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New Australian Species of Ampeliscidae (Crustacea: Amphipoda) from the Great Barrier Reef and Eastern Australia with a Key to Australian Species

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Abstract. Six new species of Ampeliscidae are described: *Ampelisca capella* sp. nov., *Ampelisca mingela* sp. nov., *Byblis pialba* sp. nov. and *Byblis wadara* sp. nov. from the Great Barrier Reef; *Ampelisca katoomba* sp. nov. from the New South Wales shelf; and *Byblis liena* sp. nov. from the Queensland slope. *Byblisoides esferis* J. L. Barnard, 1961 is recorded from southeastern Australia, the first record of the genus in Australia. These bring the number of eastern Australian species to twenty-six. Distributions of three other species are extended northwards into Queensland. A key to all eastern Australian species is provided.

Introduction

Ampeliscid amphipods occur worldwide on soft sedimentary environments from intertidal to abyssal depths and can be abundant. Forty years ago, Jim Lowry and I agreed to collaborate on papers on the taxonomy of Amphipoda. We chose as a starting point, Ampeliscidae, for the simple reasons that the family was first in an alphabetical list of families, that we were both aware of several undescribed species found in benthic surveys in Victoria and New South Wales, and that Jerry Barnard who was active in Australia then, had no immediate interest in the family. We published one paper on 12 species of *Ampelisca* Krøyer, 1842, five species of *Byblis* Boeck, 1871 and one of *Haploops* Liljeborg, 1856, all from southeastern Australia but did not complete descriptions of others that we recognized and named at the time (Lowry & Poore, 1985). Jim and I also collaborated on the first ingolfiellid amphipods from Australia (Lowry & Poore, 1989). Here, we complete the figures of six new species that we recognized in the 1980s, mostly from tropical Australia, and extend the geographical range of others. The opportunity is taken to record *Byblisoides esferis* J. L. Barnard, 1961 from deep water in southeastern Australia. Australian ampeliscid species now number 26 but the fauna of Western Australia has not been studied.

I am pleased to complete our study of ampeliscid amphipods and to dedicate this contribution to the memory of Jim Lowry.

Materials and methods

The collections of new species come from sediment samples taken at One Tree Island, Clack Island, Lizard Island and Heron Island, Great Barrier Reef islands in Queensland, and from benthic surveys off New South Wales and Queensland made by the Australian Museum in the late 1970s from FRV *Kapala*. Collections of already described species derive from a series of grab samples taken along the Qld coast from the Queensland Department of Primary Industries' FRV *Gwendoline May* in February and March 1998 by GCBP

Keywords: Crustacea, Amphipoda, Ampeliscidae, Ampelisca, *Byblis*, *Byblisoides*, taxonomy, new species
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and Joanne Taylor as part of Museums Victoria's Australian Shelf Benthos (ASB) program.

The camera-lucida pencil drawings (Figs 1–5 and part of Fig. 8) that were made by Jim were inked in the traditional way on plastic film in the early 1980s by Roger Springthorpe; Figs 7 and 9 and part of Fig. 8 were "digitally inked" in Adobe Illustrator® using the methods described by Coleman (2003) from pencil drawings newly made by GCBP. Descriptions were modelled on our earlier study and more recent work (King, 2009; Myers, 2012). They were prepared by augmenting an unpublished DELTA database (Dallwitz, 2018) of Australian Ampeliscidae prepared by J. K. Lowry, P. B. Berents and R. T. Springthorpe. Material is lodged at the Australian Museum, Sydney (AM) and Museums Victoria, Melbourne (NMV). As before, "New specific epithets are Australian Aboriginal place names chosen only for their euphony, and are treated as arbitrary combinations of letters" (Lowry & Poore, 1985). Abbreviations used in figures are: A1, A2, antennae 1, 2; C1–C3, coxae 1–3; Ep1–Ep3, pleonal epimera 1–3; G1, G2, gnathopods 1, 2; Md, mandible; P3–P7, pereopods 3–7; T, telson; U1–U3, uropods 1–3; Ur, urosomite. Total length (tl.) is measured along the dorsal margin.

Taxonomy

Family Ampeliscidae Krøyer, 1842

Key to species of Ampeliscidae from eastern Australia

1 Head as long as deep. Lobe on pereopod 7 basis not expanded distally, with posterior margin nearly vertical ..... *Haploops* (One species, *H. oonah* Lowry & Poore, 1985)

—— Head longer than deep. Lobe on pereopod 7 basis expanded distally, with posterior margin oblique 2

2 Flagella of antennae 1 and 2 poorly developed, with 2–4 articles. Anterolateral corner of head produced ..... *Byblisoides esferis* J. L. Barnard, 1961

—— Flagellum of antenna 2, and usually flagellum of antenna 1, with more than 10 articles. Anterolateral corner of head not produced 3

3 Pereopod 7, free anterior margin of basis lacking setae near junction with ischium; dactylus broad at base, not spine-like ..... *Ampelisca* 4

—— Pereopod 7, free anterior margin of basis setose near junction with ischium; dactylus spine-like ..... *Byblis* 20

4 With 1 pair of eyes and cuticular lenses ..... *A. capella* sp. nov.

—— With 2 pairs of eyes and cuticular lenses, or eyes absent 5

5 Uropod 3 outer ramus ovate. Telson with robust setae along cleft and terminally ..... *A. bidura* Lowry & Poore, 1985

—— Uropod 3 rami lanceolate. Telson with slender setae on dorsal ridges on each lobe 6

6 Antenna 1 much longer than antenna 2 peduncle. Pereopod 7 basis overlapping merus 7

—— Antenna 1 shorter than, subequal to, or little longer than antenna 2 peduncle. Pereopod 7 basis not overlapping merus 10

7 Pereopod 7 ischium longer than merus. Uropod 2 outer ramus without subterminal spine. Coxae 1–3 without posteroventral teeth. Mandibular palp article 2 inflated ..... *A. euroa* Lowry & Poore, 1985

—— Pereopod 7 ischium shorter than or equal to merus. Uropod 2 outer ramus with subterminal spine. Coxae 1–3 with posteroventral teeth. Mandibular palp article 2 linear 8

8 Eyes and cuticular lenses absent. Uropod 2 rami each with 1 upper spine row. Pereopod 7 basis without setae along distal margin ..... *A. narooma* Lowry & Poore, 1985

—— Two pairs of eyes and cuticular lenses present. Uropod 2 rami each with 2 upper spine rows. Pereopod 7 basis with dense setal row along distal margin 9

9 Antennae 1 and 2 subequal in length. Epimeron 3 with square posteroventral corner ..... *A. calooma* Lowry & Poore, 1985

—— Antenna 1 shorter than antenna 2. Epimeron 3 with strongly projecting tooth ..... *A. jingera* Lowry & Poore, 1985

10 Pereopod 7 propodus linear, more than twice as long as broad 11

—— Pereopod 7 propodus inflated, rarely more than 1.5 times as long as broad 12

11 Urosomites 2–3 with prominent dorsal keel. Antenna 1 peduncular article 2 more than twice as long as article 1. Epimeron 3 without posteroventral tooth ..... *A. acinaces* Stebbing, 1888

—— Urosomites 2–3 without dorsal keel. Antenna 1 peduncular articles 1 and 2 subequal. Epimeron 3 with posteroventral tooth ..... *A. ballina* Lowry & Poore, 1985

12 Urosomite 1 with saddle-shaped dorsal keel. Pereopod 7 basis, anterodistal corner of lobe obscuring distal margin of ischium ... *A. toora* Lowry & Poore, 1985

—— Urosomite 1 with simple or upturned dorsal keel. Pereopod 7 basis, anterodistal corner of lobe not obscuring distal margin of ischium 13

13 Uropod 2 inner ramus with 2 upper rows of short spines 14

—— Uropod 2 inner ramus with 1 upper row of long and short spines 15

14 Pereopod 7 basis distal margin oblique. Urosomite 1 with evenly convex dorsal crest; urosomites 2–3 dorsum concave ..... *A. australis* Haswell, 1879

—— Pereopod 7 basis distal margin truncate. Urosomite 1 with asymmetrical triangular dorsal crest; urosomites 2–3 with prominent bilobed dorsal crest ..... *A. katoomba* sp. nov.

15 Urosomite 1 with prominent dorsal keel, obliquely truncate posteriorly. Pereopod 7 basis distal margin transverse, reaching as far as angle on posterior margin of ischium. Antenna 1 reaching to end of antenna 2 article 4 ..... *A. dimboola* Lowry & Poore, 1985

—— Urosomite 1 with more or less acutely projecting dorsal keel. Pereopod 7 basis distal margin oblique, reaching beyond angle on posterior margin of article 3. Antenna 1 reaching well along or beyond antenna 2 article 5 16

16 Pereopod 7 basis about as wide as length of anterior margin. Uropod 2 outer ramus with 2 long subterminal spines. Telson 1.5 times as long as wide ..... *A. tilpa* Lowry & Poore, 1985

—— Pereopod 7 basis narrower than length of anterior margin. Uropod 2 outer ramus with 1 long subterminal spine. Telson 1.65–1.90 times as long as wide 17

17 Telson with prominent pair of posterior teeth separated from lateral margins by obvious notches. Urosomite 1 with low rounded crest 18

—— Telson with apices not separated from lateral margins by obvious notches. Urosomite 1 with triangular crest 19

18 Epimeron 3 posterior margin concave. Mandibular palp article 2 five times as long as wide. Antenna 1 reaching slightly beyond antenna 2 article 4. Telson twice as long as wide ..... *A. dingaal* King, 2009

—— Epimeron 3 posterior margin straight. Mandibular palp article 2 three times as long as wide. Antenna 1 reaching to end of antenna 2 article 5. Telson 1.6 times as long as wide ..... *A. mingela* sp. nov.

19 Antenna 1 reaching to midpoint of antenna 2 article 5. Telson tapering from proximal one-third to right-angled apex. Head anterolateral lobe level with rostrum; without accessory eye pigmentation ..... *A. yuleba* Lowry & Poore, 1985

—— Antenna 1 reaching beyond antenna 2 article 5. Telson tapering from midpoint to broad apex. Head anterolateral lobe more anterior than rostrum; with dorsal accessory eye pigmentation ..... *A. jiigurru* King, 2009

20 Cuticular lenses absent. Gnathopod 1 subchelate, palm slightly oblique. Telson lobes with apical spine ..... *B. gerara* Lowry & Poore, 1985

—— With 1 or 2 pairs of eyes and cuticular lenses. Gnathopod 1 simple. Telson lobes without apical spines 21

21 Antennae 1 and 2 subequal in length 22

—— Antenna 1 shorter than antenna 2 23

22 Telson semicircular, wider than long, with 2 pairs of submarginal robust setae. Pereopod 7 basis lobe with oblique truncate distal margin reaching end of merus. With 2 pairs of cuticular lenses ..... *B. tinamba* Lowry & Poore, 1985

—— Telson triangular, longer than wide, with 1 pair of posterior robust setae. Pereopod 7 basis lobe with rounded distal margin overlapping carpus. Without cuticular lenses ..... *B. liena* sp. nov.

23 Telson posterior margin bilobed. Antenna 1 reaching to midpoint of antenna 2 article 3; flagellum of 2 articles ..... *B. wadara* sp. nov.

—— Telson posterior margin truncate or rounded. Antenna 1 reaching to midpoint of antenna 2 article 3; flagellum of at least 6 articles 24

24 Telson with truncate posterior margin. Antenna 2 about as long as body length; article 5 as long as article 4 ..... *B. pialba* sp. nov.

—— Telson with rounded posterior margin. Antenna 2 about half as long as body length; article 5 shorter than article 4 25

25 Coxa 1 not reaching anterior margin of head. Telson wider than long ..... *B. mildura* Lowry & Poore, 1985

—— Coxa 1 almost reaching anterior margin of head. Telson as wide as long ..... *B. bega* Lowry & Poore, 1985

Ampelisca Krøyer, 1842

Type species. *Ampelisca eschrichtii* Krøyer, 1842 (by monotypy).

Remarks. Species of *Ampelisca* are distinguished from other genera in the family by the absence of setae on the anterior margin of the basis and the tapered broadly-based dactylus of pereopod 7. Species number 206 world-wide (Horton *et al*., 2023). Lowry & Poore (1989) added ten new species to the two already known from Australia, largely from extensive collections made by environmental benthic surveys undertaken during the 1970s. Since then, two species have been described from the Great Barrier Reef by King (2009).

Ampelisca capella sp. nov.

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Figs 1, 2

Holotype: AM P.85991 (with 2 microslides), female, tl. = 6.5 mm, Australia, Queensland, Lizard Island, 200 m NW of Palfrey Island, 14°40'S 145°28'E, J. K. Lowry, 16 Oct 1978. **Paratypes**: AM P.105873, 8 individuals collected with holotype; AM P.105875, 26 specimens, NMV J2132, 5 specimens, Australia, Queensland, Lizard Island, 3 m, light traps, D. F. Smith and J. Marshall, Sep 1976; AM P.105874, 16 specimens, Heron Island, bommie west of harbour entrance, 23°26'S 151°55'E, J. K. Lowry, 7 Dec 1978.

Other material examined. AM P.105846, 2 specimens, Australia, Queensland, Clack Island, 14°03'S 144°16'E, 3–7 m; AM P.105820–105833, P.105835, P.105837, P.105838, P.105841–105843, P.105845, P.105847, P.105851, P.105852,

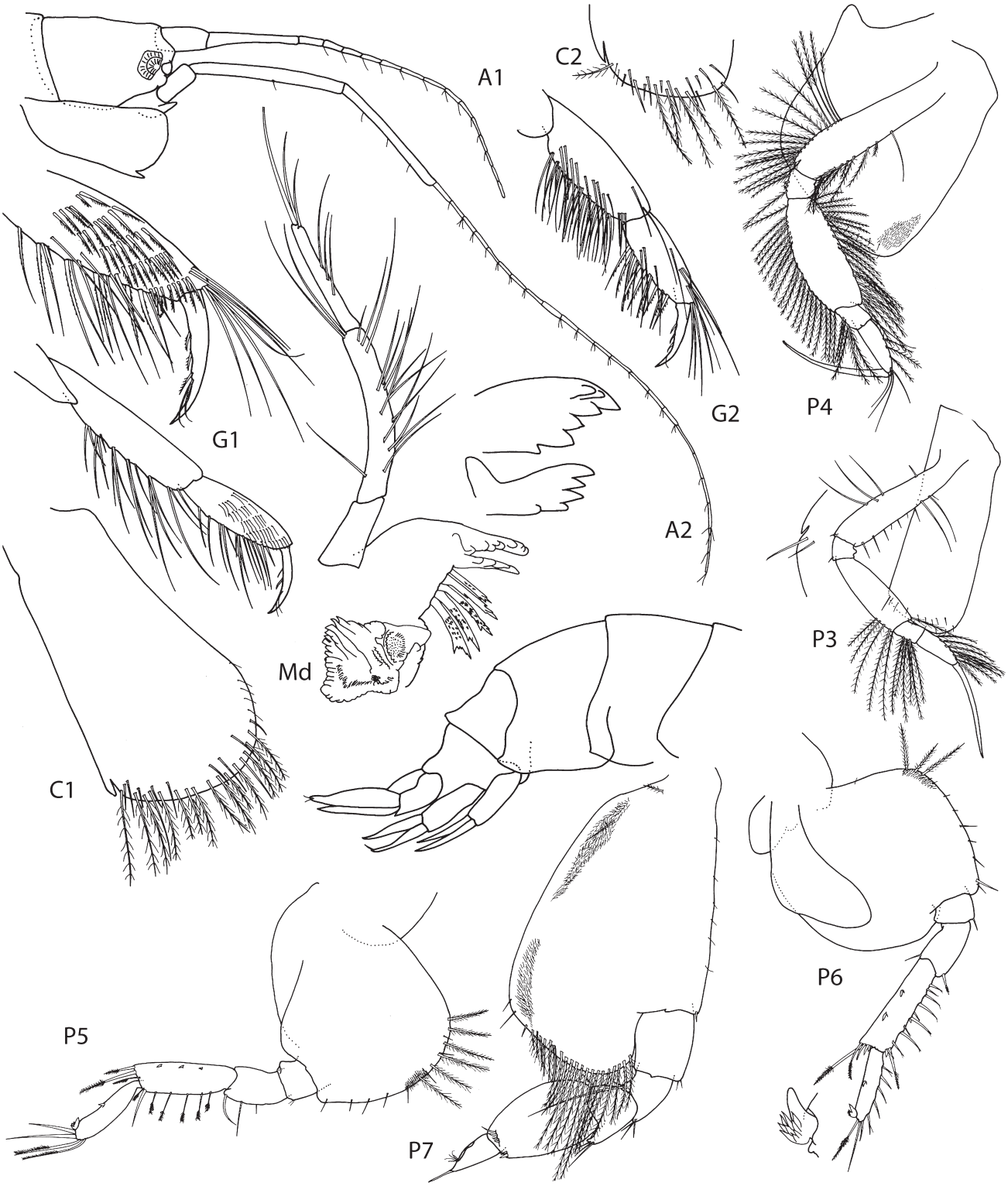

Figure 1. *Ampelisca capella* sp. nov., holotype, female, 6.5 mm, AM P.85991.

41 specimens, Lizard Island, 14°40'S 145°27'E, various localities, 3–18 m; AM P.105834, P.105836, P.105839, P.105840, P.105844, P.105848–105850, 11 specimens, One Tree Island, 23°30'S 152°05'E, various localities, 1–6 m.

Description of holotype. Head. *Head* 1.2 times as long as deep; anteroventral margin oblique-horizontal; eyes present, with one pair of cuticular lenses. *Antenna 1* peduncular article 2 long, about twice length of article 1; flagellum short, slightly longer than peduncle of antenna 2. *Mandible* palp article 2 slender.

Pereon. *Coxae 1–3* with small posteroventral hooks on coxae 1 and 2 (obsolete on coxa 3). *Gnathopod 1* coxa anterior margin slightly concave, anteroventral corner not produced. *Pereopod 3* merus with 1 distal seta on extensor margin, with 4 distal setae on flexor margin; carpus with 6 setae on flexor margin; propodus with 7 setae on extensor margin; dactylus twice as long as propodus. *Pereopod 4*

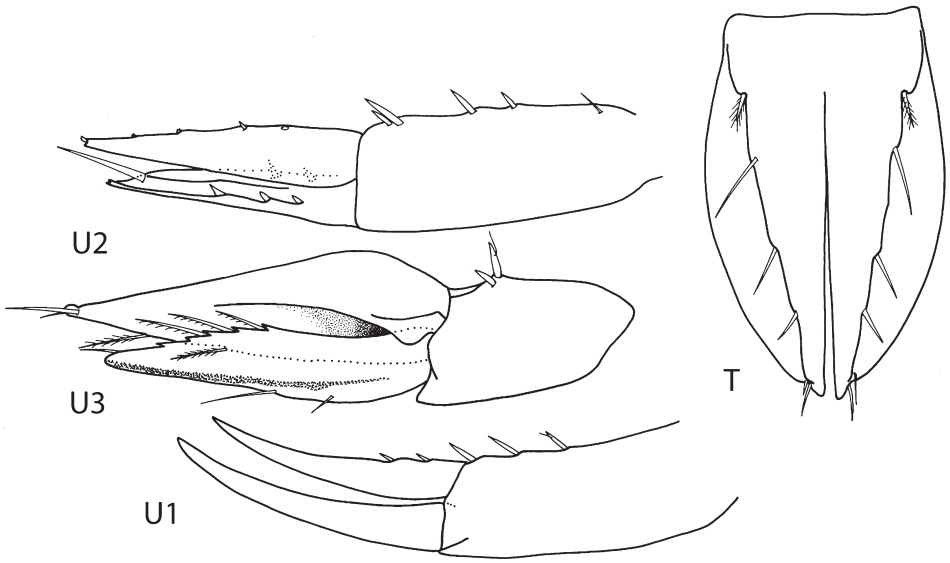

Figure 2. *Ampelisca capella* sp. nov., holotype, female, 6.5 mm, AM P.85991.

coxa about 1.2 times as long as wide; merus 2.5 times as long as wide, with setose margins; dactylus twice as long as propodus. *Pereopod 5* basis anterior margin semicircular, with 6 long, plumose setae; ischium-dactylus 1.3 times as long as basis. *Pereopod 6* basis subcircular, anterior margin with 3 long, plumose setae; ischium-dactylus 1.5 times as long as basis. *Pereopod 7* basis posterodistal margin overlapping ischium, convex, oblique, 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), carpus anterior lobe slightly produced; propodus inflated; dactylus lanceolate.

Pleon. *Epimeron 1* with anteroventral curved seta. *Epimeron 2* posteroventral corner with small tubercle. *Epimeron 3* ventral margin with posterior dorsal inflection, posteroventral corner with broad rounded posteriorly directed tooth under shallow notch. *Urosomite 1* with distally upturned carina. *Urosomites 2–3* dorsal margin concave. *Uropod 1* reaching beyond base of uropod 2 rami. *Uropod 2* inner ramus with upper row of short robust setae; outer ramus with 1 long subterminal robust seta, upper margin with 2 short robust setae, outer margin with 3 short robust setae. *Uropod 3* inner ramus broadly lanceolate, margins without setae; outer ramus 5 times as long as wide, distal upper margin serrate, with 4 plumose setae. *Telson* 1.6 times as long as wide, deeply cleft (75%), lateral margins evenly convex, with sublateral ridge bearing few setae; with pair of posterior small teeth separated from lateral margins by minute notches bearing 2 pairs of subapical setae.

Distribution. Australia, Queensland (Great Barrier Reef), lagoon, to 3 m.

Remarks. *Ampelisca capella* sp. nov. is immediately recognizable in Australia by the possession of only one pair of eyes with cuticular lenses on the anterior margin. Of the eight species described by Lowry & Poore (1985) with antenna 1 about as long as the peduncle of antenna 2, the new species differs from all in the shape of the pereopod 7 basis (narrower than most), shape of the telson (narrow with small apical teeth), and epimeron 3 (with a blunt posteroventral tooth). *Ampelisca capella* sp. nov. is most easily distinguished from the two species described from Lizard Island by King (2009) by the eyes, telson, and pereopod 7.

Ampelisca dimboola Lowry & Poore, 1985

Ampelisca dimboola.—Lowry & Poore, 1985: 271–273, figs 11, 12.—King, 2009: 133–135, fig. 1.

Material examined. NMV J71694–71696, 4 specimens, Australia, Queensland, N side of Noddy Reef, 13.6°S 143.8°E, 42 m (ASB-2 stns); NMV J71697, 1 specimen, N of Green Island, 16.7°S 145.9°E, 52 m (ASB-3 stn); NMV J71698–71793, 34 specimens, N end of Hervey Bay, off Burnett Heads, 24.5°S 152.8°E, 11–49 m (ASB-5 stns); NMV J71714–71731, 65 specimens, 150 km N of North Point, end of Moreton Island, 26.9°S 153.5°E, 36–53 m (ASB-6 stns).

Distribution. Australia, Queensland (13°S) to eastern Victoria, shelf and bays, 4–53 m.

Remarks. *Ampelisca dimboola* is recognized by the combination of the short antenna 1, truncate basis of pereopod 7, reaching only halfway along the ischium, and the oblique posterior margin of the crest on urosomite 1. The species was re-illustrated by King (2009) who extended the distribution from eastern Victoria and New South Wales to Fantome Island, Queensland (18°S). The new records extend the species' range further north to 13°S.

Ampelisca euroa Lowry & Poore, 1985

Ampelisca euroa Lowry & Poore, 1985: 273–278, figs 13, 14.

Material examined. NMV J71740–71742, 3 specimens, Australia, Queensland, 1 km E of Yorke Island, Torres Strait, 09.8°S 143.4°E, 41 m (ASB-1 stns); NMV J71744–71747, 7 specimens, N side of Noddy Reef, 13.6°S 143.8°E, 42 m (ASB-2 stns); NMV J71748, 1 specimen, N of Green Island, 16.7°S 145.9°E, 52 m (ASB-3 stn); NMV J71749–71755, 12 specimens, N end of Hervey Bay, off Burnett Heads, 24.5°S 152.8°E, 46–49 m (ASB-5 stns).

Distribution. Australia, Queensland (9°S) to South Australia, shelf and bays, 3–176 m.

Remarks. *Ampelisca euroa* is distinguished from other

Australian species in the broad second article of the mandibular palp and the absence of a tooth on coxae 1–3. The species is the commonest and most widespread species of *Ampelisca* in eastern Australia. It occurs on the shelf of South Australia and throughout Bass Strait; its northern and eastern distribution is here expanded from New South Wales to Torres Strait, Queensland (9°S).

Ampelisca katoomba sp. nov.

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Fig. 3

Holotype: AM P.85993, female (carcass lost, 4 microscope slides present, length unknown). Australia, New South Wales, E of Wollongong, 34°24'S 151°19'E, 278 m, 13 Dec 1978 (stn K78-27-08).

Description of holotype. Head. *Head* 1.2 times as long as deep; anteroventral margin oblique, at 45 degrees; eyes present, with 2 pairs with cuticular lenses. *Antenna 1* short, much shorter than peduncle of antenna 2 (reaching midlength

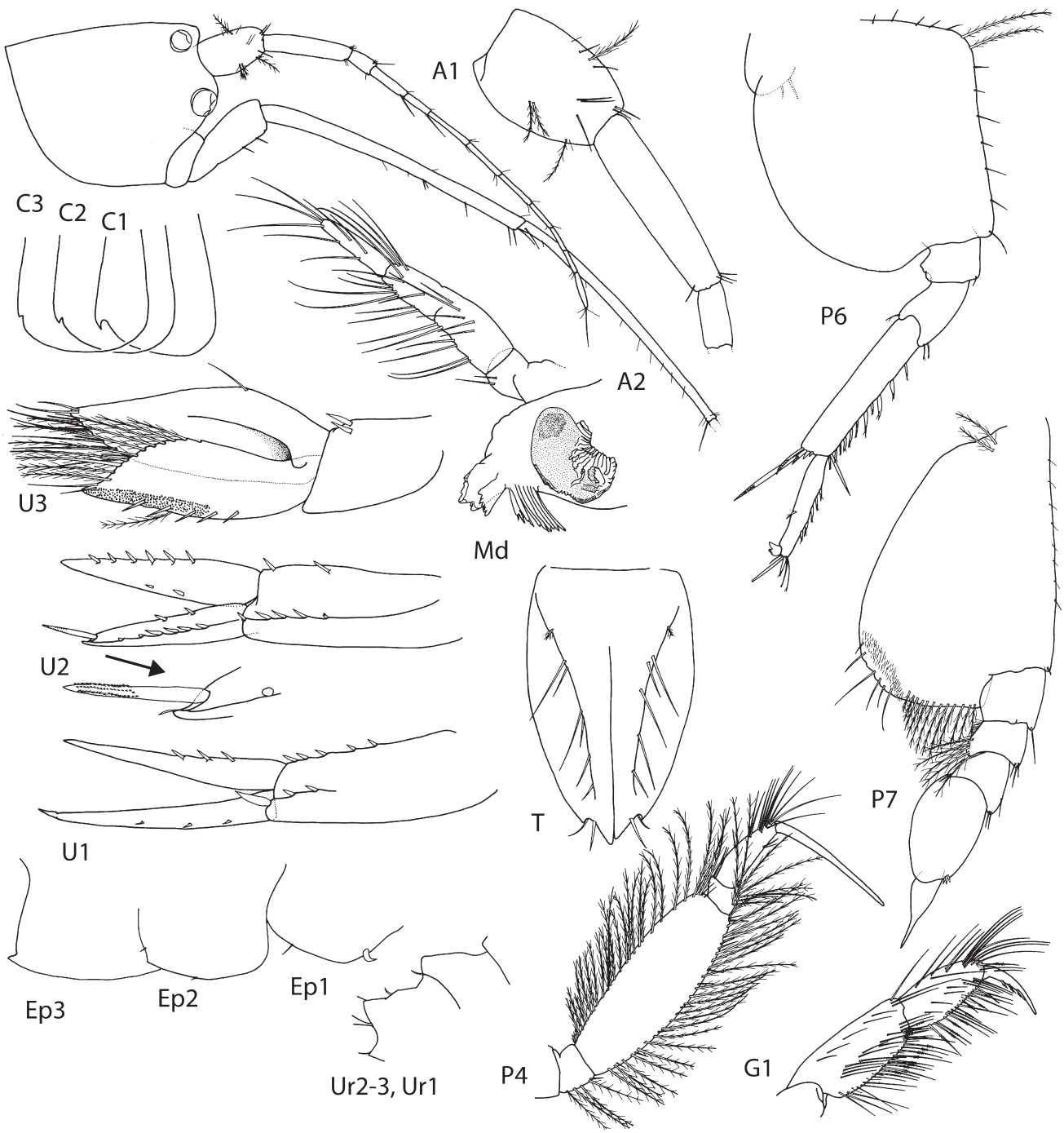

Figure 3. *Ampelisca katoomba* sp. nov., holotype, female, AM P.85993.

of antenna 2 article 5); peduncular article 2 1.5 times length of article 1. *Mandible* palp article 2 tapering distally.

Pereon. *Coxae 1–3* each with small posteroventral hooks. *Gnathopod 1* coxa anterior margin straight, anteroventral corner not produced. *Pereopod 4* merus 2.8 times as long as wide, with setose margins; dactylus twice as long as propodus. *Pereopod 6* basis anterior margin with prominent rounded angle, with 2 long, plumose setae; ischium-dactylus 1.6 times as long as basis. *Pereopod 7* basis distal margin reaching half-length of ischium, transverse, 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), carpus anterior lobe overlapping one-quarter length of propodus; propodus inflated; dactylus lanceolate.

Pleon. *Epimeron 1* with anteroventral hooked seta. *Epimeron 2* posteroventral corner with small tubercle. *Epimeron 3* ventral margin convex, posteroventral corner with small sharp triangular tooth under straight posterior margin. *Urosomite 1* with prominent asymmetrical carina. *Urosomites 2–3* dorsal margin with high triangular crest having low anterior elevation. *Uropod 1* reaching beyond base of uropod 2 rami. *Uropod 2* inner ramus upper margin with 6 short robust setae, lower margin with 2 robust setae; outer ramus with 1 long subterminal robust seta, upper margin with 2 short robust setae, outer margin with 6 short robust setae. *Uropod 3* inner ramus broadly lanceolate, upper margin with 1 seta, lower margin with distal setae; outer ramus 3 times as long as wide, distal upper margin with 12 long, plumose setae. *Telson* 1.25 times as long as wide, deeply cleft (70%), lateral margins evenly convex, with sublateral ridge bearing few setae; with pair of posterior triangular teeth separated from lateral margins by shallow notches bearing 2 pairs of subapical setae.

Distribution. Australia, New South Wales, slope, 278 m (known only from type locality).

Remarks. *Ampelisca katoomba* sp. nov. from the New South Wales slope was not included in the list of species from southeastern Australia described by Lowry & Poore (1985). Following their key to species leads to *A. australis* Haswell, 1879, which differs in having antenna 1 reaching the end of article 4 of antenna 2 (exceeding this point in *A. katoomba* sp. nov.), much longer tooth below a convex posterior margin on epimeron 3 (small tooth, straight posterior margin), a longer distal margin on the basis of pereopod 7 (more rounded posterodistally) and a prominent keel on fused urosomites 2–3. Such a urosomite keel is unique among Australian species.

Ampelisca mingela sp. nov.

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Figs 4, 5

Holotype: AM P.85992 (with 4 microslides), female, tl. = 9.0 mm. Australia, Queensland, Lizard Island, between Mangrove Beach and South Island, 14°41'S 145°28'E, 30 Sep 1978. **Paratypes**: AM P.105871, 2 specimens, Lizard Island lagoon, 14°40'S 145°27'E, plankton tow, J. M. Leis, 24 Jul 1979; AM P.105863, 1 specimen, Lizard Island, Blue

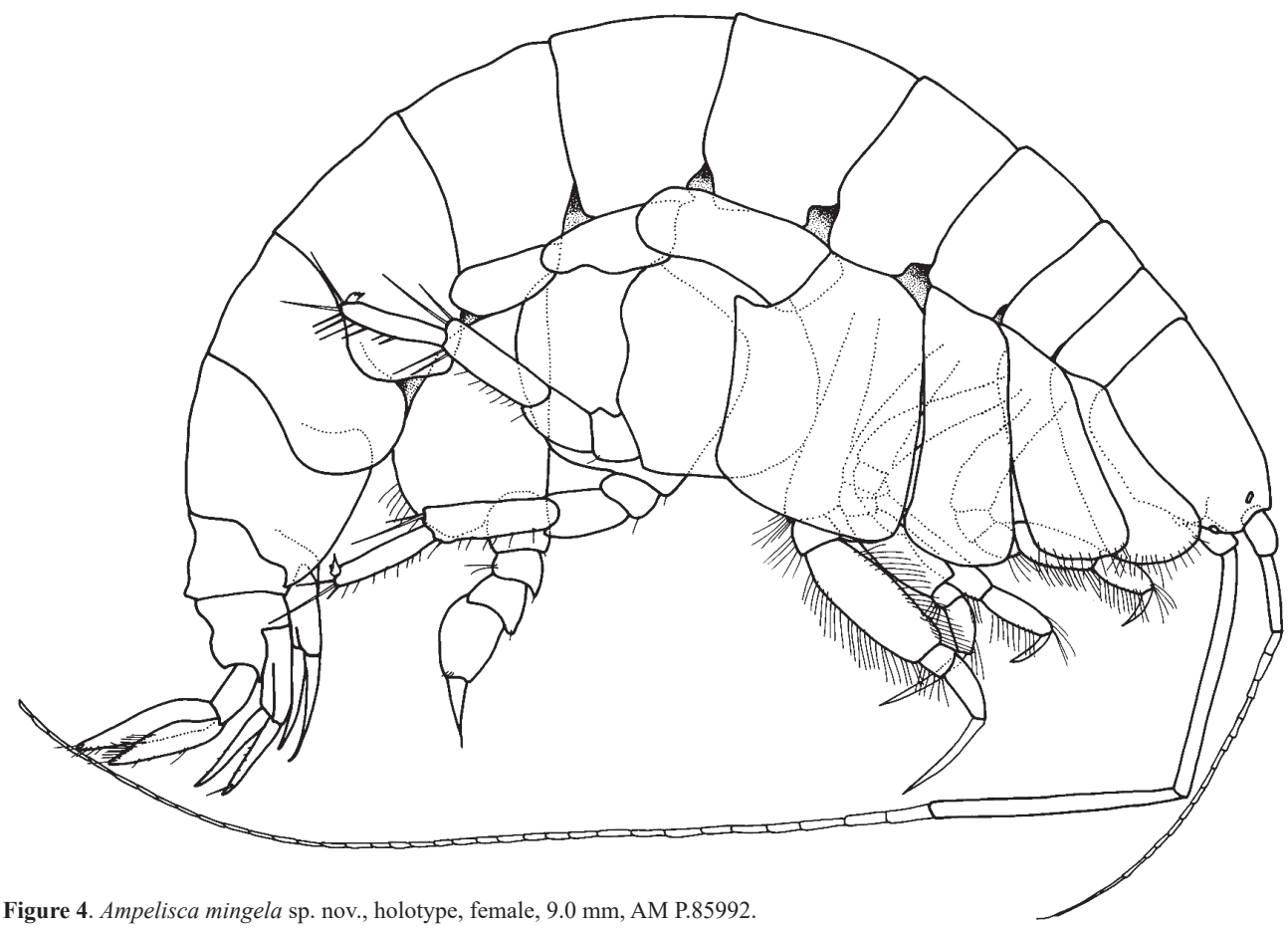

Figure 4. *Ampelisca mingela* sp. nov., holotype, female, 9.0 mm, AM P.85992.

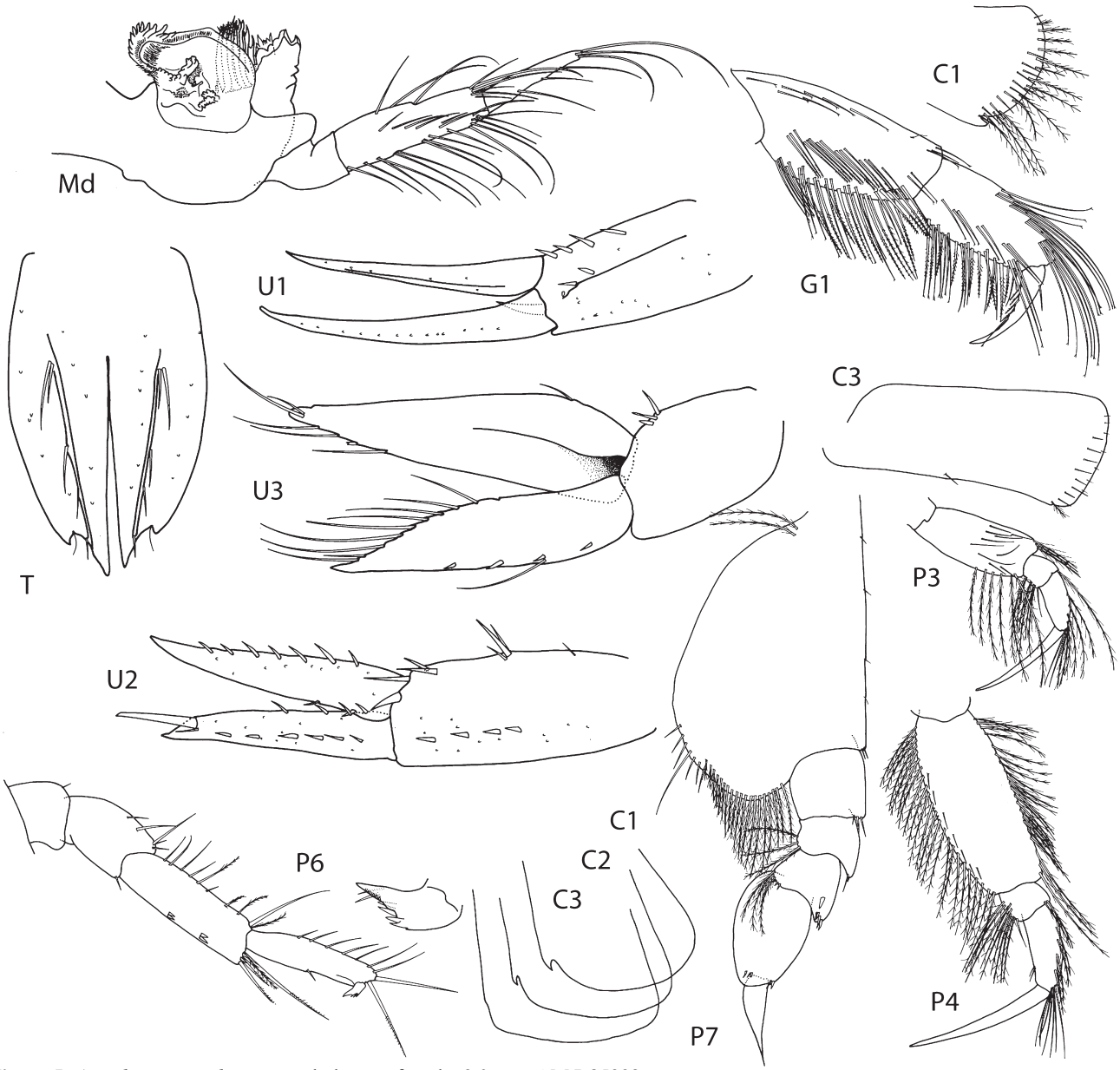

Figure 5. *Ampelisca mingela* sp. nov., holotype, female, 9.0 mm, AM P.85992.

Lagoon, 500 m east of Palfrey Island, 14°40'S 145°28'E, A. R. Jones & C. J. Short, 9 Oct 1978; AM P.105864, 1 specimen, Lizard Island, Blue Lagoon, 500 m east of Palfrey Island, 14°40'S 145°28'E, A. R. Jones & C. J. Short, 9 Oct 1978; AM P.105866, 4 specimens, Lizard Island, fringing reef between Bird Islet and South Island, 14°41'S 145°27'E, J. K. Lowry, 7 Oct 1978; AM P.105868, 2 specimens, Lizard Island, fringing reef between Bird Islet and South Island, grass beds, 14°40'S 145°28'E, P. C. Terrill, 9 Oct 1978; AM P.105862, 2 specimens, Lizard Island, halfway between Mangrove Beach and South Island, 14°40'S 145°28'E, A. R. Jones & C. J. Short, 30 Sep 1978; AM P.105865, 1 specimen, Lizard Island, mid-channel between Bird Islet and Trawler Beach, 14°40'S 145°28'E, A. R. Jones, 12 Oct 1978; AM P.105867, 1 specimen, Lizard Island, off southern point of Mermaid Cove, 14°41'S 145°28'E, C. J. Short & P. C. Terrill, 8 Oct 1978; AM P.105869, 3 specimens, Lizard Island, reefs at western end of Blue Lagoon, 14°40'S 145°28'E, P. C. Terrill, 5 Oct 1978; AM P.105870, 1 specimen, near Lizard Island, 1.6 km south-west of Eagle Island, 14°38'S 145°22'E, air lift, J. K. Lowry, 17 Oct 1978; NMV J2164, 6 individuals, Australia, Queensland, Lizard Island, Blue Lagoon, 10 m, 30 Oct 1978. AM P.105872, 4 specimens, Heron Island, bommie west of harbour entrance, 23°26'S 151°55'E, J. K. Lowry, 7 Dec 1978.

Description of holotype. Head. *Head* 1.5 times as long as deep; anteroventral margin oblique-horizontal; eyes present, with 2 pairs with minute cuticular lenses. *Antenna 1* peduncular article 2 1.5 times length of article 1; flagellum almost reaching end of peduncle of antenna 2. *Mandible* palp article 2 tapering distally.

Pereon. *Coxae 1–3* with small posteroventral hooks on coxae 1 and 2. *Gnathopod 1* coxa anterior margin straight, anteroventral corner not produced. *Pereopod 3* merus with 2 distal setae on extensor margin, with 6 distal setae on flexor

margin; carpus with 3 setae on flexor margin; propodus with 7 setae on extensor margin; dactylus twice as long as propodus. *Pereopod 4* merus 2.3 times as long as wide, with setose margins; dactylus twice as long as propodus. *Pereopod 7* basis posterodistal margin reaching half ischium length, convex, oblique, 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), carpus anterior lobe overlapping one-quarter length of propodus; propodus inflated; dactylus lanceolate.

Pleon. *Epimeron 2* posteroventral margin broadly convex. *Epimeron 3* ventral margin convex, posteroventral corner with sharp triangular tooth under shallow notch. *Urosomite 1* with distally upturned carina. *Urosomites 2–3* dorsal margin concave. *Uropod 1* reaching beyond base of uropod 2 rami. *Uropod 2* inner ramus upper margin with 7 short robust setae, lower margin with 2 short robust setae; outer ramus with 1 long subterminal robust seta, upper margin with 4 short robust setae, outer margin with 6 short robust setae. *Uropod 3* inner ramus broadly lanceolate, upper margin with 1 seta, lower margin with distal setae; outer ramus 4 times as long as wide, distal upper margin with 8 setae. *Telson* 1.6 times as long as wide, deeply cleft (70%), lateral margins evenly convex, with sublateral ridge bearing few setae; with pair of posterior prominent triangular teeth separated from lateral margins by deep notches bearing 2 pairs of subapical setae.

Distribution. Australia, Queensland (Lizard Island, Heron Island), lagoon, to 10 m.

Remarks. The telson, arrangement of the two pairs of cuticular lenses, pereopod 7 and relative lengths of the antennae of *Ampelisca mingela* sp. nov. resemble those of *A. dingaal* King, 2009 also from Lizard Island. The posterior margin of epimeron 3 of *A. mingela* is convex (straight in *A. dingaal*), article 2 of the mandibular palp is three times as long as wide (five times), antenna reaches most of the way along article 5 of antenna 2 (less than halfway) and the telson is 1.6 times as long as wide (2.0 times).

Ampelisca toora Lowry & Poore, 1985

Ampelisca toora Lowry & Poore, 1985: 284, fig. 20.

Material examined. NMV J71732, 1 specimen, Australia, Queensland, 1 km E of Yorke Island, Torres Strait, 09.8°S 143.4°E, 41 m (ASB-1 stn); NMV J71733–71739, 22 specimens, N end of Hervey Bay, off Burnett Heads, 24.5°S 152.8°E, 22–49 m (ASB-5 stns).

Distribution. Australia, Queensland (9°S) to South Australia, shelf and bays, 4–176 m.

Remarks. *Ampelisca toora* is immediately recognized by the saddle-like crest on urosomite 1 and the oblique posterodistal margin of the basis of pereopod 7 (slightly concave near the distal corner). The species ranges from Spencer Gulf, South Australia, to Torres Strait, Queensland (9°S). Lowry & Poore (1985) recorded it only as far north as Fraser Island, Queensland.

Byblis Boeck, 1871

Type species. *Byblis gaimardii* (Krøyer, 1846).

Remarks. Species of *Byblis* are distinguished by the presence of setae on the anterior margin of the basis and the spine-like dactylus of pereopod 7. Species number 76 world-wide (Horton *et al*., 2023). Lowry & Poore (1989) described the only four species known from Australia, largely from extensive collections made by environmental benthic surveys undertaken during the 1970s. Here two more are added from the Great Barrier Reef and another from the continental slope of Queensland.

"*Byblis* species are rather uniform in design, with character states being found in myriad combinations. This makes it difficult to assign *Byblis* species to groups and therefore difficult to compare a new species with existing species, since each species shares a different suite of characters with different species" (Myers, 2012: 5). For this reason, the new species are compared only with those from Australia and from the Indo-West Pacific.

Byblis liena sp. nov.

urn:lsid:zoobank.org:act:5652539D-2DC2-4C7A-9BC5-75B555BBD9F6

Fig. 6

Holotype: AM P.27290, female, length unknown. Australia, Queensland, E of Lady Elliot Island, 24°00'S 153°06'30"E, 475–530 m, Australian Museum party, 17 Nov 1977, fine grey ooze, sand with pteropod shells (HMAS *Kimbla* stn 1).

Description of holotype. Head. *Head* 1.4 times as long as deep; rostrum one-fifth length of head, rounded; anteroventral margin with antennal lobe, oblique; eyes weakly pigmented, without cuticular lenses. *Antenna 1* peduncular article 2 2.3 times as long as article 1; article 3 about one-third length of article 2; flagellum of 20 articles; almost as long as antenna 2.

Pereon. *Coxae 1–3* rounded, coxa 1 with setose margin. Pereopods 3, 4 dactylus as long as propodus. *Pereopod 5* basis flexor margin with prominent proximal lobe; extensor margin without plumose setae. *Pereopod 6* basis subcircular, extensor margin with 11 plumose setae. *Pereopod 7* basis posterodistal margin truncate-rounded, reaching almost to distal end of carpus, free anterior margin setose near junction with ischium; merus longer than wide, widest distally; carpus 1.5 times as long as wide, as long as ischium-merus together; propodus linear, 3 times as long as wide.

Pleon. *Epimeron 3* posteroventral margin broadly rounded. *Uropod 1* outer ramus with 4 short robust setae; inner ramus shorter, with 3 short robust setae. *Uropod 2* inner ramus rami subequal; each ramus upper margin with 1 robust seta. *Uropod 3* rami equal, inner ramus with 2 robust setae. *Telson* 1.3 times as long as wide, subtriangular, cleft about one-third of length, with pair of long dorsal robust setae; distal margin narrow, bilobed.

Distribution. Australia, southeastern Qld, slope, 475–530 m (known only from type locality).

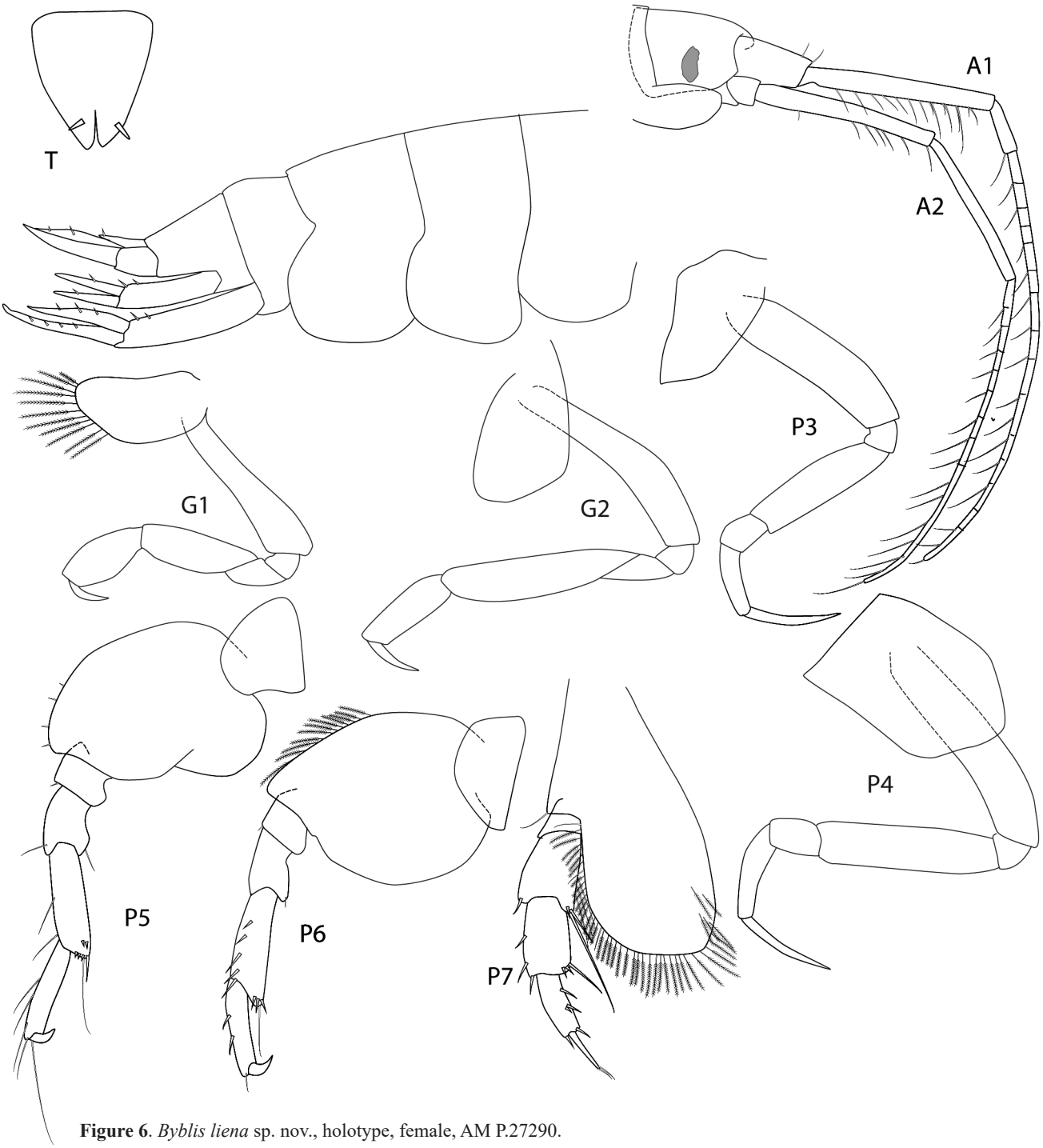

Figure 6. *Byblis liena* sp. nov., holotype, female, AM P.27290.

Remarks. *Byblis liena* sp. nov. lack cuticular lenses and the eye is weakly pigmented. The species shares with *B. tinamba* Poore & Lowry, 1985 in Australia antennae of similar lengths but differs, inter alia, in the shape of the basis of pereopod 7, a more triangular telson and a much longer uropod 3. The triangular telson is unusual but something similar is seen in *B. laterocostatus* Ren, 2006 from China.

Byblis pialba sp. nov.

urn:lsid:zoobank.org:act:73E30020-B5C5-4BAA-A9FD-25A807520B4F

Figs 7, 8

Holotype: AM P.85989, female, tl. = 5.7 mm (with 4 microslides; 1 missing), Australia, Queensland, Lizard Island, fringing reef between Bird Islet and South Island, 14°40'S 145°28'E, *Halophila*, mixed algae and sediment from grass beds off reef base, 24.4–37.6 m, P. C. Terrill, 9 Oct 1978.

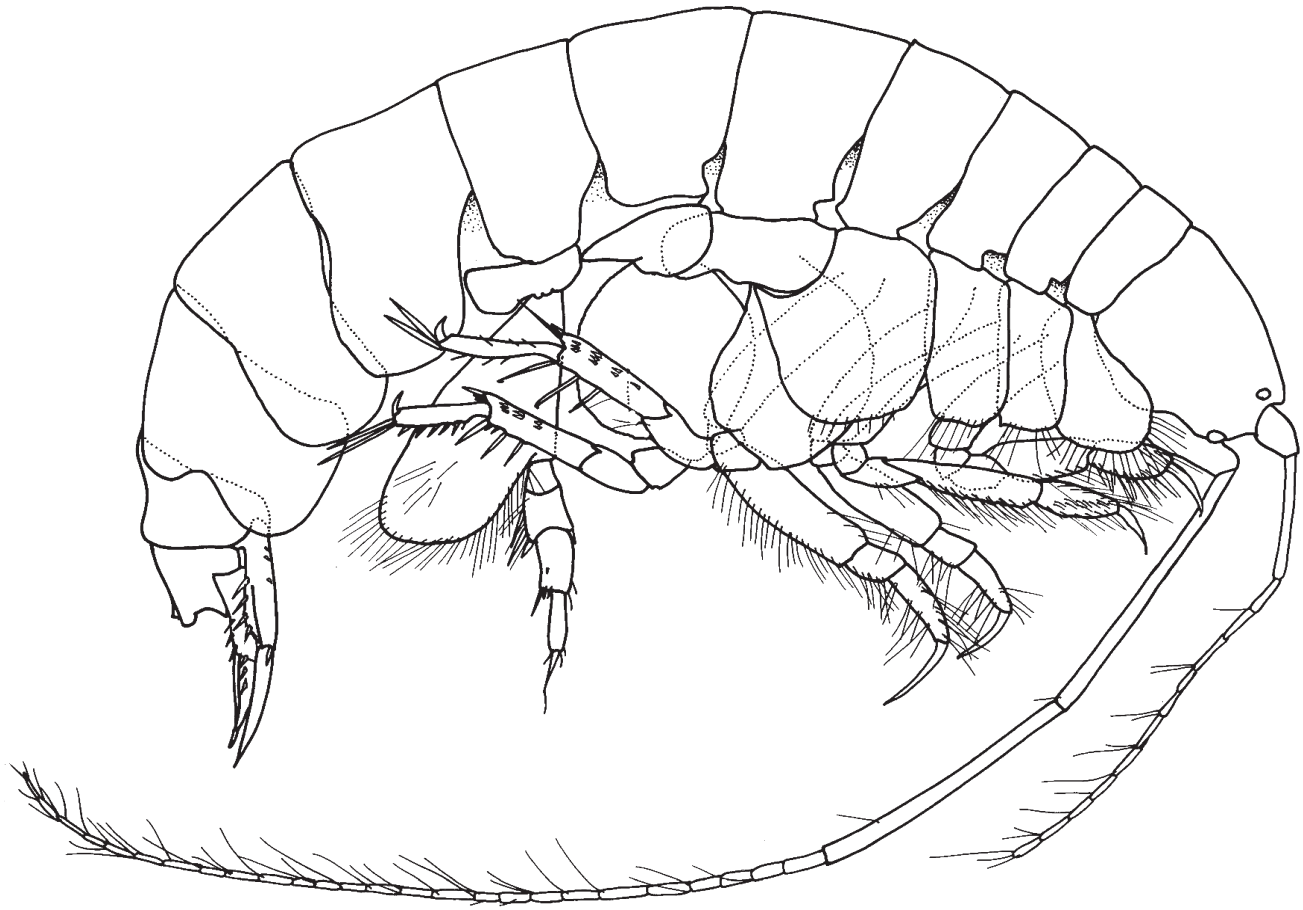

Figure 7. *Byblis pialba* sp. nov., holotype, female, 5.7 mm, AM P.85989.

Description of holotype. Head. *Head* 1.7 times as long as deep; rostrum minute; anteroventral margin strongly concave; eyes present, with 2 pairs with cuticular lenses. *Antenna 1* peduncular article 2 2.5 times length of article 1; flagellum of 11 articles; almost reaching end of peduncle of antenna 2. Antenna 2 about as long as body length; peduncular article 5 as long as article 4. *Mandible* palp article 2 tapering distally.

Pereon. *Coxae 1–3* with denticulate lower margin (less obvious on third). *Gnathopod 1* coxa anterior margin slightly concave, anteroventral corner broadly convex. Pereopods 3, 4 dactylus shorter than propodus. *Pereopod 5* basis flexor margin with prominent proximal lobe; extensor margin without plumose setae. *Pereopod 6* basis subcircular, extensor margin with 8 plumose setae. *Pereopod 7* basis posterodistal margin broadly rounded, reaching to distal margin of merus, free anterior margin setose near junction with ischium; merus slightly longer than wide; carpus 1.5 times as long as wide, as long as ischium-merus together; propodus linear, 2.5 times as long as wide.

Pleon. *Epimeron 3* posteroventral margin broadly rounded. *Uropod 1* rami with 2 short robust setae each. *Uropod 2* inner ramus inner ramus shorter than outer ramus, upper margin with 4 robust setae. *Uropod 3* rami margin of inner ramus serrate over distal two-thirds, margin of outer ramus serrate over middle third. *Telson* 1.3 times as long as wide, cleft over posterior 40%, with 3 pairs of submarginal setae; distal margin truncate, minutely serrulate.

Distribution. Australia, Queensland, northern Great Barrier Reef, reef sediment, 24–38 m (known only from type locality).

Remarks. *Byblis pialba* is the only species of the genus in Australia with antenna 2 about as long as the body length. *Byblis brachyura* Ren, 2006*, B. longiflagella* Ren, 2006, *B. orientalis* J. L. Barnard, 1967 and *B. pirloti* Margulis, 1968 are the only species among the 29 figured by Ren (2006) with a long antenna 2.

Byblis wadara sp. nov.

urn:lsid:zoobank.org:act:3DBF80DF-670A-417B-AD7C-F9FFA74D379A

Fig. 9

Holotype: AM P.85990, female, tl. = 5.4 mm (with 3 microslides), Australia, Queensland, Heron Island, bommie west of harbour entrance, 23°26'S 151°55'E, 21 m, J. K. Lowry, 7 Dec 1978.

Description of holotype. Head. *Head* 1.7 times as long as deep; rostrum minute; anteroventral margin oblique-horizontal; eyes present, with 2 pairs with cuticular lenses. *Antenna 1* peduncular article 2 as long as article 1; flagellum of 2 articles; reaching to midlength of antenna 2 article 3. Antenna 2 about half body length; peduncular article 5 about half as long as article 4.

Pereon. *Coxae 1–3* rounded, slightly scalloped on coxa 1. Pereopods 3, 4 dactylus longer than propodus. *Pereopod 5*

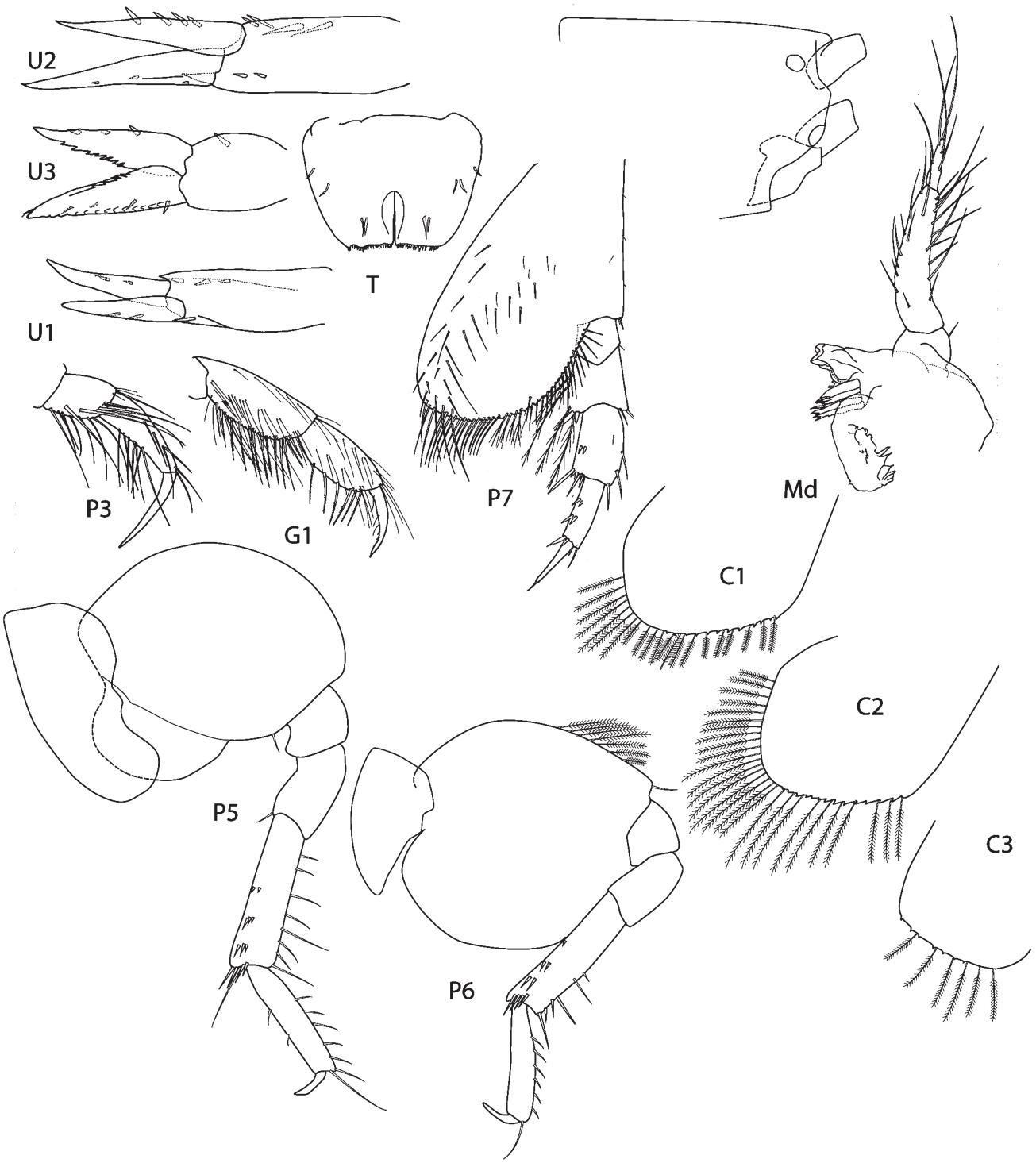

Figure 8. *Byblis pialba* sp. nov., holotype, female, 5.7 mm, AM P.85989.

basis flexor margin sinuous; extensor margin with 7 plumose setae. *Pereopod 6* basis subcircular, extensor margin with 4 plumose setae. *Pereopod 7* basis posterodistal margin truncate-rounded, reaching to midlength of carpus, free anterior margin setose near junction with ischium; merus wider than long; carpus 1.3 times as long as wide, as long as ischium-merus together; propodus subrectangular, 1.5 times as long as wide.

Pleon. *Epimeron 3* posteroventral margin broadly rounded. *Uropod 1* outer ramus with 2 short robust setae. *Uropod 2* inner ramus inner ramus shorter than outer ramus, upper margin with 2 robust setae. *Uropod 3* rami inner margins of both rami microscopically serrate. *Telson* 1.7 times as long as wide, strongly tapering, cleft about one-third of length, with pair of long dorsal robust setae; distal margin bilobed, distal margin minutely serrulate.

Distribution. Australia, Qld, southern Great Barrier Reef, 21 m (known only from type locality).

Remarks. *Byblis wadara* sp. nov. is notable for the exceptionally short antenna 1, its flagellum of only two articles. It would appear to be the only species like this.

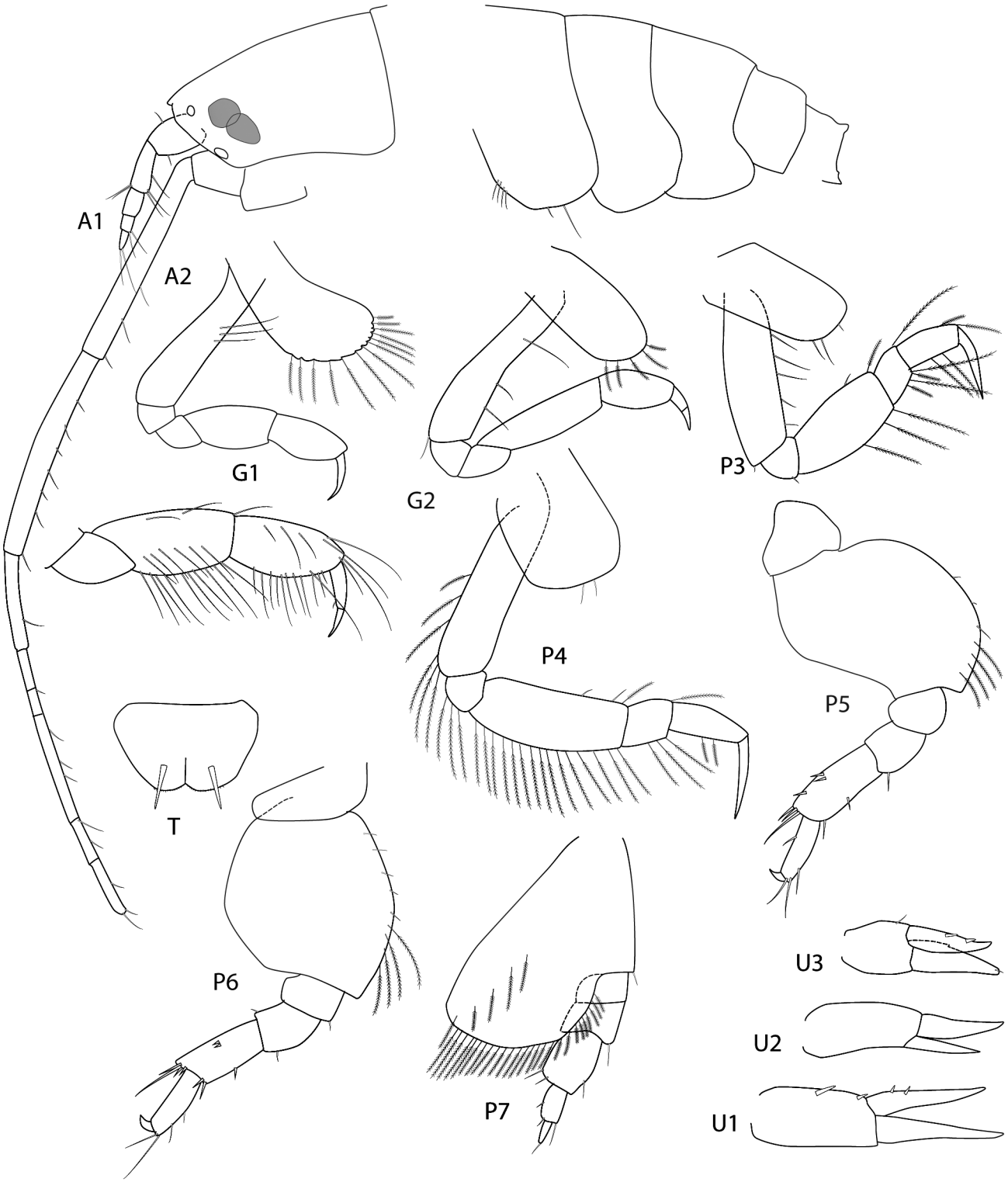

Figure 9. *Byblis wadara* sp. nov., holotype, female, 5.4 mm, AM P.85990.

Byblisoides K. H. Barnard, 1931

Byblisoides esferis J. L. Barnard, 1961

Byblisoides esferis J. L. Barnard, 1961: 65–66, fig. 36.—Peart, 2018: 347–363.

Material examined. NMV J21801, 2 females, 13.4, 6.0 mm, Australia, Victoria, 67 km S of Point Hicks, 38°23.95'S 149°17.02'E, 1277 m, fine mud, G. C. B. Poore *et al*., 25 Oct 1986 (stn SLOPE 67). NMV J21797, female, 4.5 mm, Australia, Victoria, S of Point Hicks, 38°25.90'S 148°58.60'E, 1850 m, muddy sand, G. C. B. Poore *et al*., 22 Jul 1986 (stn SLOPE 25).

Distribution. Tasman Sea, west coast of New Zealand, southeastern Victoria; 610–1277 m.

Remarks. Three individuals of *Byblisoides* were identified using the key of Peart (2018). They are recognized by the combination of the absence of setae on the anterior margin of the carpus of pereopod 7 and the absence of a carina on the urosomites, an unusual feature among species of the genus. J. L. Barnard (1961) recorded *Byblisoides esferis* from 610 m off the west coast of the South Island of New Zealand. These specimens agree well with J. L. Barnard's description and figure but comparison with type material is necessary to check for minor specific differences.

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Finally, I appreciate the invitation from Penny Berents, Shane Ahyong, Alan Myers, and Lucia Fanini to contribute to this special volume celebrating the life and work of colleague and friend Jim Lowry.

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