



Australian and South African conicostomatine amphipods (Amphipoda: Lysianassoidea: Lysianassidae: Conicostomatinae subfam. nov.)

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Abstract

The new lysianassid subfamily Conicostomatinae is established. All genera in the subfamily are rediagnosed and distribution maps are provided. The new genus *Amphorites* is established for *Amphorites annasona* **sp. nov.**, *Am. hurleyi* (Lowry & Stoddart, 1983) and *Am. pungapunga* (Lowry & Stoddart, 1983). The Australian species *Conicostoma karta* Lowry & Stoddart, 1983 is redescribed with many new distribution records. Three new Australian species are described: *Ocosingo yatala* **sp. nov.**; *Scolopostoma darwinensis* **sp. nov.**; and *Sc. norah* **sp. nov.** The South African species reported as *Stomacontion prionoplax* by Griffiths (1974, 1975, 1976) is described as *Scolopostoma keurboomstrandensis* **sp. nov.**

Key words: Crustacea, Amphipoda, Lysianassidae, Conicostomatinae, Australia, taxonomy, new genus, new species

Introduction

Conicostomatines are a small group (6 genera and 16 species) of lysianassid amphipods. Four genera (*Acontiosstoma* Stebbing, 1888, *Amphorites* **gen. nov.**, *Conicostoma* Lowry & Stoddart, 1983 and *Stomacontion* Stebbing, 1899) are generally known from post-gondwanan fragments such as South Africa, southern South America, southern New Zealand, southern Australia and the subantarctic islands of the Southern Ocean (Fig. 1). Two genera (*Ocosingo* J.L. Barnard, 1964 and *Scolopostoma* Lowry & Stoddart, 1983) have more widespread distributions. *Ocosingo* occurs in the Kurile Islands in the north-western North Pacific Ocean, the Baja California Peninsula in the tropical eastern North Pacific Ocean, on the Cocos (Keeling) Islands in the eastern Indian Ocean, on the South Island of New Zealand and in eastern and southern Australia. *Scolopostoma* has an Indo-West Pacific distribution from South Africa, Madagascar and the Suez Canal in the Indian Ocean and Red Sea; to Singapore, Bali and tropical Australia; and New South Wales and Norfolk Island in the Tasman Sea.

Conicostomatines have often been reported in association with other invertebrates. J.L. Barnard (1969a) reported *Ocosingo borlus* J.L. Barnard, 1969a as abundant among ascidians and sometimes among sponges. Tzvetkova (1987) reported *Ocosingo kussakini* Tzvetkova, 1987 among sea urchins, sponges, bryozoans, hydroids and ascidians. Lowry & Stoddart (1983) reported *Acontiosstoma tuberculata* Lowry & Stoddart, 1983 from a sponge, *Ac. marionis* Stebbing, 1888, *Amphorites hurleyi* (Lowry & Stoddart, 1983) and *Am. pungapunga* (Lowry & Stoddart, 1983) in association with bryozoans and sponges and *Stomacontion pepinii* (Stebbing, 1888) among sponges and tunicates. Rauschert (1997) recorded *St. bulbosus* Rauschert, 1997 among sponges, hydroids, bryozoans and ascidians. *Scolopostoma darwinensis* **sp. nov.** is recorded below from encrusting ascidians and sponges. The inner plate of the maxilliped in this group is very variable and probably reflects different feeding strategies. For example in *Ac. marionis* the outer plate of the maxilliped has a blade-like sclerotised margin that might be used for scraping epidermal mucous or slicing through invertebrates such as sponges.

The group was first recognised by Lowry & Stoddart (1983) who described a conicostomatid group of lysianassoid amphipods. They stressed that this was an informal group (p. 281: "For this reason we are using informal names.") but apparently the "-id" ending on the group name prompted *Zoological Record* for 1983 to record the new genus *Conicostoma* Lowry & Stoddart, 1983 as being in the Conicostomatidae. However, *Zoological Record*

did not record Conicostomatidae as a new family. Since then, De Broyer (1985) referred to "conicostomatiens"; Thurston (1989) referred to "conicostomatid ... grouping"; Barnard & Karaman (1991) referred to a "Conicostomatina Group" and "Conicostomatins"; Bousfield & Shih (1994) and Bousfield & Staude (1994) used the name "Conicostomatidae"; Rauschert (1997) referred to a "conicostomatiden Gruppe" and Bousfield (2001) referred to "Subfamily concept Conicostomatinae Lowry & Stoddart proposal". We do not believe the family group name Conicostomatidae or the subfamily group name Conicostomatinae has been validly established according to ICZN Article 11.7.1.3.

We now formally establish the subfamily Conicostomatinae in the family Lysianassidae. We establish the new genus *Amphorites* for *Amphorites annasona* **sp. nov.**, *A. hurleyi* (Lowry & Stoddart, 1983) and *A. pungapunga* (Lowry & Stoddart, 1983), we redescribe *Conicostoma karta* Lowry & Stoddart, 1983 with many new distribution records and we describe for the first time *Ocosingo yatala* **sp. nov.**, *Scolopostoma darwinensis* **sp. nov.**, *S. norah* **sp. nov.** from Australia and *S. keurboomstrandensis* **sp. nov.** from South Africa. New material of *Ocosingo* sp. from Cocos (Keeling) Islands and *Scolopostoma* spp. from Singapore and Norfolk Island are reported here for completeness, but are not described in this study.

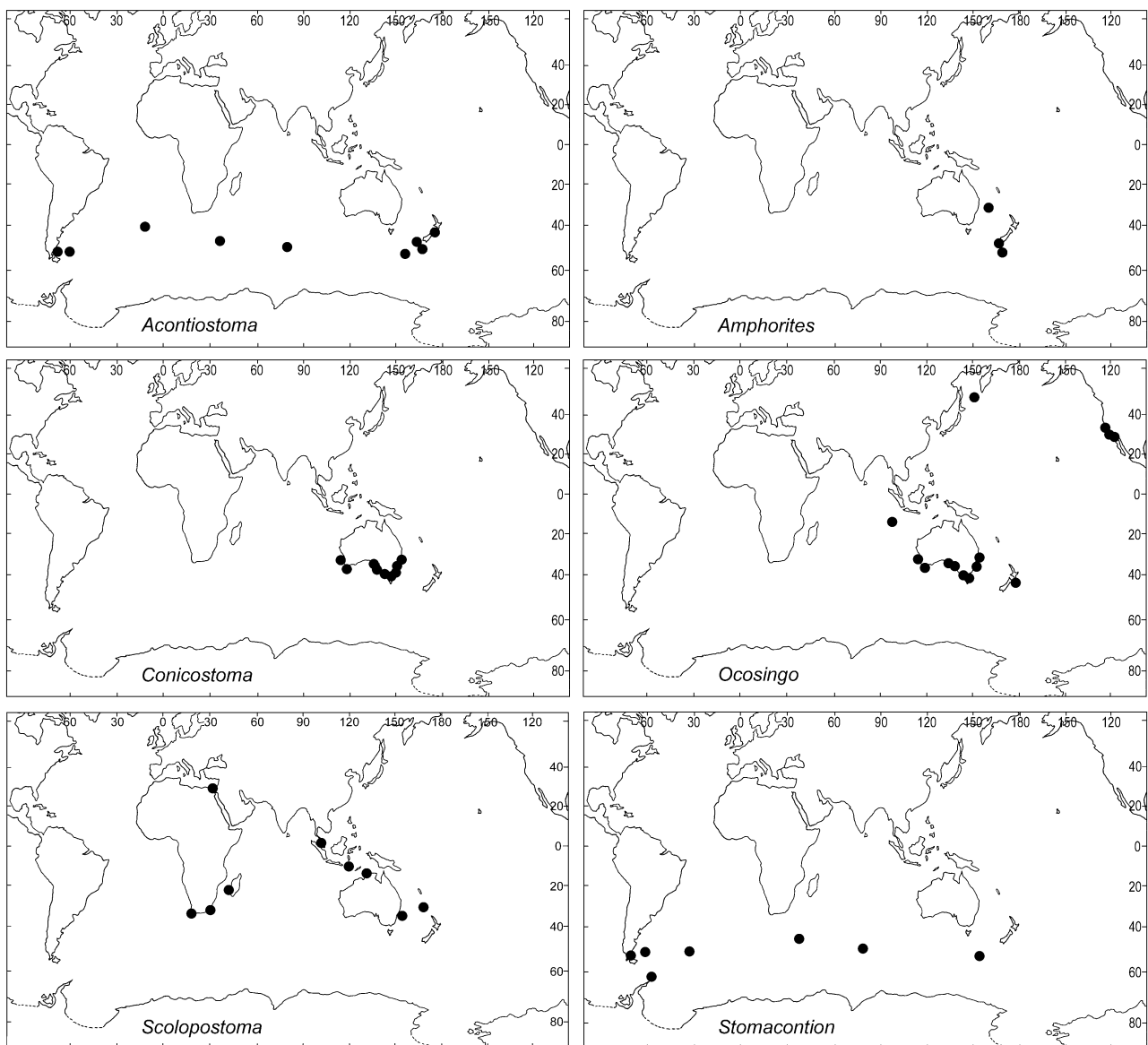


FIGURE 1. Conicostomatine generic distributions.

Material and methods

The diagnoses and descriptions were generated from a DELTA database (Dallwitz 2005) to the conicostomatine species of the world. Diagnoses are based on adult females. Material is deposited in the Australian Museum, Sydney (AM); Museum Victoria, Melbourne (MV); the South African Museum, Cape Town (SAM), the South Australian Museum, Adelaide (SAMA) and the Zoologisk Museum, Copenhagen (ZMC). Standard abbreviations on the plates are: A, antenna; C, coxa; E, epistome; EP, epimeron; G, gnathopod; H, head; MD, mandible; MX, maxilla; MP, maxilliped; P, pereopod; T, telson; U, uropod. Maxilla 1 setal-tooth classification follows Lowry & Stoddart (1990, 1995).

Lysianassidae Dana, 1849

Conicostomatinae subfam. nov.

Diagnosis. Head partially covered by coxa 1 or completely covered by pereonite 1 and coxa 1. Epistome and upper lip fused. Maxilla 2 inner plate subequal in length to outer plate. Maxilliped coxa and basis enlarged; palp article 4 reduced or absent. Mouthpart bundle subconical. Gnathopod 1 simple; propodus small; dactylus slightly curved. Urosome compressed.

Included genera. *Acontiostoma* Stebbing, 1888; *Amphorites* **gen. nov.**; *Conicostoma* Lowry & Stoddart, 1983; *Ocosingo* J.L. Barnard, 1964; *Scolopostoma* Lowry & Stoddart, 1983 and *Stomacontion* Stebbing, 1899.

Remarks. Lowry & Stoddart (1983) also included in their ‘conicostomatid’ group the genera *Acidostoma* Lilljeborg, 1865, *Phoxostoma* K.H. Barnard, 1925, *Shackletonia* K.H. Barnard, 1931 and *Socarnoides* Stebbing, 1888 (type species only). Further study has shown that these genera, although they do have conical or subconical mouthpart bundles, do not belong in the conicostomatine group; *Acidostoma* and *Shackletonia* have recently been assigned to a new lysianassoid family, Acidostomatidae by Lowry & Stoddart (in press); *Phoxostoma* and *Socarnoides* remain for now in the subfamily Lysianassinae. *Phoxostoma* differs from conicostomatines in having the outer plate of maxilla 2 offset from the inner plate and in not having a compressed urosome. *Socarnoides* has a left lacinia mobilis, the epistome and upper lip separate and does not have a compressed urosome – all characters that exclude it from the conicostomatines.

The genus *Stomacontion* is problematic (Lowry & Stoddart 1983; Rauschert 1997). It has in the past contained too much generic level variability. One set of species formerly considered in the genus contain a synapomorphy in the form of a vase-shaped palp on maxilla 1. In this paper we remove these taxa to the new genus *Amphorites* and this appears to stabilise the *Stomacontion* concept. The very poorly known taxon, *Stomacontion capense* K.H. Barnard, 1916, cannot be placed in a genus and is considered as *incertae sedis*. It is possible that *S. insigne* and *S. bulbosus* are synonyms.

Key to World Conicostomatine Genera

1. Head completely covered by pereonite 1 and coxa 1 2
- Head partially covered by coxa 1 4
2. Body (pereon and pleon) without dorsal projections 3
- Body (pereon and pleon) with strong dorsal projections..... *Ocosingo*
3. Maxilliped basis greatly enlarged. Uropod 3 without rami. *Acontiostoma*
- Maxilliped basis not greatly enlarged. Uropod 3 biramous *Conicostoma*
4. Maxilliped outer plate distomedial margin smooth 5
- Maxilliped outer plate distomedial margin serrate *Scolopostoma*
5. Maxilla 1 palp swollen proximally (vase-shaped) *Amphorites*
- Maxilla 1 palp slender, tapering distally *Stomacontion*

Acontiostoma Stebbing, 1888

Acontiostoma Stebbing, 1888: 709. —Della Valle, 1893: 785. —Stebbing, 1906: 15. —Hurley, 1963: 35. —J. L. Barnard, 1969b: 317. —Lowry & Stoddart, 1983: 283. —Bellan-Santini & Ledoyer, 1987: 405. —Barnard & Karaman, 1991: 457.

Type species. *Acontiostoma marionis* Stebbing, 1888, original designation.

Diagnosis. *Head* completely concealed by pereonite 1 and coxa 1. *Maxilla 1* palp article 1 slender, tapering distally. *Maxilliped* basis (inner plate) greatly enlarged; outer plate distomedial margin smooth, forming a hardened, smooth incisor-like margin. *Body* pereon and pleon without dorsal projections. *Uropod 3* without rami. *Telson* hemiacetabulate.

Included species. *Acontiostoma marionis* Stebbing, 1888; *A. tuberculata* Lowry & Stoddart, 1983.

Key to species of *Acontiostoma*

- 1. Body smooth *A. marionis*
- Body covered in calcareous tubercles. *A. tuberculata*

Amphorites gen. nov.

Type species. *Stomacontion pungapunga* Lowry & Stoddart, 1983.

Etymology. Based on the Latin word *amphora*, referring to the shape of the maxilla 1 palp.

Diagnosis. *Head* partially concealed by coxa 1. *Maxilla 1* palp article 1 large, swollen proximally. *Maxilliped* basis (inner plate) not greatly enlarged; outer plate distomedial margin smooth. *Body* pereon and pleon without dorsal projections. *Uropod 3* uniramous or without rami. *Telson* hemiacetabulate.

Included species. *Amphorites annasona* sp. nov.; *A. hurleyi* (Lowry & Stoddart, 1983); *A. pungapunga* (Lowry & Stoddart, 1983).

Remarks. The new genus *Amphorites* differs from *Stomacontion* by the distinctive vase-shaped palp of maxilla 1, a character it shares with *Conicostoma*. The formation of *Amphorites* lessens the character variability of *Stomacontion* and stabilizes the conicostomatine genera.

Key to species of *Amphorites*

- 1. Uropod 3 without rami 2
- Uropod 3 uniramous *A. pungapunga*
- 2. Gnathopod 1 coxa anteroventral corner rounded, posteroventral corner subquadrate. *A. annasona*
- Gnathopod 1 coxa rounded ventrally *A. hurleyi*

Amphorites annasona sp. nov.

(Figs 2, 3)

Type material. HOLOTYPE, female, ovigerous (3 eggs), 3.0 mm, P.70311, Middleton Reef, Tasman Sea, 29°27.4'S 159°03.7'E, 12 m, outer reef slope near wreck of MV *Annasona*, air lift around rocks and rubble with a little algae in gutter, 9 December 1987, R.T. Springthorpe & J.K. Lowry on RV *Flamingo Bay*, Australian Museum Elizabeth and Middleton Reefs Expedition, stn 21I. PARATYPES: 2 specimens, AM P.70312, same data as holotype; 1 specimen, AM P.70308, Middleton Reef, Tasman Sea, 29°27.4'S 159°03.7'E, reef shelf near wreck of *Runic*, 9–12 m, airlift, 5 December 1987, R.T. Springthorpe on RV *Flamingo Bay*, Australian Museum Elizabeth and Middleton Reefs Expedition, stn 8.1a; 3 specimens, AM P.70310, Middleton Reef, Tasman Sea, 29°27.4'S 159°03.7'E, reef shelf near wreck of *Runic*, 9–12 m, habitat not recorded, possibly coral rubble, algae and coarse sediment, 5 December 1987, R.T. Springthorpe & J.K. Lowry on RV *Flamingo Bay*, Australian Museum Elizabeth and Middleton Reefs Expedition, stn 8.1c; 1 specimen, AM P.70309, Middleton Reef, Tasman Sea, 29°27.4'S 159°03.7'E, reef shelf near wreck of *Runic*, 13 m, brown algae, 5 December 1987, I. Loch on RV *Flamingo Bay*, Australian Museum Elizabeth and Middleton Reefs Expedition, stn 8.1f.

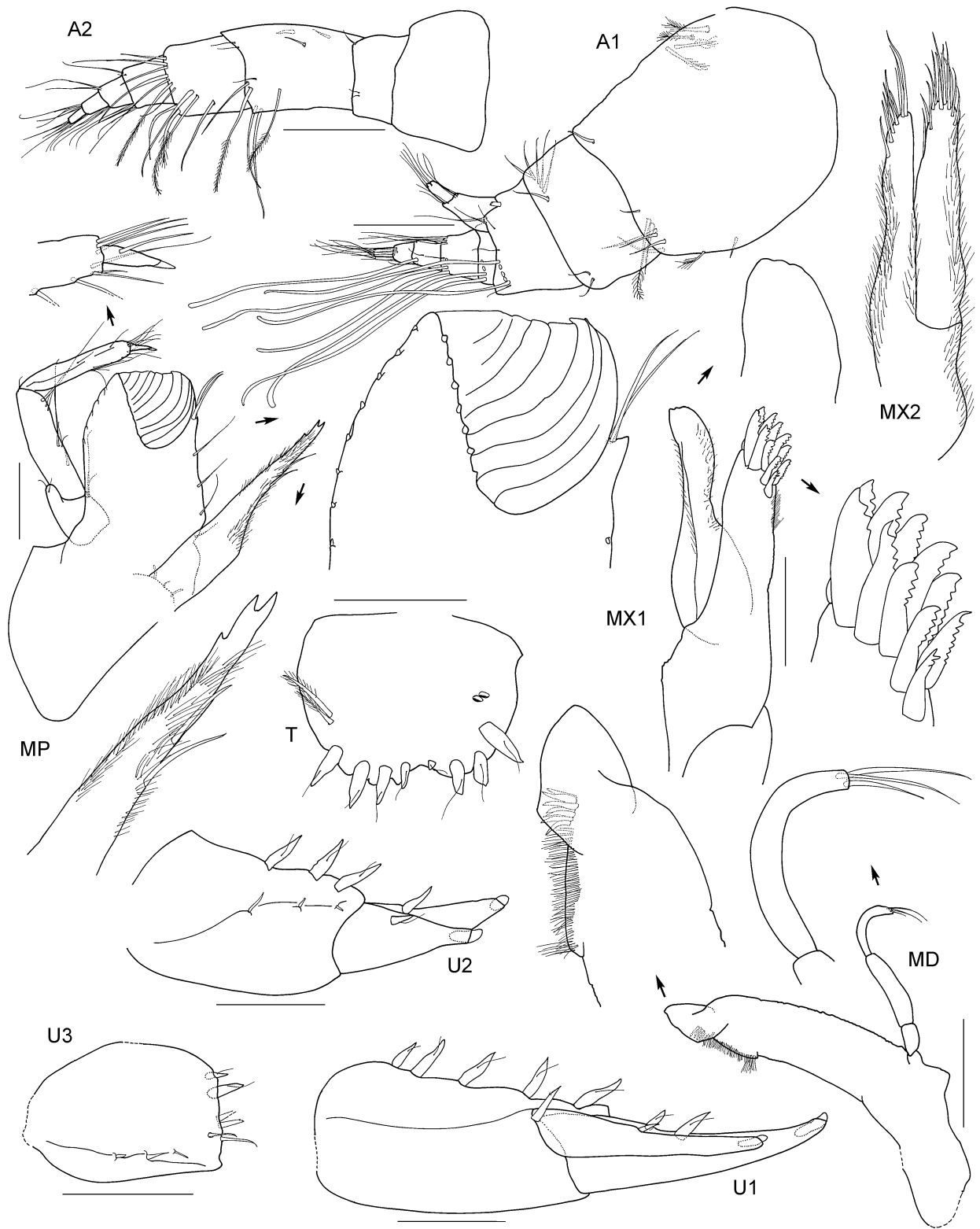


FIGURE 2. *Amphorites annasona* sp. nov. Holotype, ovigerous female, 3.0 mm, P.70311, Middleton Reef, Tasman Sea. Scales represent 0.1 mm.

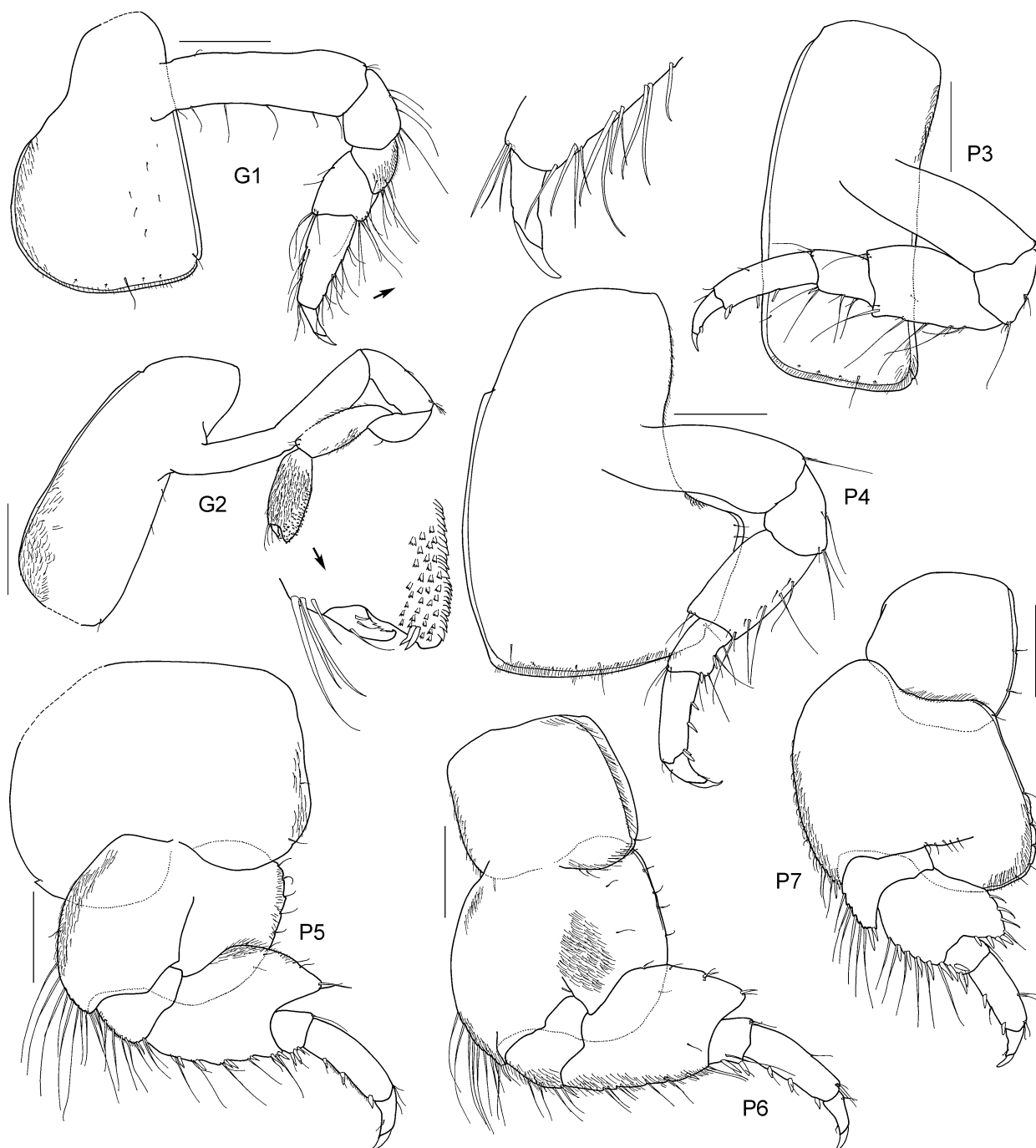


FIGURE 3. *Amphorites annasona* sp. nov. Holotype, ovigerous female, 3.0 mm, P.70311, Middleton Reef, Tasman Sea. Scales represent 0.2 mm.

Additional material examined. 1 specimen, AM P.70313, Taupo Seamount, Tasman Sea, 33° 14.21' S 156° 10.68' E, 133 m, very rough maerl bottom, 1.2 m sled, 2 May 1989, J.K. Lowry and party, RV *Franklin*, stn FR 05/89-7.

Type locality. Outer reef slope near wreck of the *Annasona*, Middleton Reef, Tasman Sea, 29°27.4'S 159°03.7'E, 12 m depth.

Etymology. The species is named for its type locality.

Diagnosis. Maxilla 1 palp swollen, 1-articulate. Gnathopod 1 coxa anteroventral corner rounded, posteroventral corner subquadrate. Uropod 3 without rami.

Description. *Head* partially covered by pereonite 1 and coxa 1. *Body* pereon and pleon without dorsal projections. *Antenna 1* peduncular article 1 without distal projection; accessory flagellum 2-articulate. *Mandible* accessory setal row with 7 robust setae; molar a setose lobe. *Maxilla 1* palp long, 1-articulate. *Maxilliped* inner plate styliform; outer plate subovate, distomedial margin smooth, with coarse irregular ridges on distolateral surface; palp 4-articulate.

Coxa 1 anteroventral corner rounded, posteroventral corner subquadrate. *Gnathopod 1* carpus shorter than propodus, subquadrate, anterior margin not produced anterodistally; dactylus regular simple. *Gnathopod 2* dactylus inserted near anterodistal corner of propodus. *Pereopod 7* basis, posteroventral corner rounded.

Urosomite 1 with dorsal flanges formed by 3 longitudinal carinae. *Uropod 1* biramous; inner ramus shorter than outer ramus. *Uropod 2* biramous; rami subequal in length. *Uropod 3* without rami. *Telson* hemiacetabulate, emarginate.

Remarks. The holotype, an ovigerous female, has oostegites on pereopods 3 to 5. *Amphorites annasona* is very similar to *A. pungapunga* from the New Zealand subantarctic but can be distinguished from that species by the emarginate telson, the complete absence of rami on uropod 3 and the 1-articulate palp on maxilla 1.

Distribution. Tasman Sea, 9–133 m depth.

***Conicostoma* Lowry & Stoddart**

Conicostoma Lowry & Stoddart, 1983: 283. —Lowry & Stoddart, 1984: 198. —Barnard & Karaman, 1991: 477.

Type species. *Conicostoma karta* Lowry & Stoddart, 1983, original designation.

Diagnosis. *Head* completely concealed by pereonite 1 and coxa 1. *Maxilla 1* palp article 1 swollen proximally. *Maxilliped* basis (inner plate) not greatly enlarged; outer plate distomedial margin smooth. *Body* pereon and pleon without dorsal projections. *Uropod 3* biramous. *Telson* laminar.

Included species. *Conicostoma karta* Lowry & Stoddart, 1983,

***Conicostoma karta* Lowry & Stoddart, 1983**

(Fig. 4)

Conicostoma karta Lowry & Stoddart, 1983: 394. —Lowry & Stoddart, 1984: 198, figs 5–8. —Barnard & Karaman, 1991: 477. —Springthorpe & Lowry, 1994: 21. —Lowry & Stoddart, 2003: 164.

Material examined. *New South Wales*: 1 specimen, AM P.77495, north-east side of Little Broughton Island, 32°37'05"S 152°20'06"E, 17 m, *Ecklonia* holdfasts, 11 March 2006, R.T. Springthorpe, stn NSW 2940; 1 specimen, AM P.77476, north-east side of Cabbage Tree Island, 32°41'06"S 152°13'36"E, 16–17 m, small rocks with brown algae, ascidian *Clavelina* and sponges, 8 March 2006, S.J. Keable & C. Fraser, stn NSW 2884; 3 specimens, MV J62534, off Eden, 37°0.60'S 150°20.70'E, 363 m, coarse shell, WHOI epibenthic sled, 21 July 1986, G.C.B. Poore *et al.*, RV *Franklin*, stn SLOPE 22. *Victoria*: 1 specimen, MV J22342, 13.3 km east of eastern edge of Lake Tyers, 37°51.70'S 148°14.60'E, 37 m, coarse sand, Smith-McIntyre grab, 4 June 1991, N. Coleman, stn MSL-EG 67; 1 male, AM P.68884, Henty Reef, Apollo Bay, 38°47'S 143°40.5'E, 4.5 m, algae, 25 April 1988, R.T. Springthorpe & P.B. Berents, stn VIC-7; 3 specimens, AM P.68885, north-west side of Henty Reef, Mounts Bay, 38°47'S 143°40.5'E, 18 m, algal holdfasts, 3 May 1988, R.T. Springthorpe & P.B. Berents, stn VIC-65; 1 specimen, J13748, Crib Point, Western Port, 38°21.63'S 145°15.08'E, 9 m, sand, Smith-McIntyre grab, 23 February 1965, Marine Studies Group, Fisheries and Wildlife Department, Ministry for Conservation, Victoria, CPBS stn 25S. *Bass Strait*: 1 specimen, MV J62535, 100 km north-east of North Point, Flinders Island, 38°52.6'S 148°26.5'E, 140 m, fine sand, epibenthic sled, 15 November 1981, R. Wilson, RV *Tangaroa*, stn BSS 170S; 9 specimens, MV J62536, 20 km south-east of Port Albert, 38°43.4'S 146°56.9E, 26 m, epibenthic sled, 18 November 1981, R. Wilson, RV *Tangaroa*, stn BSS-178S; 1 specimen, MV J62541, 20 km south-east of Port Albert, 38°43.4'S 146°56.9E, 26 m, Smith-McIntyre grab, 18 November 1981, R. Wilson, RV *Tangaroa*, stn BSS-178G; 1 specimen, MV J62542, 26 km south-east of Aireys Inlet, 38°39.8'S 144°18.2'E, 79 m, very fine sand, Smith-McIntyre grab, 19 November 1981, R. Wilson, RV *Tangaroa*, stn BSS 181G; 1 specimen, MV J7640, off Currie, King Island, 39°54.7'S 143°43.4'E, 49

m, coarse sand, Smith-McIntyre grab, 21 November 1981, R. Wilson, RV *Tangaroa*, stn BSS 196G; 6 specimens, MV J62550, 63 km east of North Point, Flinders Island, 39°44.8'S 148°40.6'E, 124 m, muddy sand, epibenthic sled, 14 November 1981, R. Wilson, RV *Tangaroa*, stn BSS 167; 1 specimen, MV J62537, 20 km north-north-east of Bold Head, King Island, 40°00.0'S 144°20.9'E, 48 m, coarse sand, rock dredge, 22 November 1981, R. Wilson, RV *Tangaroa*, stn BSS-200RD; 3 specimens, MV J62543, 20 km south-south-west of Babel Island, 40°06.2'S 148°25.0'E, 22 m, coarse shell, dredge, 14 November 1981, R. Wilson, RV *Tangaroa*, stn BSS-166D; 1 specimen, MV J62544, 20 km south-south-west of Babel Island, 40°06.8'S 148°24.3'E, 22 m, coarse shell, Smith-McIntyre grab, 14 November 1981, R. Wilson, RV *Tangaroa*, stn BSS-166G; 1 specimen, MV J62545, 23 km east of Cape Rochon, Three Hummock Island, 40°22.2'S 145°17'E, 40 m, sand, epibenthic sled, 3 November 1980, M. Gomon & G.C.B. Poore, FRV *Sarda*, stn BSS 112S; 1 specimen, MV J62546, 9 km south-south-west of Cape Adansan, Three Hummock Island, 40°30.9'S 144°56'E, 27 m, very coarse sand, epibenthic sled, 2 November 1980, M. Gomon & G.C.B. Poore, FRV *Sarda*, stn BSS 109S. *South Australia*: 1 specimen, MV J62547, Tiparra Reef, Tiparra Bay, 34°10'S 137°23'E, 11 m, sand, shell fragments and seagrass, 15 March 1985, G.C.B. Poore & H.M. Lew Ton, stn MV SA-19; 1 specimen, MV J62548, 1 km off bay on north shore of Flinders Island, 33°41'S 134°31'E, 20 m, *Posidonia* drift on sand, hand dredge, 19 April 1985, G.C.B. Poore, FV *Lemnos*, stn MV SA-67; 1 specimen, MV J62549, The Hotspot Reef, 5 nautical miles west of Flinders Island, 33°40.8'S 134°22.5'E, 21 m, large red algae, 20 April 1985, G.C.B. Poore, stn MV SA-69; 4 specimens, AM P.39219, north-east side of Topgallant Island, Investigator Group, 33°43.0'S 134°36.6'E, 12 m, algae, bryozoans and sponges, 21 April 1985, S. Shepherd & G.C.B. Poore, stn MV SA-81. *Western Australia*: 4 ovigerous females, MV J11510, Deepwater Pier, Albany, 35°02.4'S 117°54.2'E, Bryozoa from pier pilings, 5 April 1985, G.C.B. Poore & H.M. Lew Ton, stn SWA-8; 2 specimens, MV J62551, north-east end of Vancouver Peninsula, King George Sound, 53°03.4'S 117°56.2'E, 3 m, tufted red algae, soft coral and sponges, 8 April 1985, G.C.B. Poore & H.M. Lew Ton, stn SWA-22; 1 specimen, AM P.39220, Ellen Cove, Middleton Bay, King George Sound, 35°01.5'S 117°55'E, 1.5 m, sponges, ascidians and hydroids on jetty, 29 March 1984, J. Just, stn WA-22; 1 specimen, AM P.39221, Vancouver Peninsula, near Mistaken Island, King George Sound, 35°04'S 117°56'E, 3 m, sea grasses, 13 December 1983, J.K. Lowry, stn WA-113; 1 specimen, AM P.39222, same locality, 6 m, sea grass with bryozoan or fine pink algae, 13 December 1983, R.T. Springthorpe, stn WA-120; 2 specimens, AM P.39227, same locality, 6 m, seagrasses, 13 December 1983, R.T. Springthorpe, stn WA-121; 1 specimen, AM P.39223, off Possession Point, King George Sound, 35°02.5'S 117°55'E, 7 m, finger sponges and algae, 14 December 1983, R.T. Springthorpe, stn WA-136; 9 specimens, AM P.39224, rocks near Migo Island, Port Harding, Torbay Bay, 35°04'S 117°39'E, 6.5 m, sponge and algae, 15 December 1983, R.T. Springthorpe, stn WA-145; 1 specimen, AM P.39225, same locality, 6.5 m, small branched alga with compound tunicate on underside, 15 December 1983, J.K. Lowry & R.T. Springthorpe, stn WA-152; 1 specimen, AM P.78480 and 1 specimen, AM P.78482, Bramble Point, Princess Royal Harbour, Albany, 35°03'S 117°53'E, *Posidonia sinuosa*, January 1988, P.A. Hutchings, D. Walker & F.E. Wells; 1 specimen, AM P.78481, same data, 2.5 m; 6 specimens, AM P.79455 and 1 specimen, AM P.79456, same data, *Posidonia australis*; 1 specimen, AM P.39226, Cathedral Rocks, Rottneest Island, 32°01.5'S 115°27'E, 3 m, orange tunicates under limestone rock overhangs, 21 December 1983, J.K. Lowry, stn WA-247.

Description. *Head* concealed by pereonite 1 and coxa 1. *Body* with many scattered setae; pereon and pleon without dorsal projections, not produced dorsally. *Antenna 1* peduncular article 1 without distal projection; accessory flagellum 2-articulate. *Mandible* accessory setal row with 7 robust setae; molar a setose lobe. *Maxilla 1* palp long, 1-articulate. *Maxilliped* inner plate styliform; outer plate subovate, distomedial margin smooth, with set of small ridges on distolateral margin; palp 4-articulate.

Coxa 1 rounded ventrally. *Gnathopod 1* carpus shorter than propodus, subquadrate, anterior margin not produced anterodistally; dactylus regular simple. *Gnathopod 2* dactylus inserted in centre of scoop formed by anterior and posterior projections of distal margin of propodus. *Pereopod 7* basis, posteroventral corner subquadrate.

Uropod 1 biramous; inner ramus shorter than outer ramus. *Uropod 2* biramous; inner ramus shorter than outer ramus. *Uropod 3* biramous. *Telson* laminar, notched.

Remarks. Ovigerous females have no oostegites. They do have penial papillae which suggests that they are protandrous hermaphrodites as described by Lowry & Stoddart (1986) for other conicostomatine species.

Distribution. Southern Australia; 1.5–363 m depth

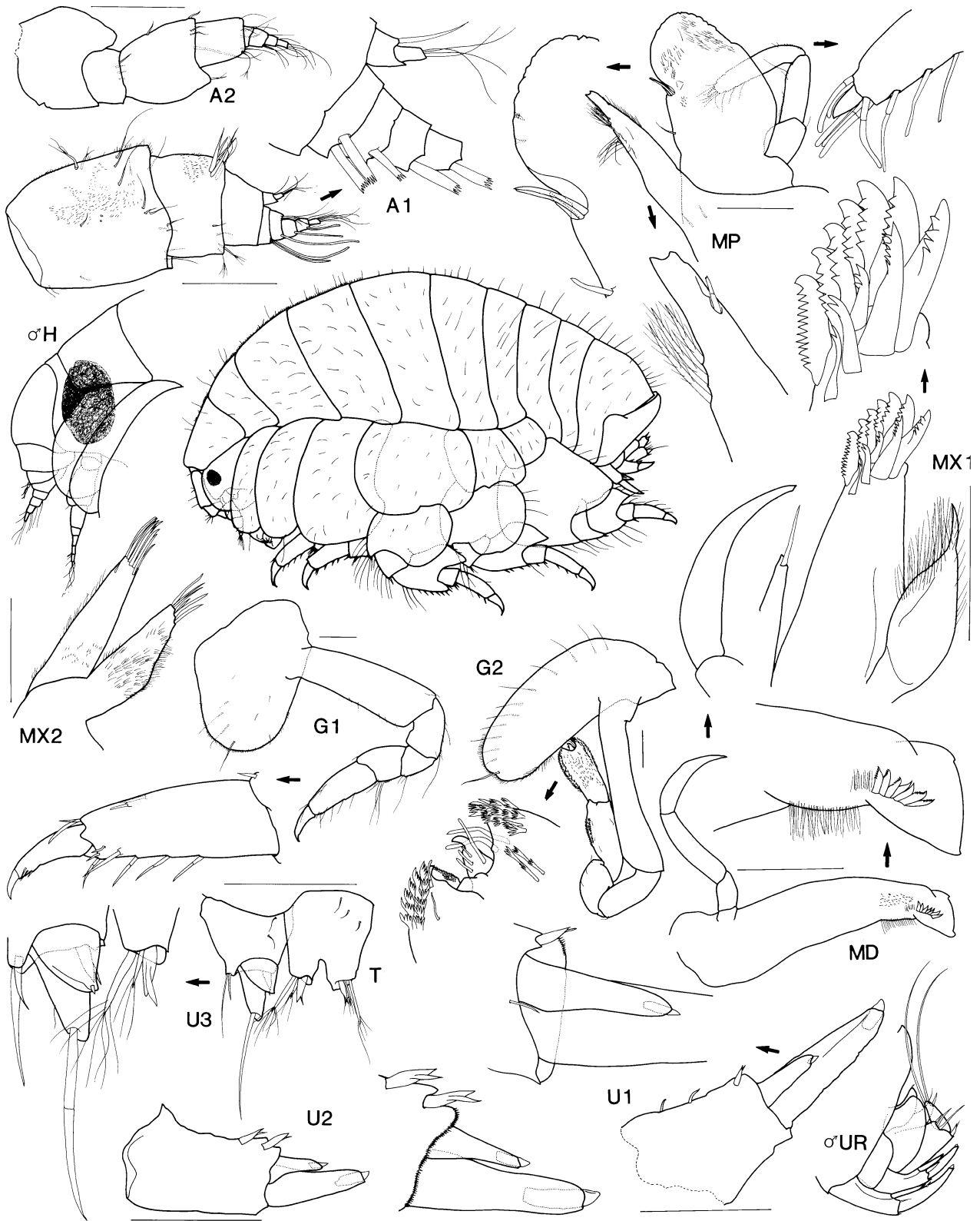


FIGURE 4. *Conicostoma karta* Lowry & Stoddart, 1983. Female, 3 mm, AM P.39219, Investigator Group, Great Australian Bight; secondary male, 2 mm, AM P.39227, King George Sound, Western Australia. Scales represent 0.1 mm.

Ocosingo J.L. Barnard

Ocosingo J.L. Barnard, 1964: 230. —J.L. Barnard, 1969b: 352. —Lowry & Stoddart, 1983: 284. —Tzvetkova, 1987: 1739. —Barnard & Karaman, 1991: 505.
Fresnillo J.L. Barnard, 1969a: 169.

Type species. *Ocosingo borlus* J.L. Barnard, 1964, original designation.

Diagnosis. *Head* completely concealed by pereonite 1 and coxa 1. *Maxilla 1* palp article 1 slender, tapering distally. *Maxilliped* basis (inner plate) not greatly enlarged; outer plate distomedial margin smooth or smooth, forming a hardened, serrate incisor-like margin or serrate. *Body* pereon with or without dorsal projections, pleon with strong dorsal projections. *Uropod 3* without rami. *Telson* laminar.

Included species. *Ocosingo borlus* J.L. Barnard, 1964; *O. fenwicki* Lowry & Stoddart, 1983; *O. kussakini* Tzvetkova, 1987; *O. yatala* **sp. nov.**

Key to species of *Ocosingo*

1. Uropod 1 uniramous 2
- Uropod 1 biramous *O. borlus*
2. Antenna 1 peduncular article 1 produced distally into a large lobe 3
- Antenna 1 peduncular article 1 not produced *O. yatala*
3. Body with rows of minute denticles and large tubercles *O. fenwicki*
- Body with dense cover of tiny setae *O. kussakini*

Ocosingo yatala **sp. nov.**

(Figs 5–7)

Type material. HOLOTYPE, ovigerous female, 2.5 mm, MV J62538, 20 km east-north-east of Bold Head, King Island, central Bass Strait, Australia, 40°0.0'S 144°20.9'E to 40°0.0'S 144°23.6'E, 46–48 m, medium sand, otter trawl, 2 February 1981, M.F. Gomon, G.C.B. Poore & C.C. Lu, FRV *Hai Kung*, stn BSS-127T. PARATYPES: 1 specimen, MV J11274, 79 km south-south-east of Port Fairy, Victoria, Australia, 39°02'S 142°38'E, 119 m, coarse sand, Smith-McIntyre grab, 9 October 1980, G.C.B. Poore, HMAS *Kimbla*, stn BSS-64G; 1 specimen, MV J62539, 100 km north-east of North Point, Flinders Island, eastern Bass Strait, Australia, 38°52.6'S 148°26.5'E, 140 m, fine sand, epibenthic sled, 15 November 1981, R. Wilson, RV *Tangaroa*, stn BSS-170S; 1 ovigerous female, AM P.70317, Yatala Harbour, Spencer Gulf, South Australia, 32°45'S 137°55'E, 4.5–6 m, 8 March 1938, K. Sheard on F.L. *Whyalla*; 1 male, 1.9 mm, AM P.86503 and 5 males, SAMA C7034, The Pages, South Australia, approx. 35°46'S 138°18'E, 16.5 m, submarine light, 12 April 1941, K. Sheard; 2 specimens, MV J62540, Pearson Island, South Australia, 33°57.3'S 134°15.7'E, 20 m, tufted algae and trapped sand on exposed rock, 17 April 1985, G.C.B. Poore, FV *Lemnos*, stn MV SA-54.

Additional material examined. 1 specimen, AM P.77494, north-east side of Little Broughton Island, north-east of Port Stephens, New South Wales, 32°37'5"S 152°20'6"E, 17 m, *Ecklonia* holdfasts from rock reef with gutters and sand patches, 11 March 2006, R.T. Springthorpe, stn NSW-2940; 14 specimens (female and male), AM P.77896, Burrill Rocks, Ulladulla, New South Wales, 35°23.39'S 150°28.24'E, 22 m, red alga, 7 May 1997, A. Murray, stn NSW-1356; 1 specimen, AM P.70318, 2 km south-east of South Point, Two Peoples Bay, Western Australia, 34°58'S 118°12'E, 6–10 m, *Caulerpa* on rock shelf, 16 December 1983, J.K. Lowry, stn WA-175; 1 specimen, AM P.70319, same locality, 6–10 m, alga with ascidian(?) on back of fronds, 16 December 1983, J.K. Lowry, stn WA-177; 2 specimens, AM P.70320, same locality, 12 m, filamentous bryozoan, 16 December 1983, R.T. Springthorpe, stn WA-182; 1 specimen, AM P.70321, Cathedral Rock, Rottnest Island, Western Australia, 32°01.5S 115°27'E, 3 m, under limestone rock overhangs, coralline algae plus bits of red algae and sponge, 21 December 1983, J.K. Lowry, stn WA-248.

Type locality. 20 km east-north-east of Bold Head, King Island, Central Bass Strait, Australia, 40°0.0'S 144°20.9'E to 40°0.0'S 144°23.6'E, 46–48 m depth.

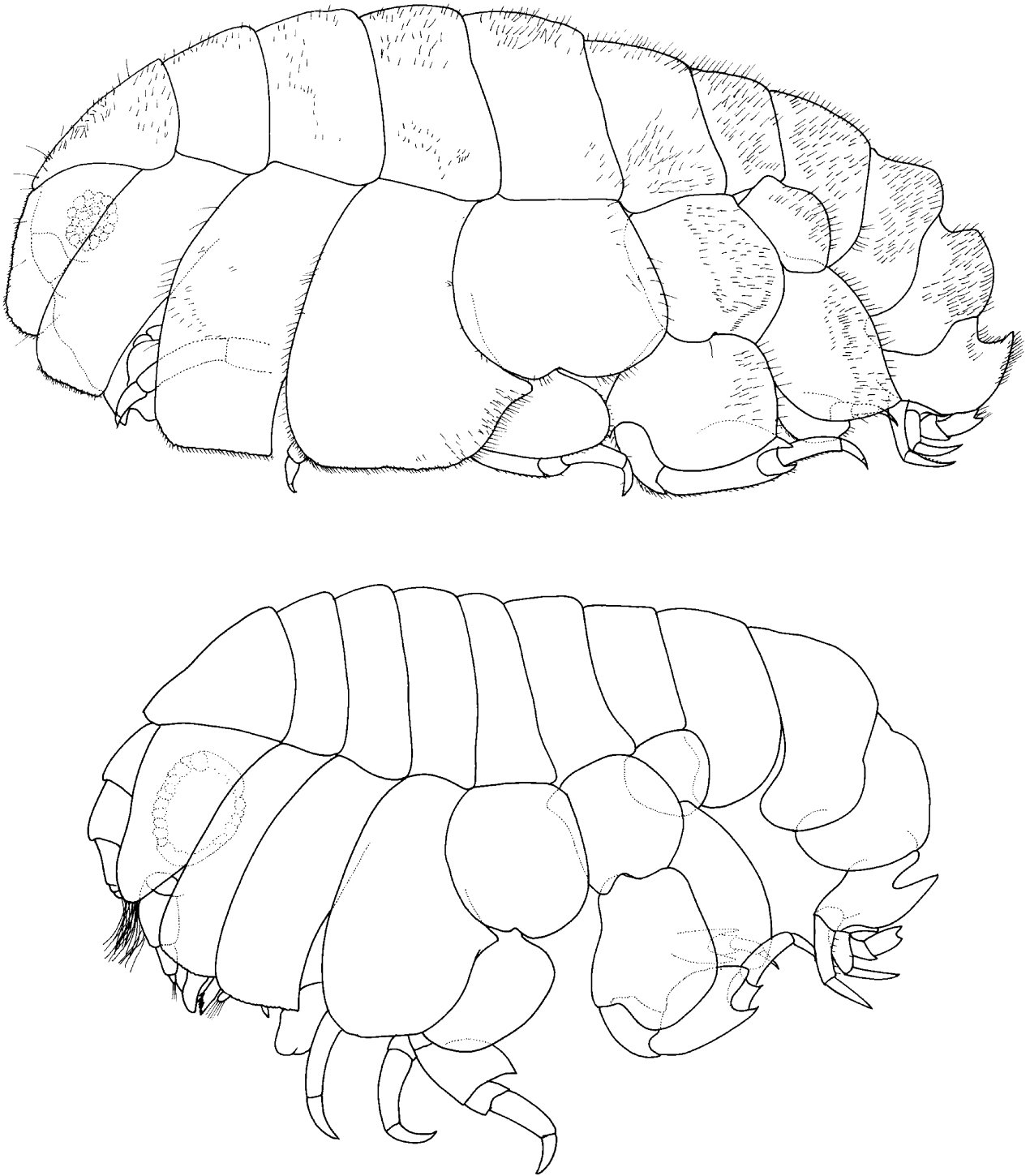


FIGURE 5. *Ocosingo yatala* **sp. nov.** Holotype, ovigerous female, 2.5 mm, MV J62538, central Bass Strait. Paratype, male, 1.9 mm, AM P.86503, The Pages, South Australia.

Etymology. The species is named for Yatala Harbour, one of the localities in which type material was collected.

Diagnosis. Antenna 1 peduncular article 1 without distal projection. Gnathopod 1 dactylus reduced, offset. Uropod 1 uniramous.

Description. *Head* concealed by pereonite 1 and coxa 1. *Body* with dense cover of tiny setae; pereon unpro-

duced, pleon with dorsal projections, pleonites 2 and 3 with rounded dorsal projections, urosomite 1 with strong apically acute projection. *Antenna 1* peduncular article 1 without distal projection; accessory flagellum absent. *Mandible* accessory setal row absent; molar a setose lobe. *Maxilla 1* palp long, 1-articulate. *Maxilliped* inner plate styliform; outer plate subovate, distomedial margin smooth, forming a hardened, incisor-like cutting edge, with coarse irregular ridges on distolateral surface; palp 4-articulate.

Coxa 1 tapered ventrally. *Gnathopod 1* carpus longer than propodus, subrectangular, anterior margin not produced anterodistally; dactylus reduced, offset. *Gnathopod 2* dactylus absent, anterior and posterior projections of distal margin of propodus forming a scoop. *Pereopod 7* basis, posteroventral corner subacute.



FIGURE 6. *Ocosingo yatala* sp. nov. Holotype, ovigerous female, 2.5 mm, MV J62538, central Bass Strait. Scales represent 0.1 mm.

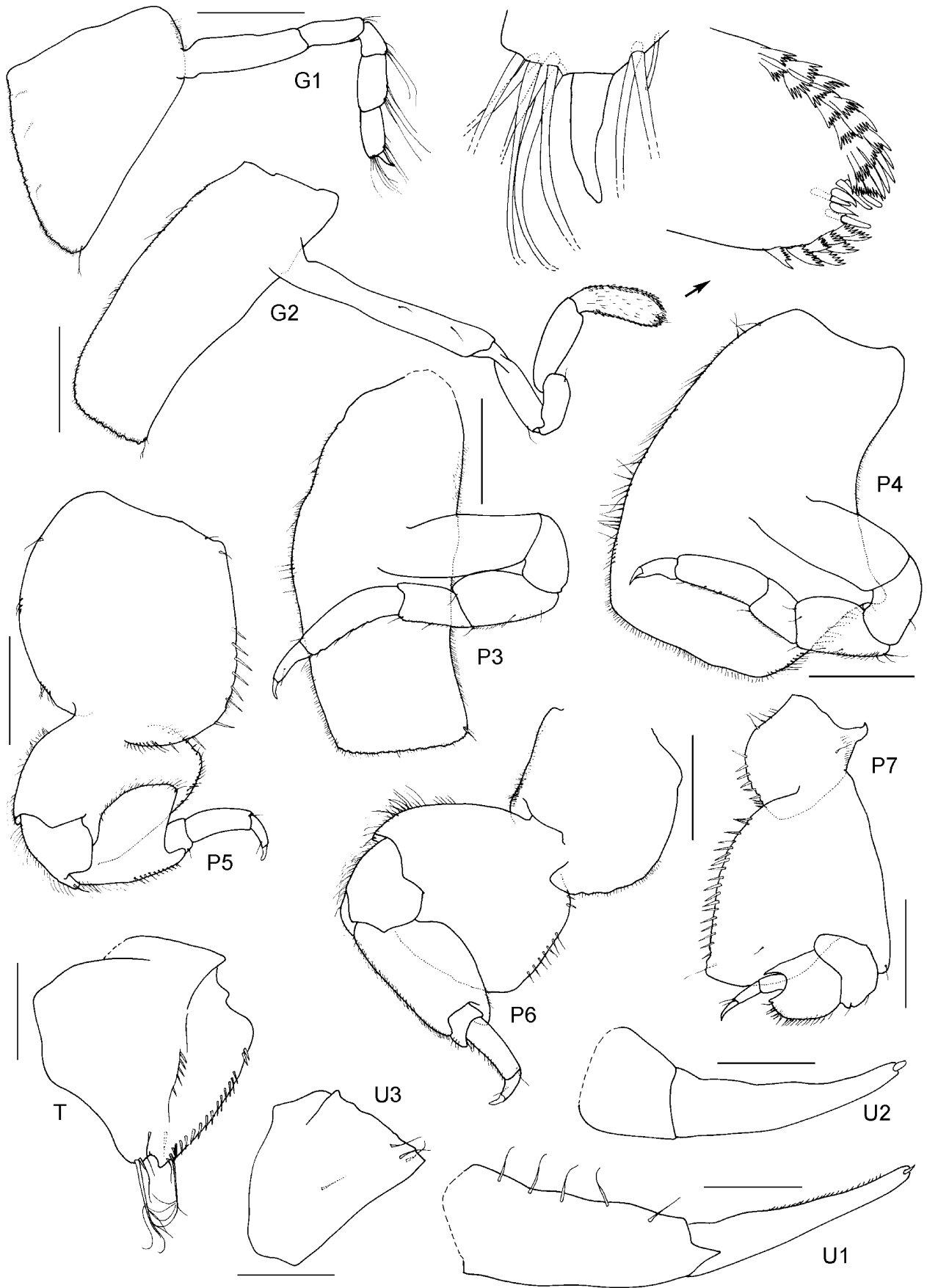


FIGURE 7. *Ocosingo yatala* sp. nov. Holotype, ovigerous female, 2.5 mm, MV J62538, central Bass Strait. Scales for U1–3, T represent 0.05 mm; remainder represent 0.1 mm.

Urosomite 1 with large, apically acute dorsodistal projection. *Uropod 1* uniramous. *Uropod 2* uniramous. *Uropod 3* without rami. *Telson* laminar, entire.

Remarks. The holotype, an ovigerous female, has no oostegites.

Distribution. Southern Australia, 3–140 m depth.

Ocosingo sp.

Material examined. 1 specimen, AM P.86609, "Rose Wall", near Horsburgh Island, Cocos (Keeling) Islands, Indian Ocean, 12°5.748'S 96°50.532'E, 9.2 m, submerged rope, 12 October 2008, L.E. Hughes & K.B. Attwood, stn WA-832; 2 specimens, AM P.86610, "Winter Wall", near Horsburgh Island, Cocos (Keeling) Islands, Indian Ocean, 12°5.256'S 96°50.229'E, 7.8 m, rubble, 12 October 2008, K.B. Attwood, stn WA-833; 1 specimen, AM P.86611, "Two Trees", western side of West Island, Cocos (Keeling) Islands, Indian Ocean, 12°9.578'S 96°48.988'E, 10.8 m, *Acropora* plate rubble, 15 October 2008, L.E. Hughes & K.B. Attwood, stn WA-854.

Scolopostoma Lowry & Stoddart

Scolopostoma Lowry & Stoddart, 1983: 285. —Barnard & Karaman, 1991: 527.

Type species. *Stomacontion prionoplax* Monod, 1937, original designation.

Diagnosis. *Head* partially concealed by coxa 1. *Maxilla 1* palp article 1 slender, tapering distally. *Maxilliped* basis (inner plate) not greatly enlarged; outer plate distomedial margin serrate. *Body* pereon and pleon without dorsal projections. *Uropod 3* uniramous or without rami. *Telson* hemiacetabulate.

Included species. *Scolopostoma darwinensis* sp. nov.; *S. keurboomstrandensis* sp. nov.; *S. norah* sp. nov.; *S. prionoplax* (Monod, 1937).

Key to species of *Scolopostoma*

- | | | |
|----|-------------------------------------|-------------------------------|
| 1. | Uropod 3 with vestigial ramus | <i>S. prionoplax</i> |
| - | Uropod 3 without rami | 2 |
| 2. | Telson entire | <i>S. darwinensis</i> |
| - | Telson emarginate | <i>S. keurboomstrandensis</i> |
| - | Telson notched | <i>S. norah</i> |

Scolopostoma darwinensis sp. nov.

(Figs 8–10)

Scolopostoma prionoplax. —Lowry & Stoddart, 1983: 285 (in part, material cited from Port Darwin). —Lowry & Stoddart, 1986: 744. —Lowry & Stoddart, 2003: 170 (Australian record).

Type material. Holotype, female, 4.5 mm, ovigerous (14 eggs), AM P.33816, East Point, Darwin, Northern Territory, Australia, approx. 12°27'S 130°50'E, intertidal, on encrusting ascidian *Didemnum psammotodes*, J.R. Hanley, 31 August 1981, stn NT-106. PARATYPES: 2 females, AM P.69098, same data as Holotype; 27 specimens, AM P.69099, west of East Point, Fannie Bay, Darwin, Northern Territory, Australia, 11°24.5'S 130°48.5'E, 8–10 m, didenopsid tunicate, 26 October 1982, J.K. Lowry, stn NT-97; 13 specimens, AM P.69100, Goat Point, Darwin, Northern Territory, Australia, approx. 12°28'S 130°49'E, 6–7 m, from ascidian *Didemnum psammotodes*, on rock, J. Hooper, 22 December 1982, stn GP 12 [AM stn NT-107]; 1 male, 3.0 mm, AM P.69101, East Point, Darwin, Northern Territory, Australia, approx. 12°27'S 130°50'E, stn EP/9(6) [AM stn NT-108]; 1 male, AM P.69102, Shell Island, Darwin Harbour, Northern Territory, Australia, 12°29.7'S 139°52.7'E, 7 m, encrusting ascidian, *Didemnum psammotodes*, P. Horner, 3 August 1983, stn SI 1 [AM stn NT-110]; 8 specimens, AM P.69103, Old Man Rock, Darwin Harbour, Northern Territory, Australia, approx. 12°29'S 130°54'E, 2 m, dead sponge, 9 July 1993, G. Edgar.

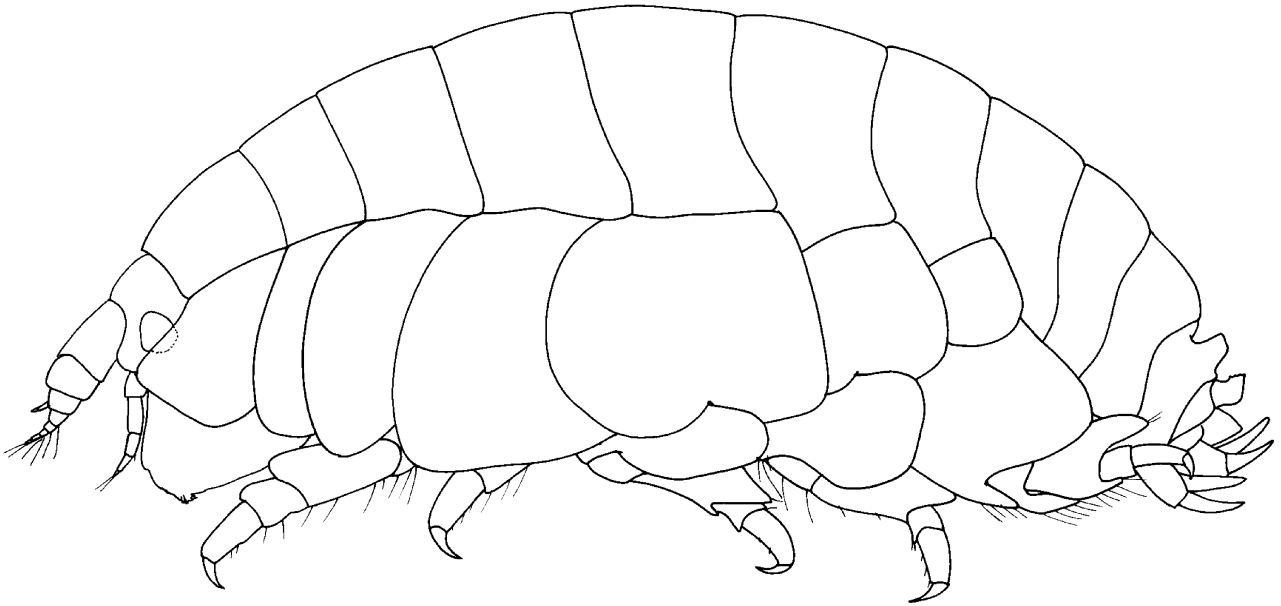


FIGURE 8. *Scolopostoma darwinensis* sp. nov. Holotype, ovigerous female, 4.5 mm, AM P.33816, East Point, Darwin, Northern Territory.

Type locality. East Point, Darwin, Northern Territory, Australia, approx. 12°27'S 130°50'E.

Etymology. The species is named for its type locality.

Diagnosis. Gnathopod 1 carpus subtriangular. Uropod 3 without rami. Telson entire.

Description. Head exposed. Body with many scattered setae; pereon and pleon without dorsal projections. Antenna 1 peduncular article 1 without distal projection; accessory flagellum 2-articulate. Mandible accessory setal row with 3 robust setae; molar absent. Maxilla 1 palp short, 1-articulate. Maxilliped inner plate subrectangular; outer plate subovate, distomedial margin serrate, without distolateral sculpturing; palp 4-articulate.

Coxa 1 subquadrate ventrally. Gnathopod 1 carpus shorter than propodus, subtriangular, anterior margin produced anterodistally; dactylus regular simple. Gnathopod 2 dactylus inserted near anterodistal corner of propodus. Pereopod 7 basis, posteroventral corner rounded.

Urosomite 1 with irregular subquadrate boss. Uropod 1 biramous; rami subequal in length. Uropod 2 biramous; rami subequal in length. Uropod 3 without rami. Telson hemiacetabulate, entire.

Remarks. Ovigerous females have no oostegites.

Distribution. Darwin Harbour, northern Australia; intertidal to 10 m depth.

Scolopostoma keurboomstrandensis sp. nov.

Stomacontion prionoplax. —Griffiths, 1974: 313, fig. 15. —Griffiths, 1975: 152. —Griffiths, 1976: 59 (key), fig. 34A, 101 (list).

Type material. Holotype, SAM, off Summerstrand, Port Elizabeth, southern Cape Province coast, South Africa, 33°58'S 25°41'E, 4–11 m, rock, 24 November 1960, stn SCD 179N; Paratype, SAM, off Keurboomstrand, Plettenberg Bay, southern Cape Province coast, South Africa, 34°02'S 23°28'E, 49 m, rock, 29 November 1960, stn SCD 244T. [Material recorded by Griffiths, 1974 as *Stomacontion prionoplax*].

Additional material. 1 specimen, False Bay, South Africa, approx. 34°S 18°E, 30–99 m [material recorded by Griffiths, 1975 as *Stomacontion prionoplax*].

Type locality. Off Summerstrand, Port Elizabeth, Southern Cape Province coast, South Africa, 33°58'S 25°41'E, 4–11 m depth.

Etymology. The species is named for one of the localities from which it was collected.

Diagnosis. Gnathopod 1 carpus subrectangular. Uropod 3 without rami. Telson emarginate.

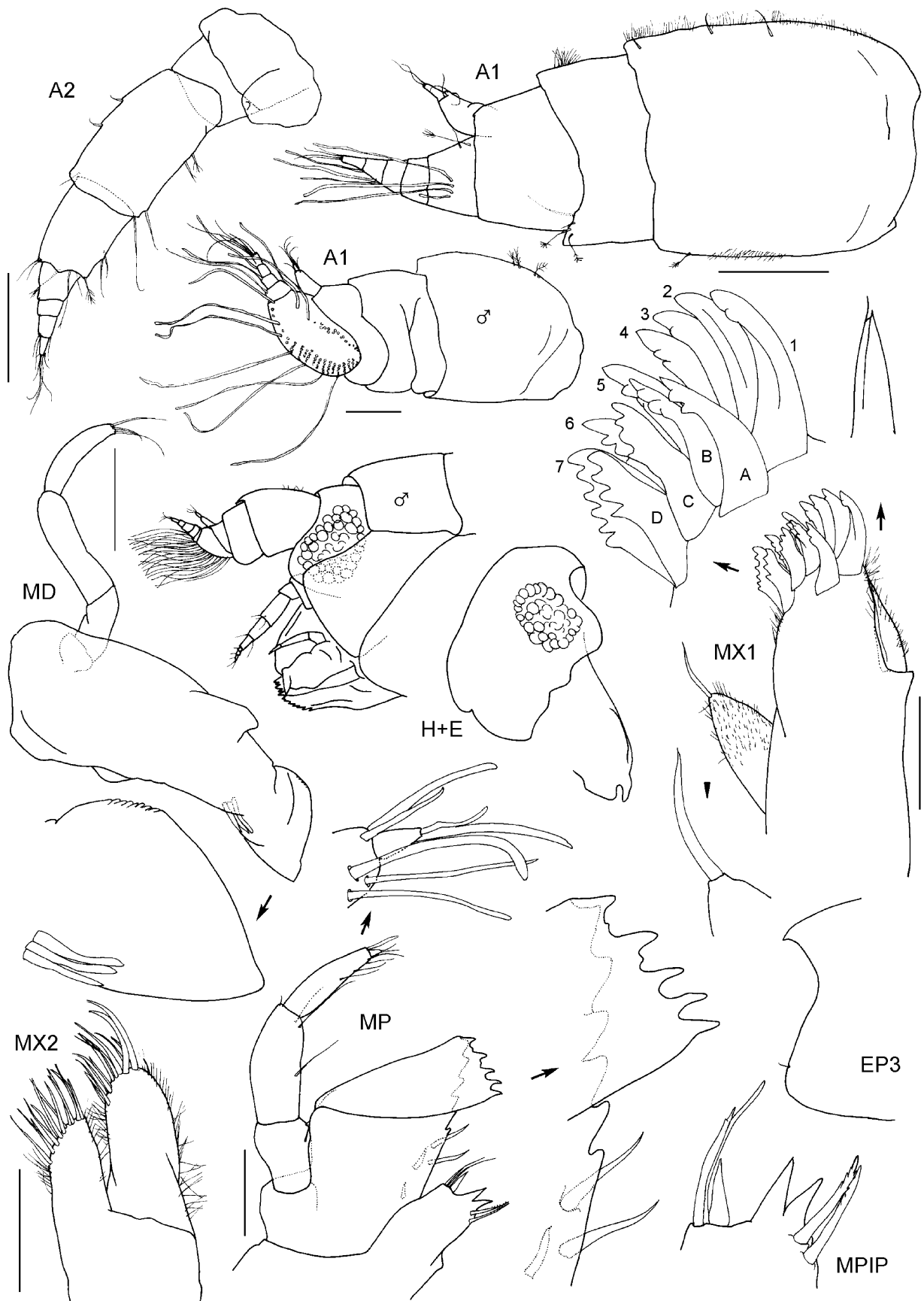


FIGURE 9. *Scolopostoma darwinensis* sp. nov. Holotype, ovigerous female, 4.5 mm, AM P.33816 and paratype male, 3.0 mm, AM P.69101, East Point, Darwin, Northern Territory. Scales represent 0.1 mm.

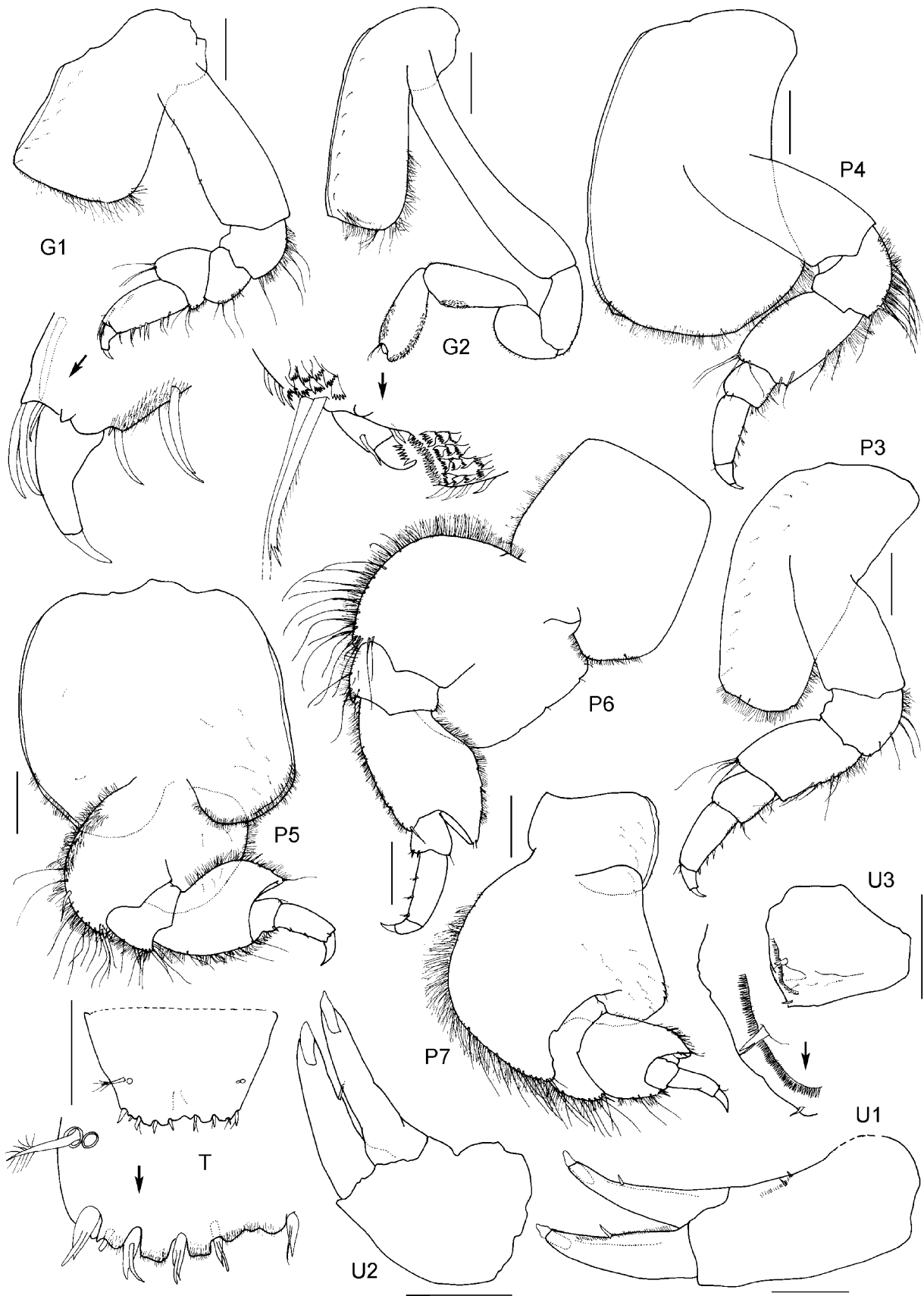


FIGURE 10. *Scolopostoma darwinensis* sp. nov. Holotype, ovigerous female, 4.5 mm, AM P.33816, East Point, Darwin, Northern Territory. Scales for U1–3, T represent 0.1 mm; remainder represent 0.2 mm.

Description. *Head* exposed. *Body* pereon and pleon without dorsal projections. *Mandible* accessory setal row with 6 robust setae; molar absent. *Maxilla 1* palp short, 1-articulate. *Maxilliped* inner plate subrectangular; outer plate subovate, distomedial margin serrate, with some form of sculpturing/ornamentation; palp 4-articulate.

Coxa 1 subquadrate ventrally. *Gnathopod 1* carpus longer than propodus, subrectangular, anterior margin produced anterodistally; dactylus regular simple. *Gnathopod 2* dactylus present, inserted near anterodistal corner of propodus. *Pereopod 7* basis, posteroventral corner rounded.

Urosomite 1 with apically acute upturned dorsal boss. *Uropod 1* biramous; rami subequal in length. *Uropod 2* biramous; rami subequal in length. *Uropod 3* without rami. *Telson* emarginate.

Remarks. Griffiths (1974, 1975) recorded *Scolopostoma prionoplax* from three localities between False Bay and Elizabeth Bay along the southern coast of South Africa. Comparing Griffiths' illustrations and text with those of Monod (1937) there are several characters that indicate he was actually dealing with an undescribed species. In Griffiths' material the carpus of gnathopod 1 is swollen along its anterior margin with a anterodistal patch of setae (not swollen and without setae in *S. prionoplax*); pereopod 7 basis has a rounded posteroventral corner (subquadrate in *S. prionoplax*); uropod 3 has no ramus (a distinct vestigial ramus in *S. prionoplax*); and the telson is emarginate (strongly notched in *S. prionoplax*). *Scolopostoma keurboomstrandensis* is more similar to *S. darwinensis*.

Distribution. South Africa, along the southern coast from Port Elizabeth to False Bay, 4–49 m depth.

Scolopostoma norah sp. nov.

(Figs 11–13)

Type material. HOLOTYPE, ?female, 4.3 mm, AM P.68998, east of Norah Head, New South Wales, Australia, 33°20'S 151°51'E to 33°18'S 151°51'E, 134 m, trawl, 22 April 1986, FRV *Kapala*, stn K86-10-06.

Type locality. East of Norah Head, New South Wales, Australia, 33°20'S 151°51'E to 33°18'S 151°51'E, 134 m depth.

Etymology. The species is named for its type locality.

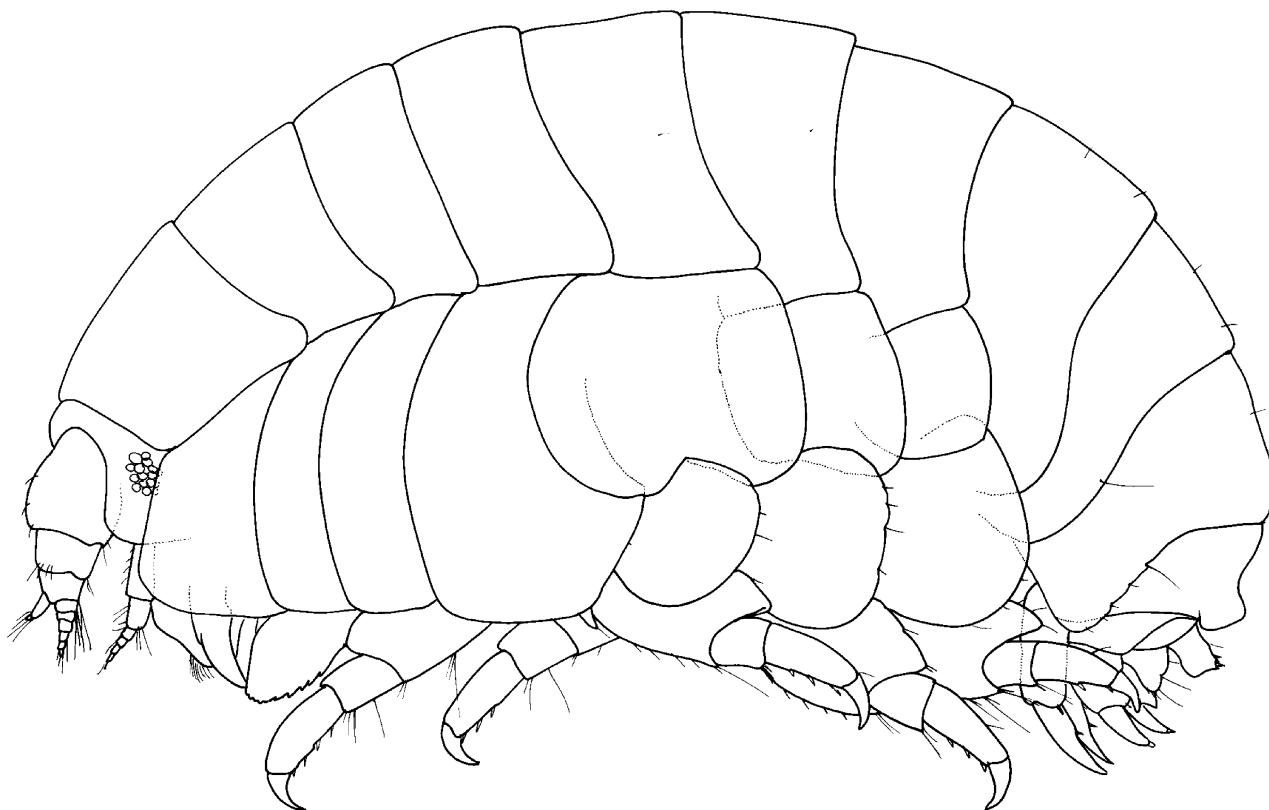


FIGURE 11. *Scolopostoma norah* sp. nov. Holotype, ?female, 4.3 mm, AM P.68998, east of Norah Head, New South Wales.

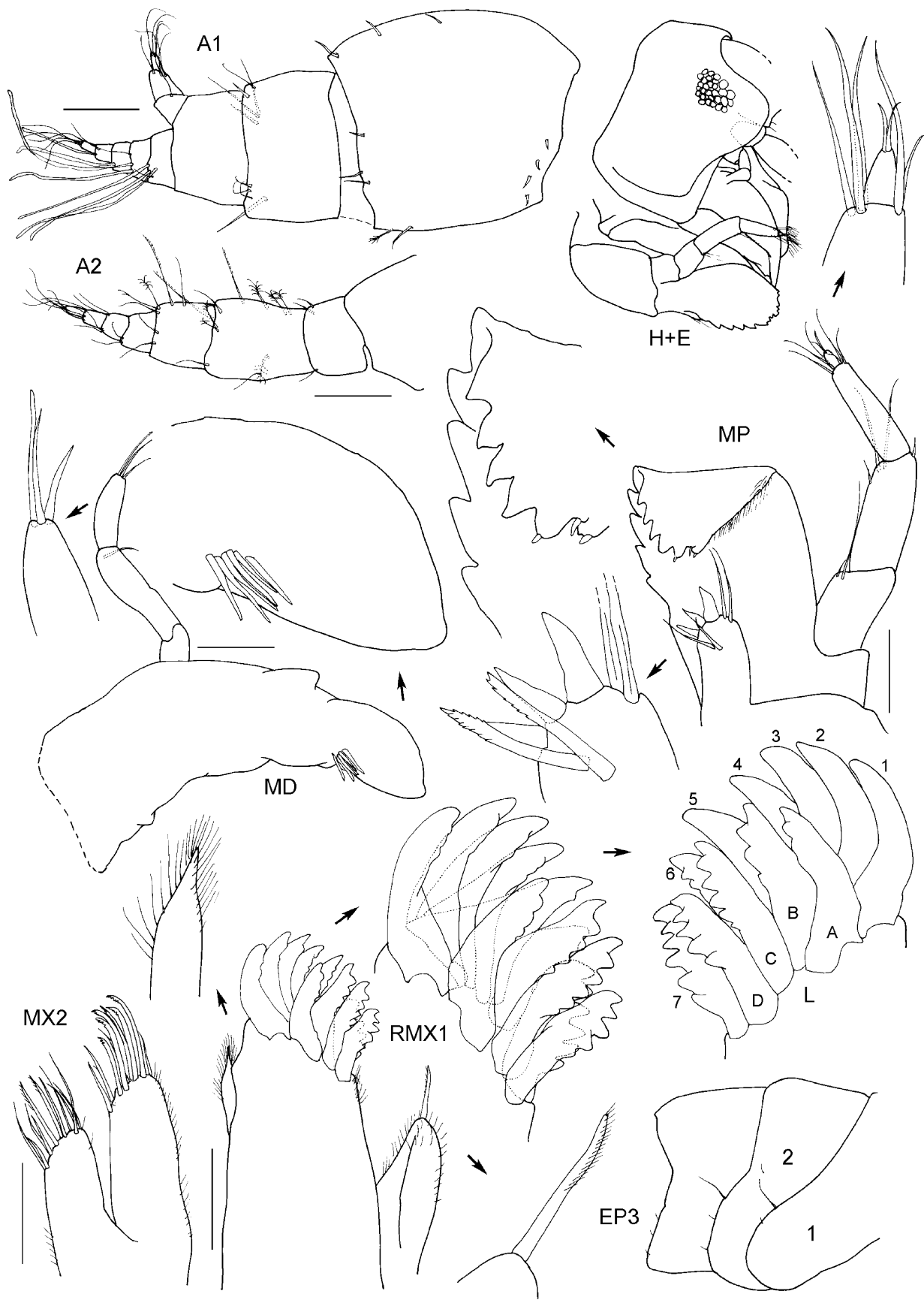


FIGURE 12. *Scolopostoma norah* sp. nov. Holotype, ?female, 4.3 mm, AM P.68998, east of Norah Head, New South Wales. Scales represent 0.1 mm.

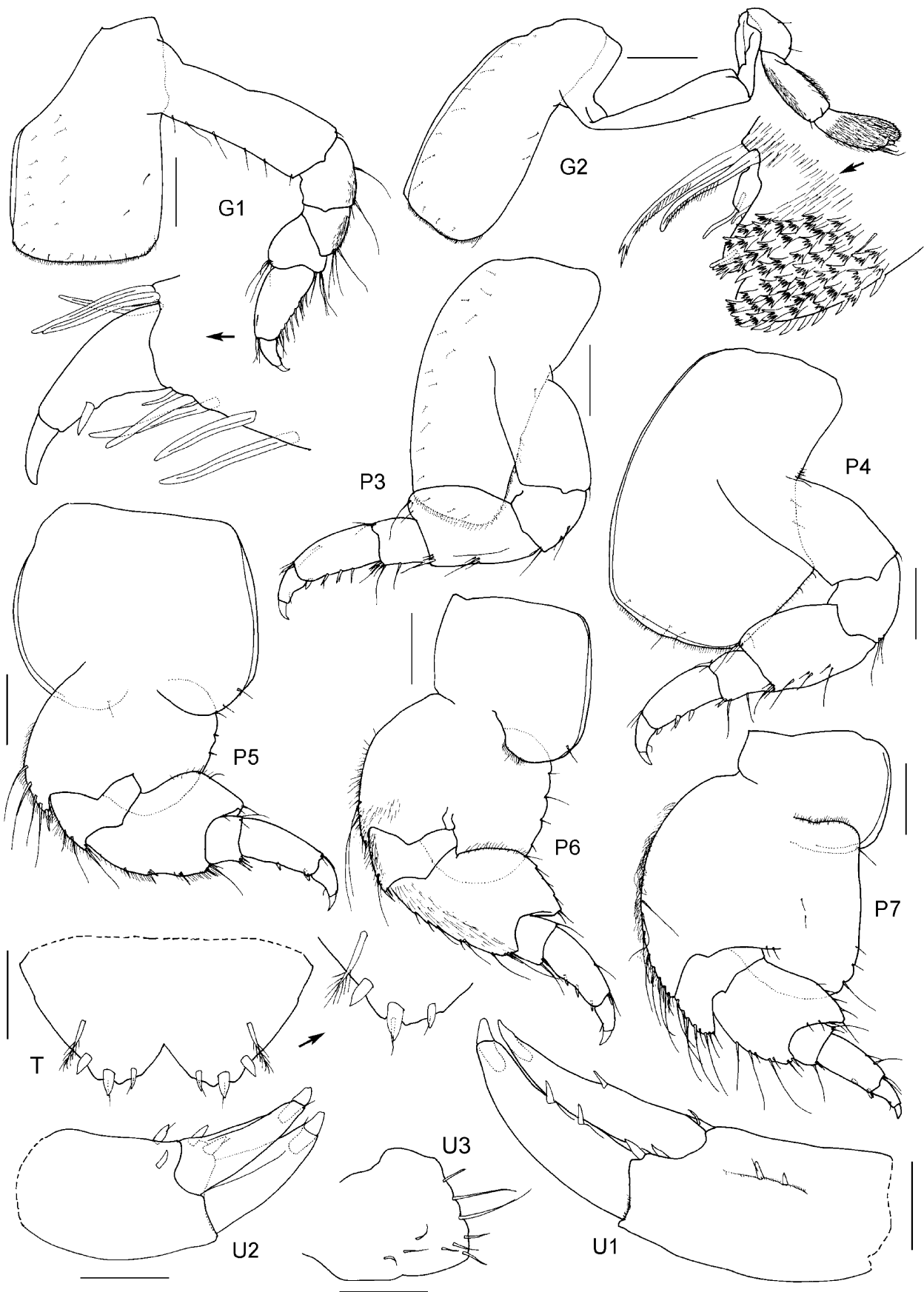


FIGURE 13. *Scolopostoma norah* sp. nov. Holotype, ?female, 4.3 mm, AM P.68998, east of Norah Head, New South Wales. Scales for U1–3, T represent 0.1 mm; remainder represent 0.2 mm.

Diagnosis. Gnathopod 1 carpus subtriangular. Uropod 3 without rami. Telson notched.

Description. *Head* exposed. *Body* with many scattered setae; pereon and pleon without dorsal projections. *Antenna 1* peduncular article 1 without distal projection; accessory flagellum 2-articulate. *Mandible* accessory setal row with 6 robust setae; molar absent. *Maxilla 1* palp short, 1-articulate. *Maxilliped* inner plate subrectangular; outer plate subovate, distomedial margin serrate, without distolateral sculpturing; palp 4-articulate.

Coxa 1 subquadrate ventrally. *Gnathopod 1* carpus shorter than propodus, subtriangular, anterior margin produced anterodistally; dactylus regular simple. *Gnathopod 2* dactylus inserted near anterodistal corner of propodus. *Pereopod 7* basis, posteroventral corner rounded.

Urosomite 1 with irregular subquadrate boss. *Uropod 1* biramous; rami subequal in length. *Uropod 2* biramous; rami subequal in length. *Uropod 3* without rami. *Telson* hemiacetabulate, notched.

Distribution. Eastern Australia, Tasman Sea; 134 m depth

Scolopostoma spp.

Material examined. 6 specimens, ZMC, Singapore, approx. 1°14'N 103°55'E, low water, 1905-107, Consul S. Gad; 1 specimen, AM P.81626, Cathedral Rock, Norfolk Island, 29°0.21'S 167°56.95'E, 10.5 m, sponges and ascidians on overhang wall, 13 May 2008, R.T. Springthorpe, stn MI NFK 6.

Stomacontion Stebbing

Stomacontion Stebbing, 1899: 205. —Stebbing, 1906: 16. —J.L. Barnard, 1969b: 364. —Lowry & Stoddart, 1983: 286. —Barnard & Karaman, 1991: 534.

Type species. *Acontiosstoma pepinii* Stebbing, 1888, original designation.

Diagnosis. *Head* partially concealed by coxa 1. *Maxilla 1* palp article 1 slender, tapering distally. *Maxilliped* basis (inner plate) not greatly enlarged; outer plate distomedial margin smooth. *Body* pereon and pleon without dorsal projections. *Uropod 3* uniramous. *Telson* hemiacetabulate.

Included species. *Stomacontion acutibasalis* (Bellan-Santini & Ledoyer, 1974); *S. bulbosus* Rauschert, 1997; *S. insigne* K.H. Barnard, 1932; *S. pepinii* (Stebbing, 1888).

Remarks. Lowry & Stoddart (1983) described and illustrated the maxilla 1 palp of *Stomacontion pepinii* as 2-articulate. Re-examination of the material revealed that it is 1-articulate and tapered distally.

Key to species of *Stomacontion*

1. Uropod 3 without rami 2
- Uropod 3 uniramous 3
2. Gnathopod 1 coxa 1 rounded ventrally *S. bulbosus*
- Gnathopod 1 coxa 1 distally tapered *S. insigne*
3. Urosomite 1 with rounded distally projecting boss *S. acutibasalis*
- Urosomite 1 with apically rounded upturned dorsal boss *S. pepinii*

Incertae Sedis. *Stomacontion capense* K.H. Barnard, 1916.

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