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**Article**

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# Ampeliscidae*

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## Abstract

Three species of *Ampelisca* are described: two are new (*Ampelisca dingaal* **sp. nov.** and *Ampelisca jiigurru* **sp. nov.**), and the third presents a range extension of *Ampelisca dimboola*.

**Key words:** Crustacea, Amphipoda, Ampeliscidae, Great Barrier Reef, Australia, taxonomy, new species, *Ampelisca dingaal*, *Ampelisca jiigurru*, *Ampelisca dimboola*

## Introduction

The Ampeliscidae Costa, 1857 are distributed worldwide. Ampeliscids are often the dominant amphipod group in fine sediment areas, where they live in infaunal tubes, which they construct themselves from 'amphipod silk' and sediment, and feed on organic detritus filtered from the sediment (Barnard 1960, 1969; Dickinson 1982, 1983).

Only one comprehensive evaluation of Australian ampeliscids has been carried out (Lowry & Poore 1985). Prior to their work, only two species of *Ampelisca* were known from Australian waters. Lowry & Poore (1985) reviewed collections from south-eastern Australia (southern Queensland to Tasmania and South Australia) and described 15 new species within *Ampelisca*, *Byblis* and *Haploops*. Since then, no new ampeliscid species have been recorded from Australia.

Two new species of *Ampelisca* (*Ampelisca dingaal* **sp. nov.** and *A. jiigurru* **sp. nov.**) are described here, and a range extension of *Ampelisca dimboola* Lowry & Poore, 1985, is given.

## Materials and methods

The descriptions were generated from a DELTA database (Dallwitz, 2005) of the ampeliscid genera and species of the world. Material was hand-collected on scuba and is lodged in the Australian Museum, Sydney (AM). A set of colour plates, a list of standard abbreviations and detailed station data is available in Lowry & Myers (2009). A CD (*Benthic Amphipoda (Crustacea: Peracarida) of the Great Barrier Reef: Interactive Keys*) is available with the book or the keys can be accessed at the crustacea.net website.

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**Ampeliscidae Costa, 1957**

***Ampelisca* Krøyer, 1842**

***Ampelisca dimboola* Lowry & Poore, 1985**
(Fig. 1, Pl. 1B)

*Ampelisca dimboola*. —Lowry & Poore, 1985: 271–273, figs 11, 12. —Lowry & Stoddart, 2003: 52.

**Material examined.** 1 female, 11.8 mm, AM P75275, Reef front, Fantome Island, northern-most bay, sand sample, 3 m, J.D. Thomas, 14 February 1989 (JDT/OPH-11).

**Type locality.** East of Burwood Beach, New South Wales (32º57.5'S 151º44.7'E).

**Description.** Based on female, 11.8 mm, AM P75275.

**Head.** *Head* longer than deep, distal margin concave, anteroventral margin straight; two eyes present per side in the form of distinct lenses. *Antenna 1* slightly shorter than peduncle of antenna 2, peduncular article 2 longer (1.5 x) than article 1. *Antenna 2* distinctly shorter than body length. *Mandible* palp article 2 not inflated; article 3 similar length to article 2.

**Pereon.** *Coxa 1 to 3* each with a posteroventral spine, spines becoming smaller progressively. *Pereopod 7* basis strongly expanded distally, widest distally, distal expansion not reaching past distal end of ischium, distal margin densely setose; ischium longer than merus, anterior lobe slightly produced along anterior margin of merus; merus anterior and posterior lobes slightly produced along anterior margin of carpus; carpus short (about as long as broad), anterior lobe extending along anterior margin of propodus; propodus not elongate (less than 2 x as long as broad), inflated (laterally convex), similar width to carpus, posterior margin with lateral tuberculation; dactylus tapering distally, straight, shorter than propodus, posterior margin with tuberculation.

**Pleon.** *Epimeron 1* distal margin not evenly rounded, with anterior facing hooked seta. *Epimeron 2* posteroventral corner with small spine. *Epimeron 3* posteroventral margin convex, corner with acute spine. *Urosomite 1* dorsal margin with saddle-shaped distally upturned carina. *Uropod 1* reaching to uropod 2 rami; peduncle with one robust seta; rami subequal in length; outer ramus with lateral row of sensory setae. *Uropod 2* outer ramus shorter than inner ramus; inner ramus with two lateral rows of short robust setae; outer ramus with two lateral rows of short robust setae and a large subterminal robust seta. *Uropod 3* inner ramus not heavily serrate, with plumose setae on inner margin; outer ramus not heavily serrate, with plumose setae on inner and outer margins, inner ramus broadest at proximally. *Telson* dorsal surface with two rows of up to five pairs of robust setae; distal margin with 1–2 shallow notches, with subdistal setae.

**Male** (sexually dimorphic characters). Unknown.

**Habitat.** Littoral (4–53 m), sands.

**Remarks.** This species was described in detail by Lowry & Poore (1985). The single specimen from Fantome Island was discovered in the collections of Dr. James D. Thomas (Nova Southeastern University). While it has been identified as *Ampelisca dimboola*, several differences were noted between this specimen and the holotype described and illustrated by Lowry & Poore (1985). In the specimen described here (compared to the holotype) the palp articles of the mandible are more elongate, the lateral setae on the outer ramus of uropod 3 are short and there is no unguis on the dactylus of pereopod 7. However, the structures that are used most often to distinguish between the species of *Ampelisca* (shape of the basis of pereopod 7, urosomal carina, uropod 3 and the head) cannot be distinguished from that of the holotype of *A. dimboola*. Setation differences can be caused by different size/age classes of the animals but with only one specimen available it is not clear why the mandibular palp is so different. The unguis on pereopod 7 illustrated in Lowry & Poore (1985) could be a mistake as there are no other *Ampelisca* species with this unguis.
These specimens expand the range of this species to Queensland.

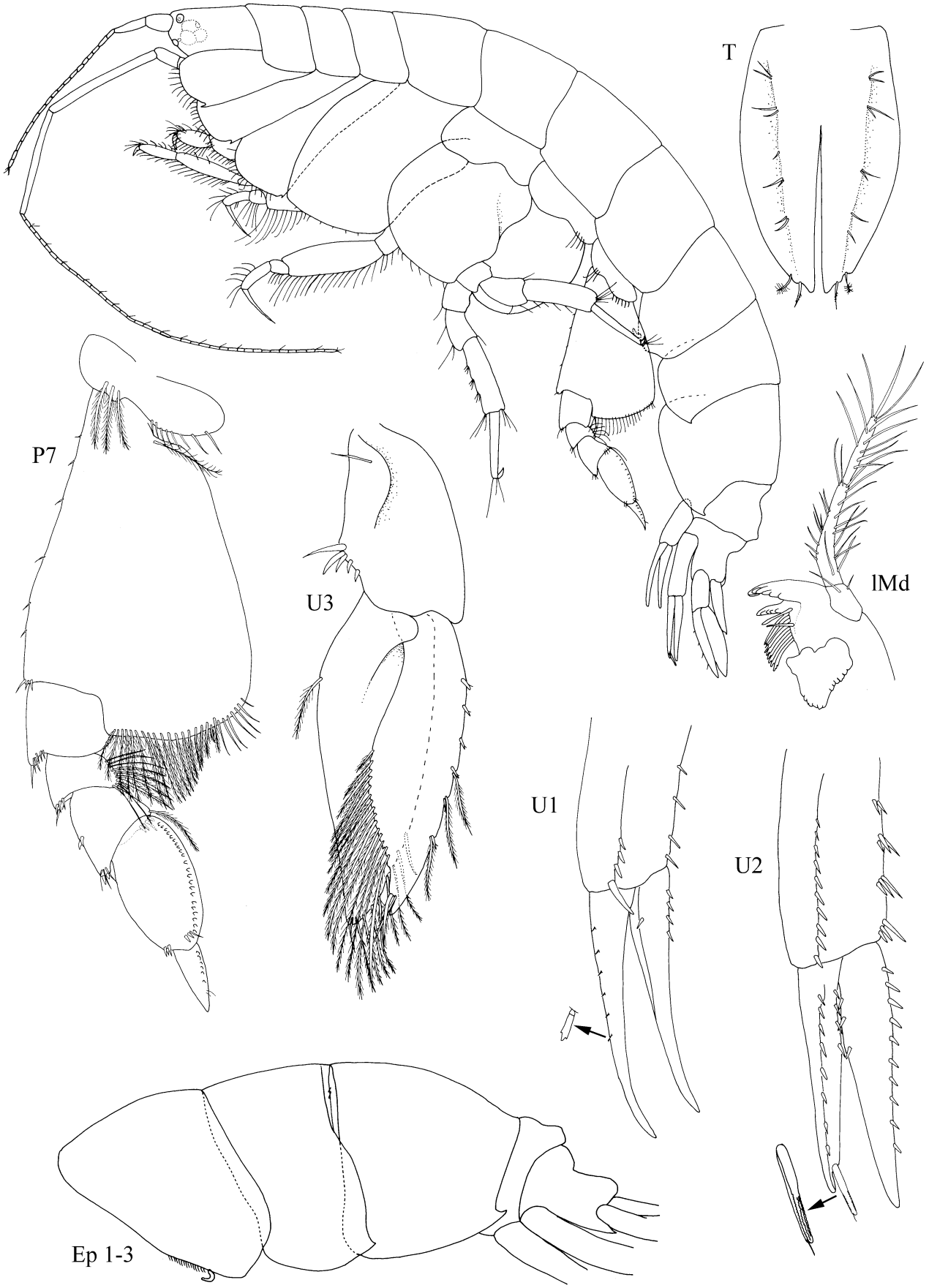


**FIGURE 1.** *Ampelisca dimboola* Lowry & Poore, 1985, female, 11.8 mm, AM P75275, Reef front, Fantome Island, Great Barrier Reef.

**Distribution.** *Australia*. Queensland: Fantome Island (current study). New South Wales: east of Burwood Beach; east of Malabar; Pittwater; Moona Moona Creek, Jervis Bay (Lowry & Poore 1985). Victoria: Ninety-mile Beach; Seaspray (Lowry & Poore 1985).

***Ampelisca dingaal* sp. nov.**
(Figs 2, 3)

**Type material.** Holotype female, 7.1 mm, AM P75520, Cobia Hole, Lizard Island (14°39.154'S, 145°26.851'E), coarse sediment, patches of reef and sand, 17 m, J.K. Lowry, 25 February 2005 (QLD 1666). Paratype: 1 female, 6.7 mm, AM P75521, same station data.

**Type locality.** Cobia Hole, Lizard Island, Queensland, Australia (14°39.154'S, 145°26.851'E).

**Etymology.** Named for the Dingaal people: an aboriginal group that have traditionally used Lizard Island as a ceremonial place.

**Description.** Based on holotype, female, 7.1 mm, AM P75520.

**Head**. *Head* longer than deep, distal margin concave, anteroventral margin straight; two eyes present per side in the form of distinct lenses. *Antenna 1* distinctly shorter than peduncle of antenna 2; peduncular article 2 longer (1.3 x) than article 1. *Antenna 2* about as long as body.

**Pereon.** *Coxa 1–3* each with a small posteroventral spine, spines becoming smaller progressively. *Gnathopod 1* coxa similar length to coxa 2 and 3, distally rounded, with a row of 6–9 distal plumose setae and a row of 6–9 simple setae set behind the plumose setae on the outer face; basis with 4–5 long setae (plumose and simple) on the dorsal margin and 7–9 long setae (plumose and simple) on the ventral margin; ischium with scattered setae on ventral margin; merus with row of setae on ventral margin; carpus without setae on dorsal margin, with fringe of setae on ventral margin; propodus dorsal margin setose, ventral margin with fringe of setae; dactylus more than half length of propodus with 3 plumose setae on ventral margin. *Gnathopod 2* coxa distally convex, with a row of 6–8 distal plumose setae and a row of 5–6 simple setae set behind the plumose setae on the outer face; basis with 3–4 setae (plumose and simple) on the dorsal margin and 4–5 long setae (plumose and simple) on the ventral margin; ischium with scattered setae on ventral margin; merus with scattered setae on ventral margin; carpus with 4–5 setae on dorsal margin, ventral margin with up to six oblique setal rows along margin; propodus dorsal margin setose, ventral margin with rows of plumose and simple setae; dactylus more than half length of propodus with 3 plumose setae on ventral margin. *Pereopod 3* coxa distally convex, with a row of 3–4 distal setae and a row of 5–6 smaller setae set behind on the outer face; basis with 3–4 setae on the dorsal margin and scattered setae on the ventral margin; ischium with scattered setae on ventral margin; merus with rows of 3–4 plumose setae distally on both the dorsal and ventral margins; carpus with 1–2 plumose setae on dorsal margin, ventral margin with 5–6 plumose setae; propodus dorsal margin setose, ventral margin with 1–2 setae; dactylus longer than carpus and propodus lengths combined. *Pereopod 4* coxa with 5–7 distal setae and a row of 4–5 setae set behind on the outer face; basis with 7–8 long setae on the dorsal margin (plumose and simple) and 10–11 long setae (plumose and simple) on the ventral margin; ischium with 3–4 long plumose setae on the ventral margin; merus with a row of 16–20 long plumose setae on both the dorsal and ventral margins; carpus dorsal margin with a single plumose seta, ventral margin with 4–5 plumose setae; propodus with simple seta on dorsal and ventral margins; dactylus longer than carpus and propodus combined. *Pereopod 5* basis with 4 long plumose seta on anterior margin. *Pereopod 6* basis with 2 long plumose setae on anterior margin. *Pereopod 7* basis strongly expanded distally, widest distally, distal expansion not reaching past distal end of ischium, distal margin densely setose; ischium longer than merus; merus anterior lobe slightly produced along anterior margin of carpus; carpus short (about as long as broad), anterior and posterior lobes slightly extending around propodus; propodus elongate (less than 2 times as long as broad), inflated (laterally convex), posterior margin with lateral tuberculation; dactylus tapering distally, curved, shorter than propodus, posterior margin with tuberculation.

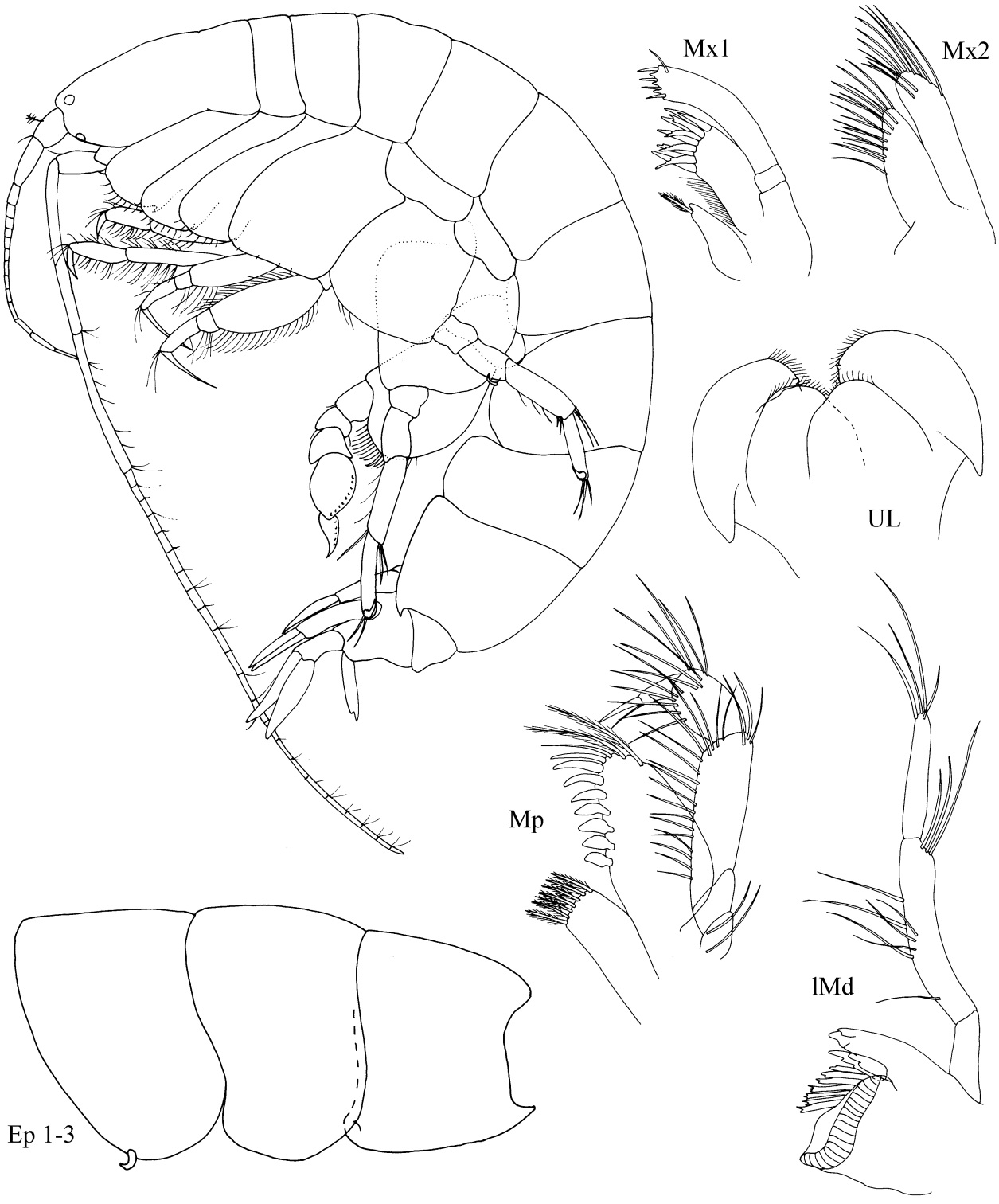


**FIGURE 2.** *Ampelisca dingaal* **sp. nov.**, holotype, female, 7.1 mm, AM P75520, Cobia Hole, Lizard Island, Great Barrier Reef.

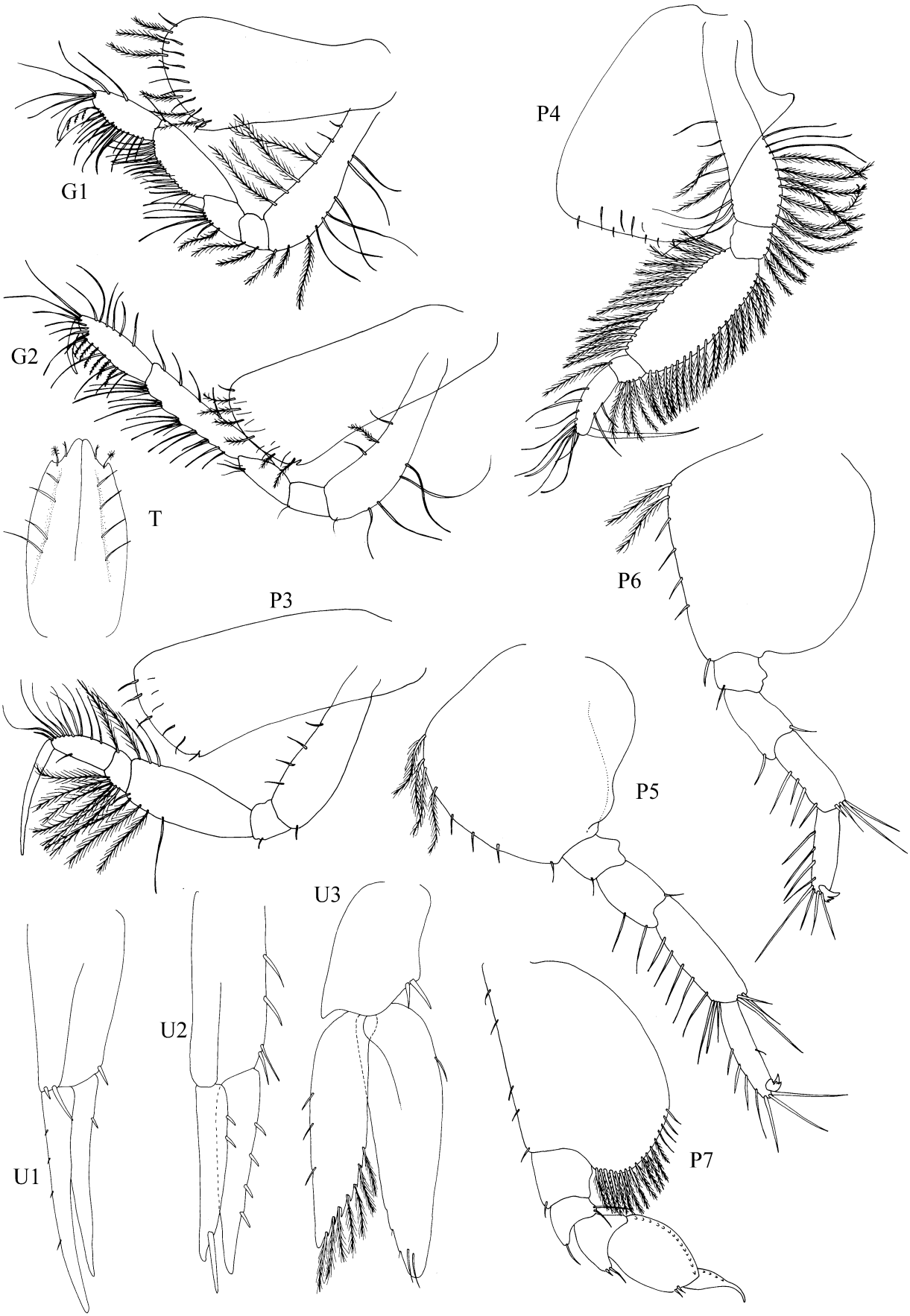


**FIGURE 3.** *Ampelisca dingaal* **sp. nov.**, holotype, female, 7.1 mm, AM P75520, Cobia Hole, Lizard Island, Great Barrier Reef.

**Pleon.** *Epimeron 1* distal margin evenly rounded, with anterior facing hooked seta. *Epimeron 2* posteroventral corner rounded with very small notch and seta. *Epimeron 3* posteroventral corner with acute spine. *Urosomite 1* dorsal margin with distally rounded and upturned carina. *Uropod 1* reaching to uropod 2 rami; peduncle with one large and one small robust setae; inner ramus shorter than outer ramus, outer ramus with lateral row of sensory setae. *Uropod 2* outer ramus shorter than inner ramus, inner ramus with one lateral row of short robust setae; outer ramus with a large subterminal robust seta. *Uropod 3* inner ramus slightly serrate along inner distal half, with 0–3 plumose setae; outer ramus serrate along inner margin, with up to 7 plumose setae, inner margin broadest at first third length. *Telson* dorsal surface with two rows of 4 pairs of setae, distal margin with a deep notch, with subdistal setae.

**Male** (sexually dimorphic characters). Unknown.

**Habitat.** Marine littoral, 17 m, coarse sediments and sands.

**Remarks.** *Ampelisca dingaal* **sp. nov.** is known from two female specimens collected in coarse sand, reef patches and fine sand. This species fits within the *Ampelisca australis*–group recognised by Lowry & Poore (1985) (*A. australis, A. dimboola, A. tilpa, A. toora, A. yuleba*) by its possession of broadly lanceolate rami on uropod 3 with swimming setae on the inner margins, short basis on pereopod 7 (not reaching past ischium), inflated propodus on pereopod 7 and long telson with mid-dorsal setae. With the exception of *A. tilpa* (as illustrated by Lowry & Poore (1985)) all these species also possess an anterior facing hooked robust seta on the anterodistal margin of epimeron 1, as does *A. dingaal*. *Ampelisca dingaal* can be easily distinguished from *A. dimboola* and *A. toora* by its small rounded carina on urosomite 3 and rounded distal end of the basis of pereopod 7. *Ampelisca dingaal* can be distinguished from *A. australis* and *A. yuleba* because it possesses an elongate mandibular palp and uropod 3 inner ramus without setae. The presence of two distinct eye lenses without additional pigmentation, short antenna 1 and setation of uropod 3 separates this species easily from *A. jiigurru* **sp. nov.** *Ampelisca dingaal* most closely resembles *A. tilpa* but possesses a narrow telson with 4–5 pairs of dorsal setae, curved dactylus on pereopod 7, and a defined single large robust seta on the outer ramus.

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

***Ampelisca jiigurru* sp. nov.**
(Figs 4, 5)

**Type material**. Holotype, female, 6.8 mm, AM P75274, Mrs Watsons Bay, Lizard Island, Queensland (14°39.41'S 145°27.14'E), coarse sand, sand with patchy seagrass and blue-green algae, hand dredge, 5 m, J.K. Lowry, C. Serejo & O. Coleman, 24 February 2005 (QLD 1645). Paratype, male, 5.7 mm, AM P71034, 500 m north-east of North Point, Lizard Island (14°38.700'S, 145°27.213'E), coarse sediment with forams and *Heteropsammia*, soft bottom with forams, crinoids, *Halimeda macroloba, Halimeda cylindracea, Caulerpa taxifolia, Gracilaria* sp., *Lobophora* sp.) and sediment, 23.9 m, P.B. Berents, 27 February 2005 (QLD 1717).

**Additional material examined.** 1 unsexed, P75526 (JDT/LIZ 9); 7 unsexed, P75525 (JDT/LIZ 10); 1 unsexed, P75522 (JDT/OPH 6); 1 unsexed, P75524 (JDT/OPH 9); 1 unsexed, P75523 (JDT/OPH 13); 10 unsexed, P70720 (QLD 1645); 19 unsexed, P70746 (QLD 1645); 11 unsexed, P70756 (QLD 1645); 1 unsexed, P70670 (QLD 1645); 1 unsexed, P75274 (QLD 1645); 1 unsexed, P70276 (QLD 1646); 2 unsexed, P70800 (QLD 1650); 1 unsexed, P70763 (QLD 1653); 1 unsexed, P70890 (QLD 1653); 1 unsexed, P70864 (QLD 1654); 1 unsexed, P70863 (QLD 1660); 1 unsexed, P70778 (QLD 1666); 4 unsexed, P70826 (QLD 1666); 1 unsexed, P70821 (QLD 1673); 1 unsexed, P70847 (QLD 1673); 1 unsexed, P70954 (QLD 1697); 1 unsexed, P71034 (QLD 1717); 2 unsexed, P71081 (QLD 1717); 1 unsexed, P71134 (QLD 1729); 2 unsexed, P71067 (QLD 1737); 1 unsexed, P71117 (QLD 1749); 1 unsexed, P71307 (QLD 1756); 1 unsexed, P71331 (QLD 1756); 1 unsexed, P71209 (QLD 1761); 1 unsexed, P71262 (QLD 1771); 1 unsexed, P71308 (QLD 1772); 2 unsexed, P71278 (QLD 1774); 2 unsexed, P71328 (QLD 1778); 1 unsexed, P71334 (QLD 1778).

**Type locality.** Mrs Watsons Bay, Lizard Island, Queensland (14°39.41'S 145°27.14'E).

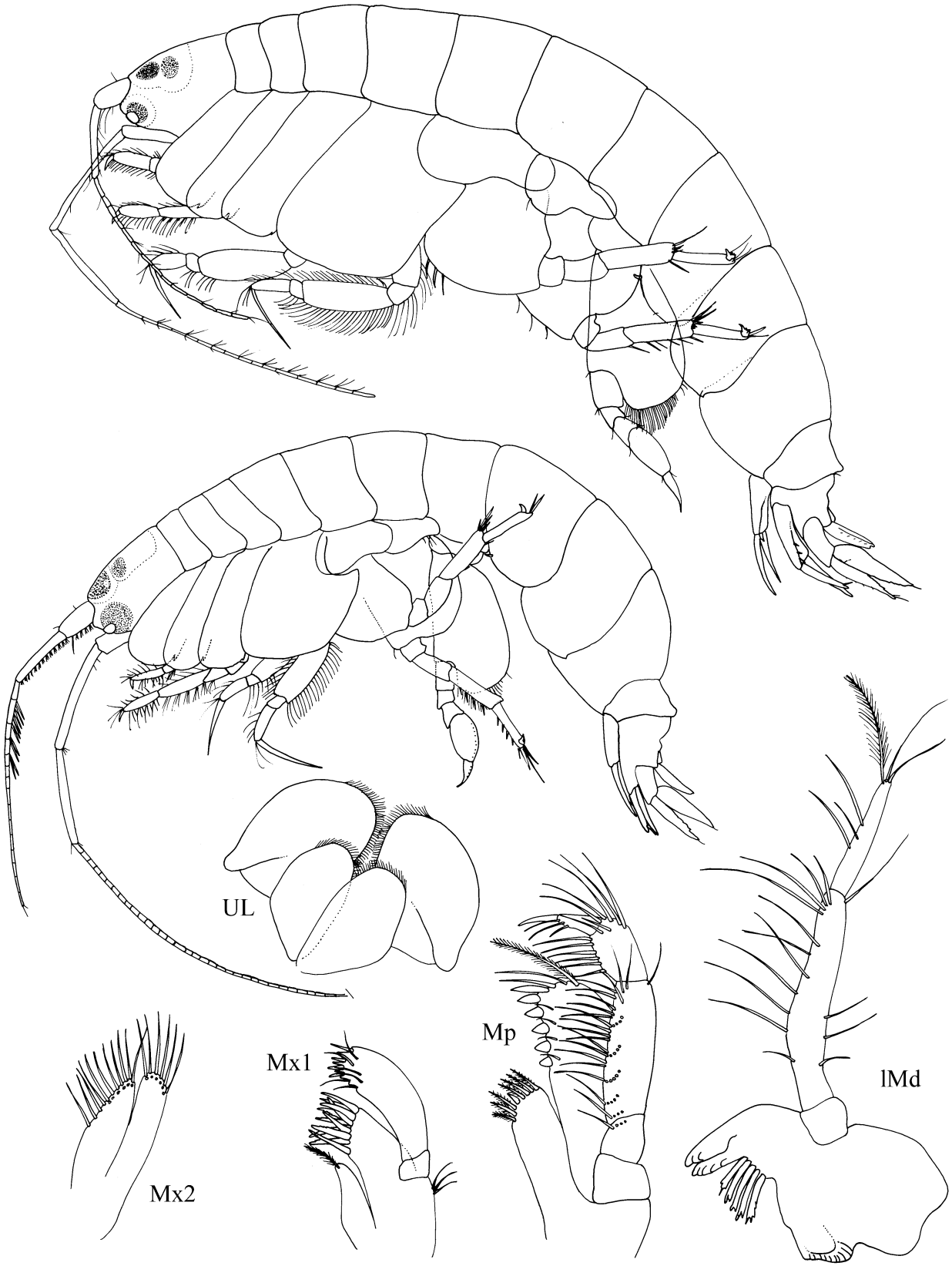


**FIGURE 4.** *Ampelisca jiigurru* **sp. nov.**, holotype, female, 7.1 mm, AM P75274, Mrs Watsons Bay, Lizard Island, Great Barrier Reef, paratype, male, 5.7 mm, AM P71034, near North Point, Lizard Island, Great Barrier Reef.

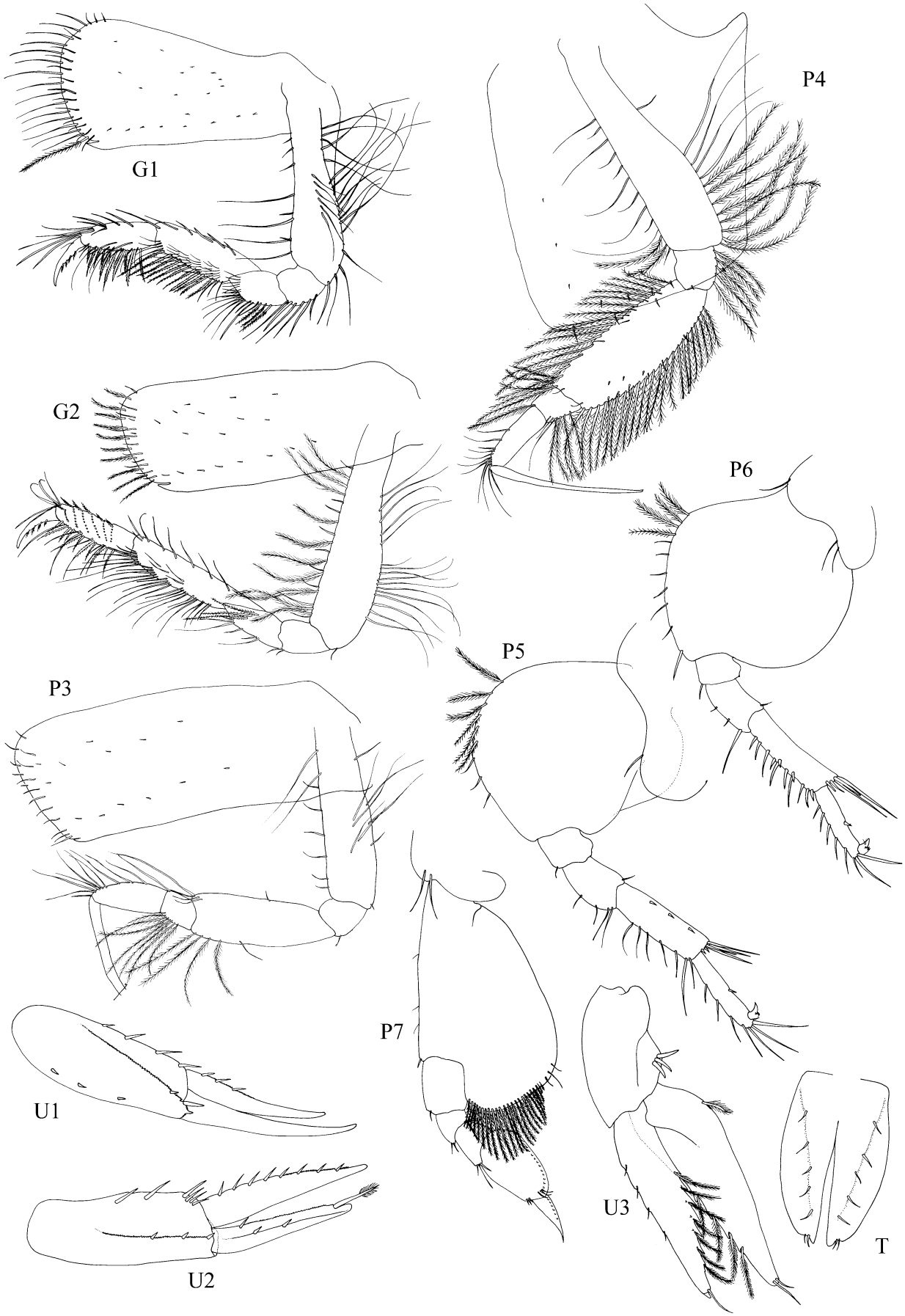


**FIGURE 5.** *Ampelisca jiigurru* **sp. nov.**, holotype, female, 7.1 mm, AM P75274, Mrs Watsons Bay, Lizard Island, Great Barrier Reef.

**Etymology.** 'Jiigurru' is one variant of the name given to Lizard Island by the local aboriginal people (the Dingaal people).

**Description.** Based on holotype, female, 6.8 mm.

**Head.** *Head* longer than deep, distal margin concave, anteroventral margin concave; one eye present per side in the form of a distinct lens, with 1–2 other possible indistinct eye pigmented areas. *Antenna 1* distinctly longer than peduncle of antenna 2; peduncular article 2 longer (1.7 x) than article 1. *Antenna 2* distinctly shorter than body length.

**Pereon.** *Coxa 1 to 3* each with a small posteroventral spine, spines becoming smaller progressively. *Gnathopod 1* coxa similar length to coxa 2 and 3, distally rounded, with a row of 11–16 distal plumose setae and a row of 12–13 simple setae set behind the plumose setae on the outer face; basis with 4–5 long setae (plumose and simple) and 5–6 short setae on the dorsal margin, with 15–17 long setae (plumose and simple) on the ventral margin and 5–6 long setae on the outer face at mid length; ischium with 5–6 setae on ventral margin; merus with row of setae (plumose and simple) on ventral margin and an oblique row of 5–7 setae distally; carpus with 5–6 setae on dorsal margin, with at least 6 distinct oblique rows of setae along ventral margin; propodus dorsal margin setose, ventral margin with fringe of setae (plumose and simple); dactylus more than half length of propodus with 4 plumose setae on ventral margin. *Gnathopod 2* coxa distally convex, with a row of 9–10 distal plumose setae and a row of 9–11 simple setae set behind the plumose setae on the outer face; basis with 10–19 setae (plumose and simple) on the dorsal margin and 10–16 long setae (plumose and simple) on the ventral margin; ischium with scattered setae on ventral margin; merus with scattered setae on ventral margin; carpus with 7–8 setae on dorsal margin, ventral margin with 5–6 oblique setal rows along margin; propodus dorsal margin setose, extending to 6 oblique rows of setae, ventral margin with rows of plumose and simple setae; dactylus more than half length of propodus with 4 plumose setae on ventral margin. *Pereopod 3* coxa distally convex, with a row of 4–6 distal setae and a row of 6–10 smaller setae set behind on the outer face; basis with 6–8 setae on the dorsal margin and scattered setae on the outer face and ventral margin; ischium with scattered setae on ventral margin; merus with rows of 3–4 plumose setae distally on both the dorsal and ventral margins; carpus with 1–2 plumose setae on dorsal margin, ventral margin with 6–7 plumose setae; propodus dorsal margin setose, ventral margin without setae; dactylus broken but believed to be longer than carpus and propodus lengths combined. *Pereopod 4* coxa with 4–5 distal setae and a row of 4–5 setae set behind on the outer face; basis with 10–12 long setae on the dorsal margin (plumose and simple) and 10–12 long setae (plumose and simple) on the ventral margin; ischium with 4–5 long plumose setae on the ventral margin; merus with a row of 18–22 long plumose setae on both the dorsal and ventral margins; carpus dorsal margin with a single plumose seta, ventral margin with 4–5 plumose setae and simple setae; propodus with simple seta on dorsal margin; dactylus longer than carpus and propodus combined. *Pereopod 5* basis with 6 long plumose seta on anterior margin. *Pereopod 6* basis with 4 long plumose setae on anterior margin. *Pereopod 7* basis strongly expanded distally, widest distally, distal expansion reaching to distal end of ischium, distal margin densely setose; ischium longer than merus; merus anterior lobe slightly produced along anterior margin of carpus; carpus short (about as long as broad), anterior lobe slightly extending around propodus; propodus elongate (less than 2 times as long as broad), inflated (laterally convex), posterior margin with lateral tuberculation; dactylus tapering distally, slightly curved, shorter than propodus, posterior margin with tuberculation.

**Pleon.** *Epimeron 1* distal margin evenly rounded, with anterior facing hooked seta. *Epimeron 2* posteroventral corner with small spine. *Epimeron 3* posteroventral corner with acute spine. *Urosomite 1* dorsal margin with small distally rounded carina. *Uropod 1* reaching to uropod 2 rami; inner ramus shorter than outer ramus. *Uropod 2* outer ramus shorter than inner ramus; inner ramus with one lateral row of short robust setae; outer ramus with a large subterminal robust seta. *Uropod 3* inner ramus serrate along inner margin to distal 1/2 length, with 0–4 plumose setae; outer ramus serrate along inner margin to distal 2/3 length, with up to 7 plumose setae. *Telson* dorsal surface with two rows of 5 setae, distal margin with shallow notch, with subdistal setae.

**Male** (sexually dimorphic characters). *Antenna 1* with groups of short aesthetascs along peduncle and anterior articles of the flagellum. *Urosomites 2 and 3* with fusion line slightly more indented in male.

**Habitat.** Marine; littoral (2–24 m), coarse sediments and sands.

**Remarks.** *Ampelisca jiigurru* **sp. nov.** is another species that belongs within the *A. australis*–group (see Remarks section for *A. dingaal*). *Ampelisca jiigurru* can be easily separated from *A. australis* and *A. dimboola* by the length of antenna 1 (longer than peduncle of antenna 2 in *A. jiigurru* vs. much shorter in the other species), and by the serration of the rami of uropod 3 (not seen in *A. australis* or *A. dimboola*). *Ampelisca dingaal* can be separated from *A. tilpa* by the length and shape of the basis of pereopod 7, the dorsal setation of the telson and the setation of uropod 2 rami. It can also be distinguished from *A. yuleba* by the length of antenna 1, the morphology of the mandibular palp and shape of the telson. The presence of only one distinct eye lens with additional pigmented areas on the head, long antenna 1, and setation of uropod 3 separates this species from *A. dingaal* **sp. nov.** *Ampelisca jiigurru* is most similar to *A. toora* but the two species can be separated by the shape of the urosomal carina and the shape of the basis of pereopod 7.

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

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