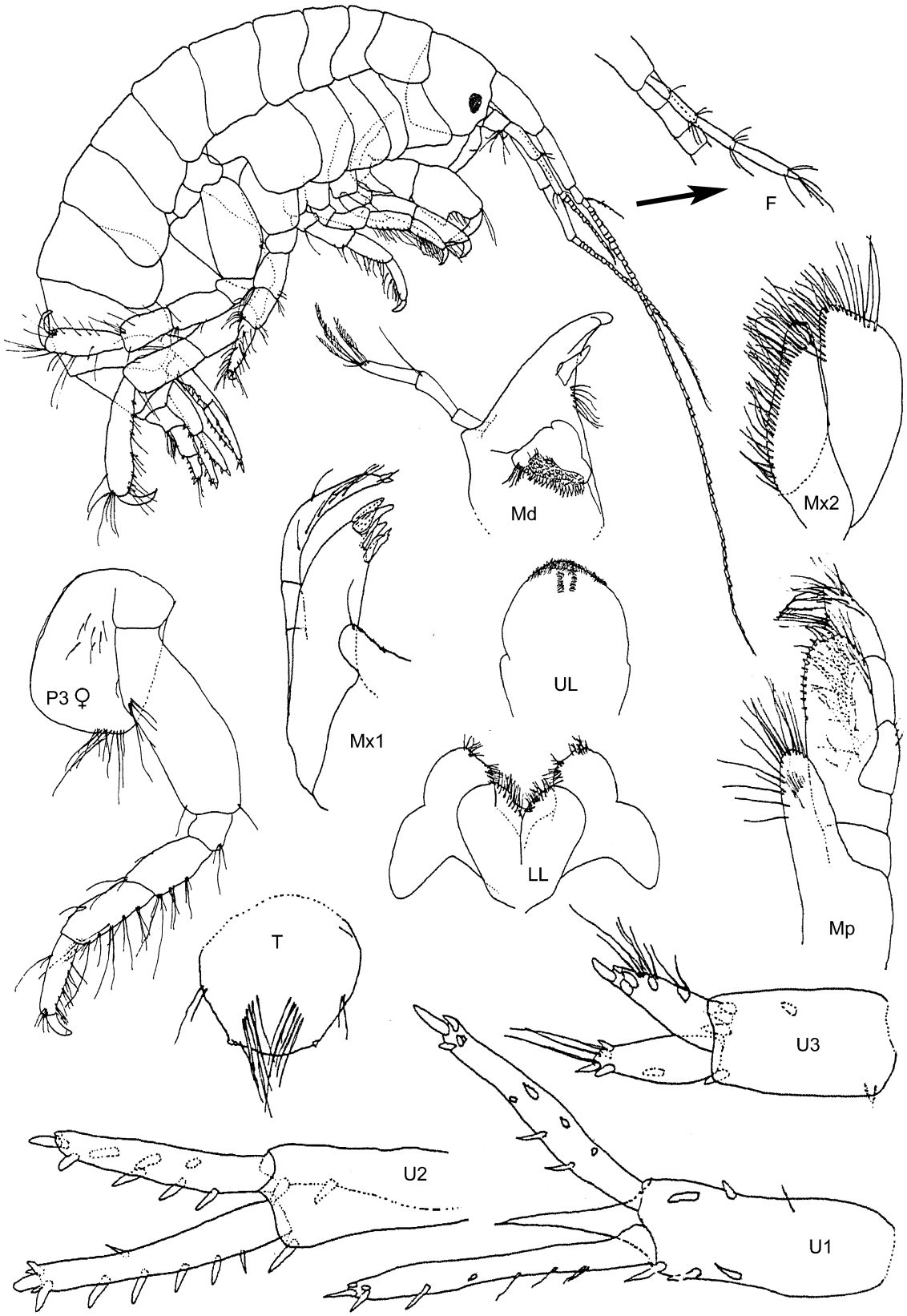

FIGURE 33. *Paragrubia edgari* Peart **sp. nov.**, holotype, female, 10 mm, AM P51258, paratype, male, 11 mm, AM P51259, Cape Cleveland, Queensland.

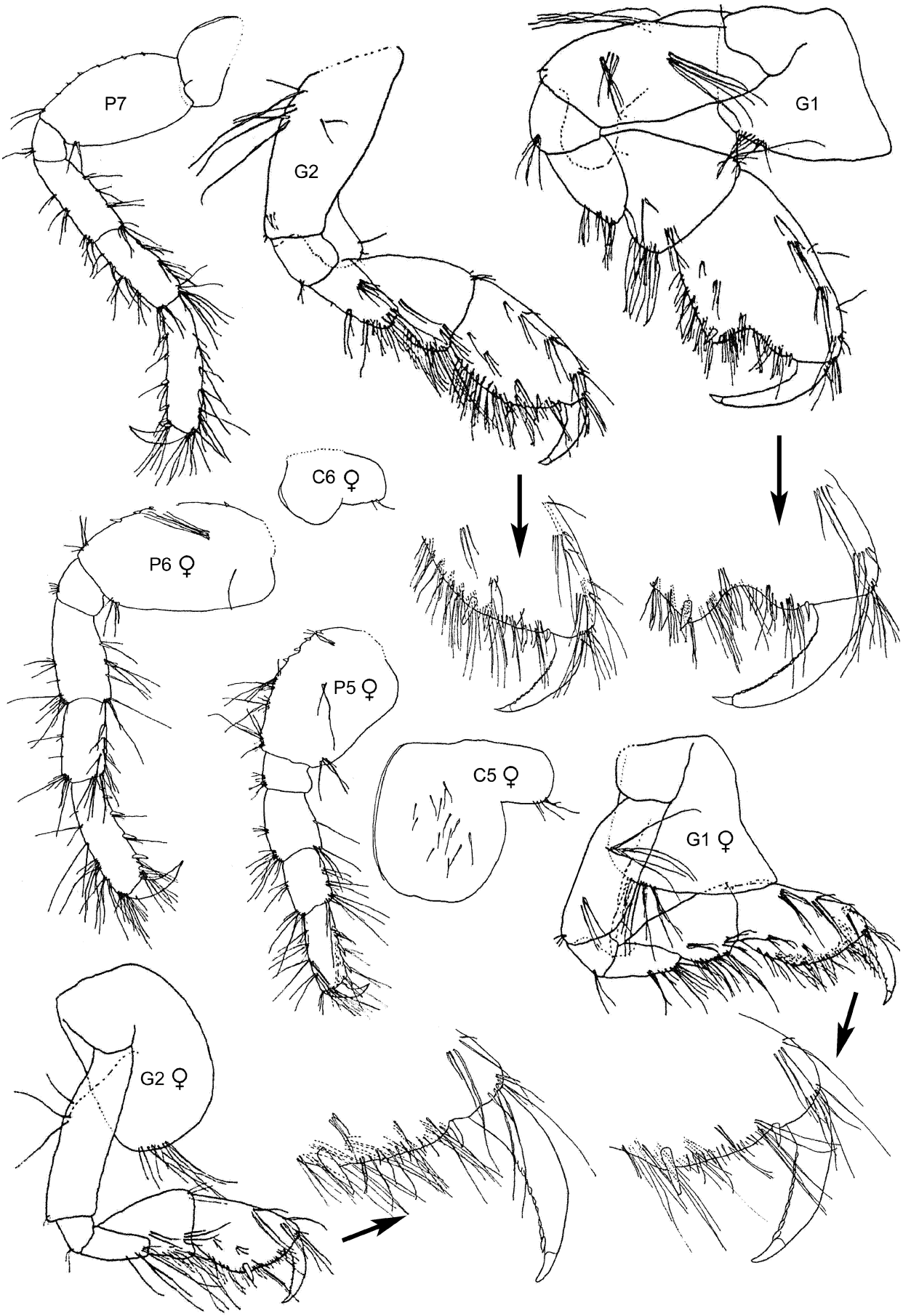

FIGURE 34. *Paragrubia edgari* Peart **sp. nov.**, holotype, female, 10 mm, AM P51258, paratype, male, 11 mm, AM P51259, Cape Cleveland, Queensland.

***Plumithoe* Barnard & Karaman, 1991**

***Plumithoe quadrimana* (Haswell, 1879)**
(Figs 35, 36)

Amphithoe quadrimanus Haswell, 1879: 337, pl. 21, fig. 7. —Springthorpe & Lowry, 1994: 129.
Ampithoe quadrimana. —Stebbing, 1906: 635.
Ampithoe quadrimanus. —Barnard & Karaman, 1991: 103.
Plumithoe quadrimana. —Poore & Lowry, 1997: 932, figs 26–29.
Plumithoe quadrimanus. —Lowry & Stoddart, 2003: 62 (catalogue).

Material examined. 4 unsexed, AM P62559 (QLD 1335); many unsexed, AM P75878 (QLD 1952); 1 dissected male 'C', 4.1 mm, 3 slides, AM P76986 (QLD 2006); 1 dissected female 'D', 3.5 mm, 3 slides, AM P76987 (QLD 2006); many unsexed, AM P75877 (QLD 2006).

Type locality. Shark Bay, Port Jackson, New South Wales, Australia (~33°51'12"S 151°15'54"E), living on *Colpomenia* sp., 1–2 m.

Description. Based on male, 4.1 mm, AM P76986.

Head. *Head* about as long as deep. *Antenna 1* longer than antenna 2; peduncular article 1 subequal to article 2; flagellum 16 articles; accessory flagellum absent. *Antenna 2* peduncle with long, dense plumose setae on ventral margin; article 4 longer than article 5. *Upper lip* directed nearly straight down, lateral margins each with midlateral notch. *Mandible* molar well developed, triturating, accessory setal row with 3 serrate setae; palp 3–articulate, apically setose; article 1 shorter than article 2; article 2 subequal in length to article 3, slender setae present. *Lower lip* outer plates forming a medial slit, lateral lobe distinctly longer than medial lobe; mandibular lobe with curved margins, rounded apically. *Maxilla 1* inner plate with 1 seta; palp article 2 broad. *Maxilla 2* inner plate narrower than outer plate. *Maxilliped* outer plate with row of small robust setae along medial margin.

Pereon. *Coxae 1–4* deeper than broad, without ventral setae. *Gnathopod 1* smaller than gnathopod 2 ; coxa distinctly larger than coxa 2, anterodistally produced, anterior margin concave, anteroventral corner acute; basis shorter than coxa, anterodistal lobe rounded, without setae; merus posterodistal lobe acute; carpus about 1.5 x as long as broad, shorter than propodus, anterior margin without setae, posterior margin truncated; propodus narrow, subrectangular; palm acute, straight, with posterodistal corner rounded, with 1 robust seta defining palm; dactylus subequal in length to palm, inner margin crenate. *Gnathopod 2* basis with sparse medial slender setae, anterodistal lobe small, rounded, anterodistal corner without setae; merus margin with short, subacute distal lobe; carpus much shorter than propodus, subtriangular; propodus broad, less than 1.5 x as long as broad, subrectangular; palm transverse, slightly excavate, with subquadrate posterodistal corner, without robust seta defining palm; dactylus overreaching palm, tapering evenly, apically acute, inner margin serrate.

Pereopods 3–4 basis narrow; merus subequal in length to carpus. *Pereopod 5* without medial slender setae, distal articles broad; propodus slightly expanded distally, with anterodistal striated robust setae; dactylus strongly curved. *Pereopod 6* distal articles slender; propodus slightly expanded distally; dactylus slightly curved. *Pereopod 7* similar to pereopod 6.

Pleon. *Epimera 2–3* posteroventral corner narrowly rounded. *Uropod 1* peduncle with 3 robust setae, with 4 lateral slender setae, with large, acute distoventral spine; outer ramus with 1 lateral robust seta; inner ramus with 1 lateral robust seta. *Uropod 2* peduncle with 2 robust setae, with 3 lateral slender setae; outer ramus with 1 lateral robust seta; inner ramus with 1 lateral robust seta. *Uropod 3* peduncle longer than broad, less than 2 x length of rami, marginal slender setae present, with 2 distal peduncular robust setae, with 4 distal slender setae; outer ramus with 3 large recurved distal robust setae, two with apical accessory spines, with 1 lateral robust seta and 1 lateral slender seta, inner ramus with 4 robust and 2 slender distal setae. *Telson* subtrapezoidal, apically subacute, with small apical cusp on each distolateral corner, with 2 pair of oblique medial slender setae, with 1 pair of lateral setae, 2 pair of lateral and 1 pair of apical plumose setae.

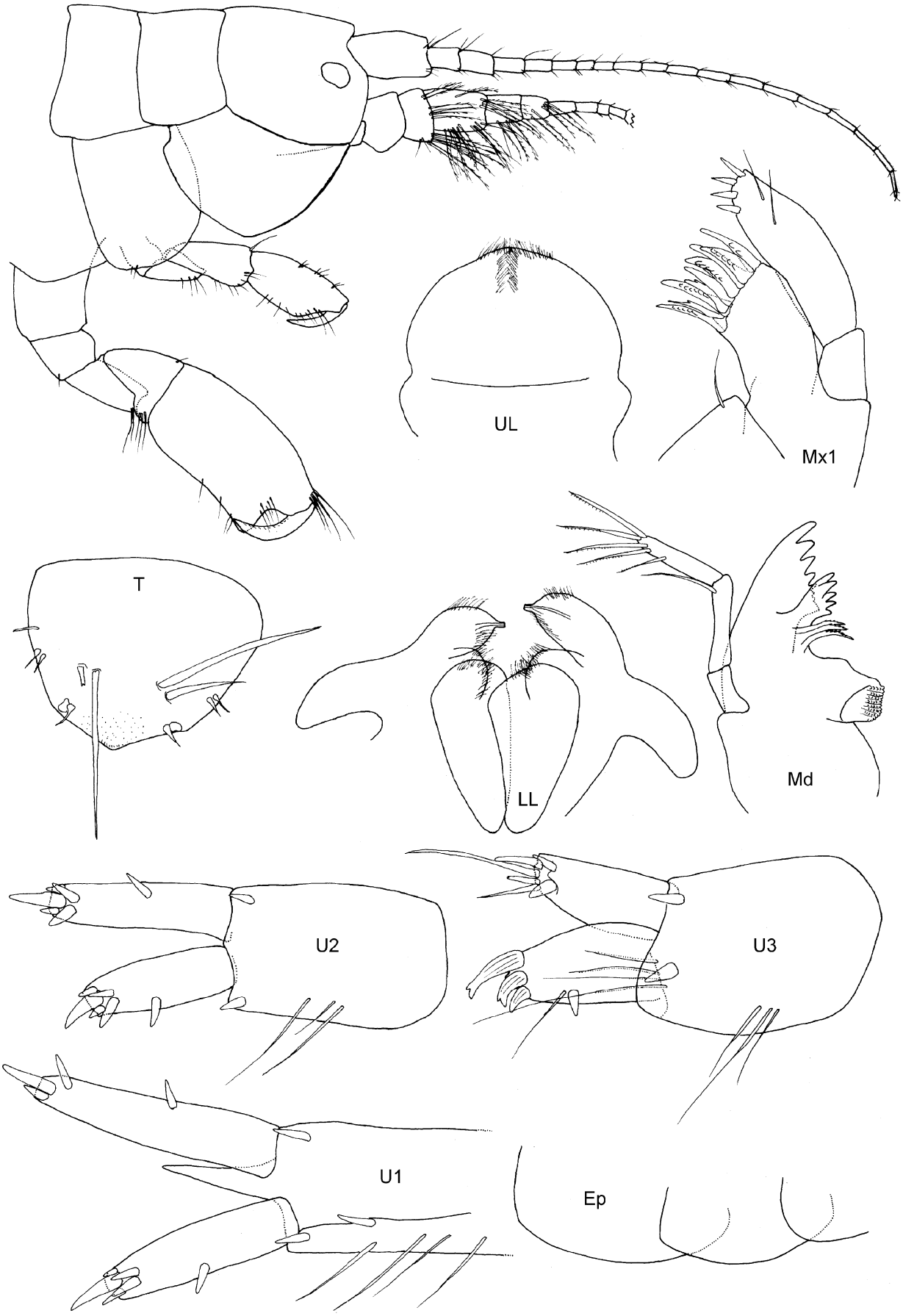

FIGURE 35. *Plumithoe quadrimana* (Haswell, 1879), male 'c', 4.1 mm, AM P76986, Heron Island, Great Barrier Reef.

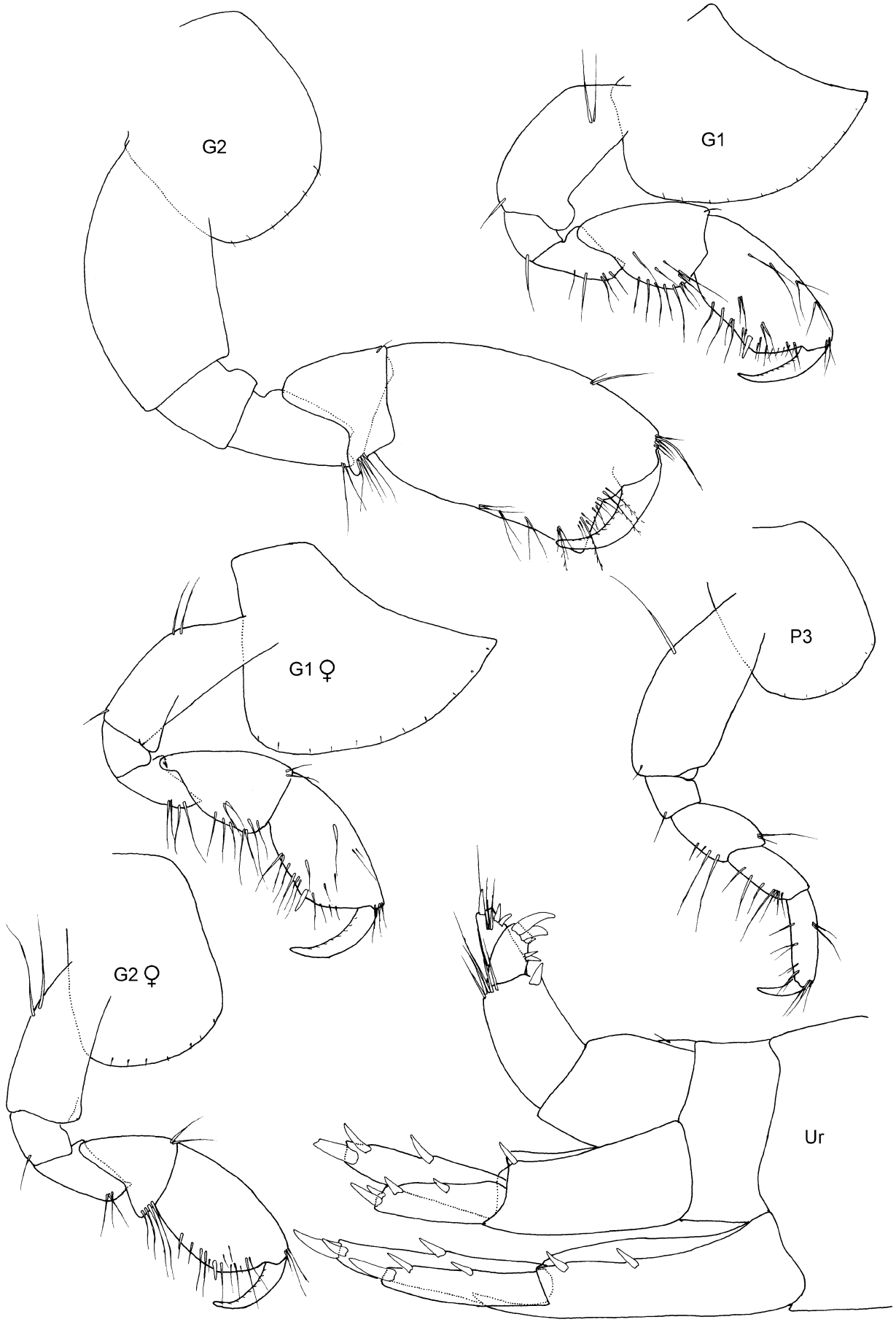

FIGURE 36. *Plumithoe quadrimana* (Haswell, 1879), male, 4.1 mm, AM P76986, female 'D', 3.5 mm, AM P76987 Heron Island, Great Barrier Reef.

Female (sexually dimorphic characters). Based on female, 3.5 mm, AM P76987. *Gnathopod 1* subequal in size to gnathopod 2; dactylus overreaching palm. *Gnathopod 2* basis with 2 long, simple setae on posterior margin, anterodistal corner without setae; propodus narrow, greater than 1.5 x as long as broad; palm acute, entire, rounded, with 1 robust seta defining palm; dactylus slightly overreaching palm.

Habitat. Brown algae *Turbinaria* sp. and green algae *Caulerpa* sp., and *Halimeda* sp. Also on dead coral with epiphytes.

Remarks. These are the first records of *P. quadrimana* outside of Port Jackson. The species can be distinguished from all other ampithoids on the Great Barrier Reef by its small size and the tuft of dense setae on the antenna 2 peduncle, characteristic of *Plumithoe*.

Distribution. *Australia*. Queensland: Heron Island; One Tree Island (current study). New South Wales: Port Jackson (Haswell 1879; Poore & Lowry 1997).

Sunamphitoe Bate, 1857

Sunamphitoe fantome Peart sp. nov.

(Figs 37, 38)

Type material. Holotype, female, ovigerous, 7.0 mm, AM P51261, Fantome Island, Queensland, Australia (18°40'S 146°31'E), low water mark, on *Sargassum* sp., G. Edgar, 18 July 1996 (CA 12). Paratypes: male, 5.0 mm, AM P51262, male, 4.0 mm. AM P51263; 2 males, 1 female, 3–4 mm, AM P51264 (CA 12).

Type locality. Fantome Island, Queensland, Australia (18°40'S 146°31'E), low water mark, on *Sargassum sp*.

Etymology. This species is named for Fantome Island, the type locality.

Description. Based on holotype, female, 7.0 mm, AM P51261.

Head. *Head* as long as deep. *Antenna 1* longer than antenna 2; peduncular article 1 subequal to article 2; flagellum 27 articles; accessory flagellum absent. *Antenna 2* peduncle not densely setose on ventral margin; article 4 longer than article 5; flagellum 10 articles. *Upper lip* directed nearly straight down, lateral margins each with midlateral notch. *Mandible* molar well developed, triturating, accessory setal row 7 serrate setae; palp absent. *Lower lip* outer plates notched, forming a distal excavation, medial and lateral lobes subequal in size; mandibular lobe with curved margins, apically subacute. *Maxilla 1* inner plate with 1 seta; palp article 2 slender. *Maxilla 2* inner plate narrower than outer plate. *Maxilliped* outer plate with row of large robust setae along medial margin.

Pereon. *Coxae 1–4* deeper than broad. *Gnathopod 1* subequal in size to gnathopod 2; coxa subequal in size to coxa 2, not anteriorly produced, anteroventral corner rounded, with a tuft of slender setae in the posteroventral corner; basis subequal in length to coxa, anterodistal lobe rounded, anterior margin with fringe of short slender setae; merus posterodistal lobe rounded; carpus shorter than propodus, anterior margin with distal slender setae, posterior margin convex; propodus narrow, subrectangular; palm transverse, straight, with subquadrate posterodistal corner, with 1 robust seta defining palm; dactylus overreaching palm, tapering evenly, apically acute, inner margin crenate. *Gnathopod 2* coxa with a tuft of slender setae in the posteroventral corner; basis anterodistal lobe rounded, anterior margin with fringe of short slender setae; merus subacute distal lobe; carpus shorter than propodus, subtriangular; propodus broad, less than 1.5 x as long as broad, subrectangular, not produced into an anterodistally setose lobe; palm nearly transverse, with subquadrate posterodistal corner, with 1 robust seta defining palm; dactylus overreaching palm, tapering evenly, apically acute, inner margin crenate. *Pereopods 3–4* basis expanded, distally broad; merus distally expanded, subequal in length to carpus.

Pleon. *Epimera 2–3* posteroventral corner narrowly rounded. *Uropod 1* peduncle with 9 robust setae, with long fringe of slender setae (greater than 0.5 x length of peduncle), with large, acute distoventral spine; outer ramus with 6 lateral robust setae; inner ramus with 6 lateral robust setae. *Uropod 2* peduncle with 5 robust

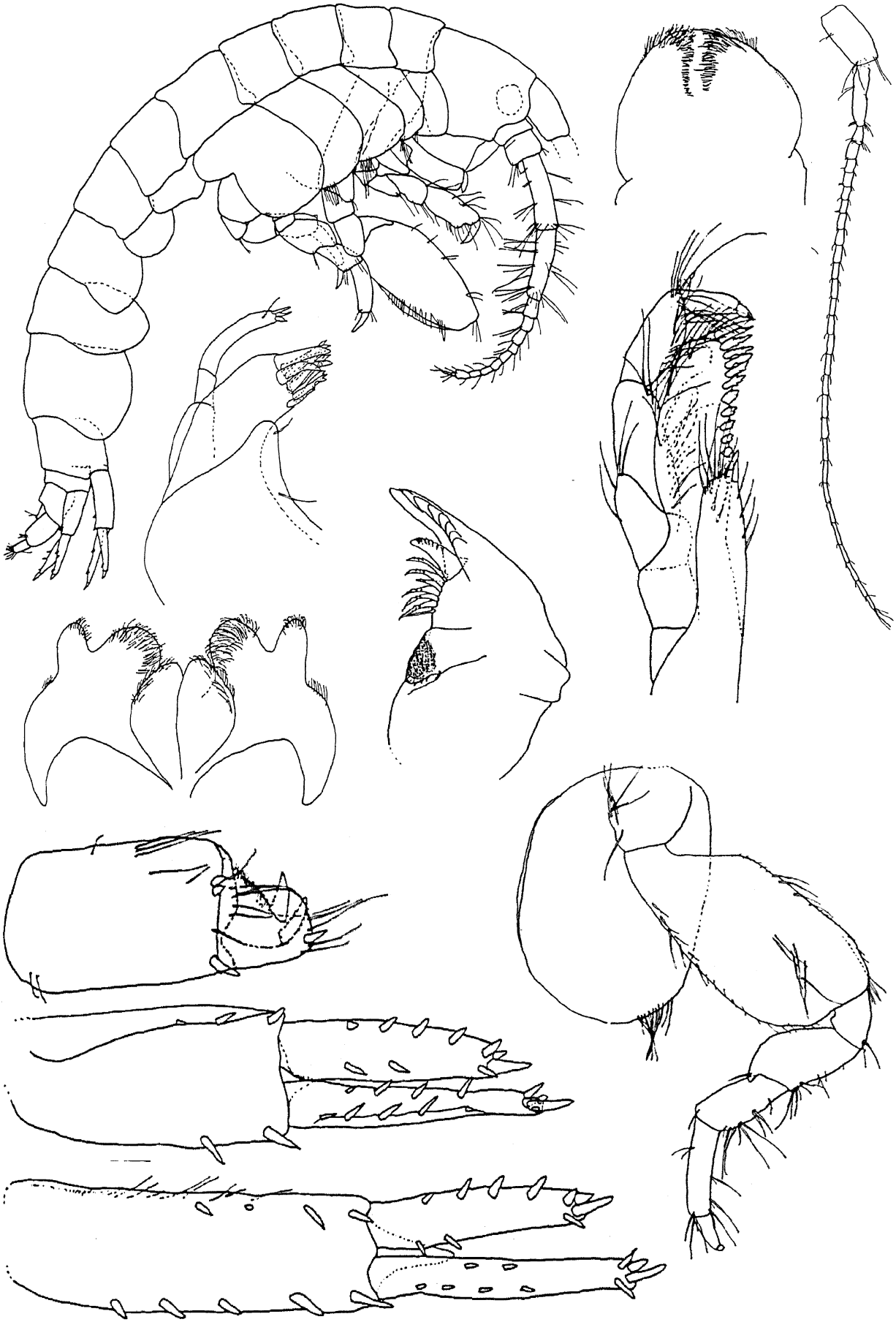

FIGURE 37. *Sunamphitoe fantome* Peart **sp. nov.**, holotype, female, 7.0 mm, AM P51261, paratype, male, 5.0 mm, AM P51262, Fantome Island, Great Barrier Reef.

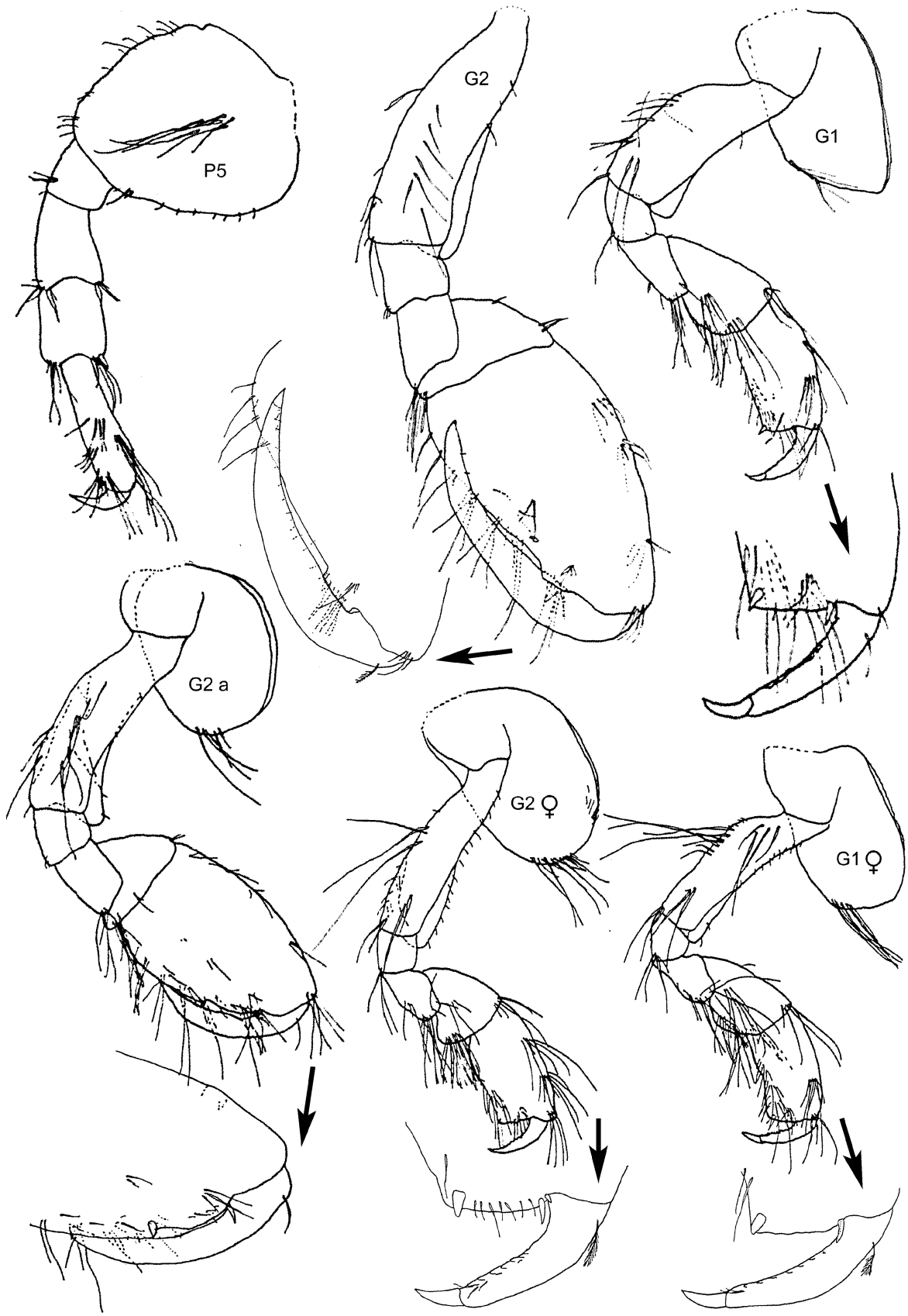

FIGURE 38. *Sunamphitoe fantome* Peart **sp. nov.**, holotype, female, 7.0 mm, AM P51261, paratype, male, 5.0 mm, AM P51262, Fantome Island, Great Barrier Reef.

setae; outer ramus with 6 lateral robust seta; inner ramus with 8 lateral robust setae. *Uropod 3* peduncle longer than broad, more than 2 x length of rami, marginal slender setae present, with 3 distal peduncular robust setae, with 5 distal slender setae; outer ramus with 2 large recurved distal robust setae; inner ramus with 5 distal slender setae and 1 robust seta, without lateral robust setae. *Telson* subtriangular.

Male (sexually dimorphic characters). Based on paratype, male, 5.0 mm, AM P51262. *Antenna 1* flagellum 27 articles. *Antenna 2* peduncle with short, dense setae on ventral margin. *Gnathopod 1* smaller than gnathopod 2; coxa, anterior margin straight, anteroventral corner subacute; basis anterodistal lobe with 1 slender seta; merus distal lobe subacute. *Gnathopod 2* basis with sparse slender setae, anterodistal corner without setae; merus margin with short, rounded distal lobe; carpus much shorter than propodus, cup-shaped; propodus subovoid; palm extremely acute, entire, with proximal, with broad subquadrate projection near base of dactylus, without palm defining robust setae; dactylus inner margin smooth.

Habitat. Brown alga *Sargassum* sp.

Remarks. *Sunamphitoe fantome* **sp. nov.** is similar to *S. pelagica* (Milne Edwards, 1830) known from the North Atlantic (Chevreux & Fage 1925, Lincoln 1979, Bousfield 1983), the Mediterranean Sea (Krapp-Schickel 1982) and Indonesia (Ledoyer 1979). In *S. fantome* the male gnathopod 2 propodus palm has a blunt subquadrate proximal projection and in *S. pelagica* the palm has a proximal excavation. A few other subtle differences between these two species include the length to depth of the head (*S. fantome*, as long as deep; *S. pelagica*, longer than deep); antenna 2 development (*S. fantome*, robust and better developed than antenna 1; *S. pelagica*, slender, similar to antenna 1); gnathopod 1 carpus posterior margin (*S. fantome*, rounded; *S. pelagica*, truncated).

Distribution. *Australia*. Queensland: Fantome Island (current study).

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