

## Rectarcturidae Poore, 2001 rediagnosed with descriptions of new Australian genera and species (Isopoda: Valvifera)

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### Abstract

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The family Rectarcturidae is rediagnosed and three new genera and four new species from Australia added to the single genus of two species known from Argentina. The new genera are differentiated from each other and from *Rectarcturus* in overall sculptural patterns, the male pleopod 1 exopod, setation, shape and proportion of articles of pereopods 2 and 3, and length and proportion of articles of the antenna. The new genera are *Galathearcturus* gen. nov., *Nowrarturus* gen. nov. and *Tasmarturus* gen. nov., and the new species are: *Galathearcturus antoniae* sp. nov., *Nowrarturus jamesi* sp. nov., *Tasmarturus erinae* sp. nov. and *T. lewisi* sp. nov. *Arcturus simplicissimus* Whitelegge, 1904 is assigned to *Tasmarturus*. The South American genus, *Rectarcturus*, is rediagnosed; its two species, *R. kophameli* and *R. tuberculatus*, appear in a key to all species of the family.

### Keywords

Crustacea, Isopoda, Valvifera, Rectarcturidae, *Galathearcturus*, *Nowrarturus*, *Rectarcturus*, *Tasmarturus*, new genera, new species

### Introduction

In a major revision of the Isopoda Valvifera (Poore, 2001) a clade of eight ‘arcturoid’ families was recognised, in which the body is more or less cylindrical (‘idoteoid’ families are flat), and pereopods 2–4 are usually differentiated from pereopods 5–7 and bear rows of long, paired setae. In the three largest arcturoid families, Arcturidae Dana, 1849, Antarcturidae Poore, 2001 and Austrarcturellidae Poore and Bardsley, 1992, the body is more or less flexed between pereonites 4 and 5, the anterior half held somewhat or quite erect facilitating filter feeding by the long paired setae on pereopods 2–4 (Wägele, 1987). Four of the remaining families have fewer species than these three and fall into one clade defined on the basis of having a ‘straight’ body, without the capability of flexion. This clade comprises the Rectarcturidae Poore, 2001, Xenarcturidae Sheppard, 1957, Pseudidotheidae Ohlin, 1901 and Arcturididae Poore, 2001, each with only one genus. In Rectarcturidae, pereopods 2–4 carry elongate setae as in the larger families; in Xenarcturidae, only pereopods 2 and 3 do; in Pseudidotheidae, pereopods 2–4 bear long robust setae; and Arcturididae have similar ambulatory pereopods 2–7 without long setae. The eighth family, Holidoteidae Wägele, 1989, with three genera (Poore, 2003), also appears to lack pereonal flexion but, at least in the cladogram published by Poore (2001: fig. 4), is sister family to Austrarcturellidae. This suggests that the straight body-form has been derived twice. Closer examination of the

articulation between pereonites 4 and 5 suggests that not all of these taxa are as ‘straight’ as assumed, and all except Arcturididae can elevate anterior body segments off the substrate, at least slightly, while attaching using pereopods 5–7. No observations of these taxa alive have been reported.

This paper concentrates on one of these so-called straight families, Rectarcturidae. Whereas in the other families pleopod 1 of the male has the groove on the posterior face of the exopod ending on a tapering distolateral apical extension, in *Rectarcturus* the groove ends distolaterally on an apex separated from a free distal lamina by a notch. The autapomorphy of *Rectarcturus* in Poore’s (2001) analysis is pereopods 2–4 each having a short dactylus bearing a longer, setiform unguis. Park and Wägele (1995) redescribed in detail the two species of *Rectarcturus*: *R. kophameli* (Ohlin, 1901) and *R. tuberculatus* Schultz, 1981, both from Argentina. Here, an enigmatically described species and four new species from the southeastern Australian shelf are described; these are significantly different from the South American species and from each other and warrant three new genera. Another species, ascribed to this genus, is discussed.

The material examined is lodged in Museum Victoria, Melbourne (NMV), the Australian Museum, Sydney (AM), the Museum of Tropical Queensland, Townsville (MTQ), the National Museum of Natural History, Washington (USNM), and the Zoological Museum, University of Copenhagen (ZMUC, now the Natural History Museum of Denmark).

Photographs (fig. 1) were made using a Leica M205C microscope with Leica Application Suite 3.8.0.

### Rectarcturidae Poore, 2001

Rectarcturidae Poore, 2001: 227. – Poore, 2003: 1843.

**Diagnosis.** Body strongly vaulted; head and pereonite 1 fused; pereonite 4 of similar length to pereonite 3; all pleonites fused into pleotelson. Body variously tuberculate or spinose but never with a posterior dorsolateral pair of strong spines on pleotelson; pleotelson without dorsolateral ridges ending in mediodorsal posterior spine. Dorsal coxal plates 2–7 obsolete, bases of pereopods exposed. Mouthparts and pereopod 1 visible in lateral view. Eyes well developed. Antenna flagellum of 2 articles plus distal claw. Pereopod 1 a gnathopod, pereopods 2–4 elongated, differentiated from ambulatory pereopods 5–7. Pereopod 1 dactylus evenly curved along anterior margin, evenly tapering. Pereopods 2–4 with long setae along flexor margins of ischium–propodus (up to 9 pairs per article, well-spaced), with short dactylus, unguis longer and setiform. Pereopod 4 similar to pereopod 3. Pereopods of males without dense fur of fine setae. Oostegites 1–4 functional, supported by coxal lobes, oostegites 5 present as articulating discs or absent. Penes fused as a single penial plate, apically simple. Pleopod 1 peduncle more elongate than on other pleopods, with marginal setae on rami longer than peduncle; exopod of male thickened laterally, with groove on posterior face ending distolaterally on an apex separated from a free distomesial lamina by a notch. Pleopod 2 of male with appendix masculina as long as or longer than endopod, basally less than half width of endopod. Uropodal exopod tapering, with 2–3 stout distal setae.

**Remarks.** The family was erected for one genus, *Rectarcturus* Schultz, 1981, on the basis of a cladistic analysis of the Valvifera (Poore, 2001). The diagnosis given above differs from the original in some important features. Pereopods 2–4 are described as possessing up to nine pairs of well-spaced long setae per article along the flexor margins of the merus–propodus. These setae are more spaced and fewer than those on Arcturidae and Antarcturidae. It is now realised that oostegites 1–4 are supported by coxal lobes, and that a vestigial oostegite 5 is present as a lobe in three of the four genera. The structure of the male pleopod 1 exopod is better defined as above.

Species of the family are recognisable, and distinguished from arcturids, antarcturids and austrarcturellids, by their straight bodies and reduced setation of pereopods 2–4. The structure of the male pleopod 1 exopod separates rectarcturids from other ‘straight’ families—the groove ends in a distolateral lobe separated from a distomesial lamina by a deep notch (see Poore, 2001: fig. 3 for examples from other families). Monotypic Xenarcturidae is also straight but has a flat body and ambulatory pereopod 4. The only species of Arcturidae is straight and cylindrical, and all pereopods except the first are essentially ambulatory. Pseudidoteidae have almost raptorial pereopods 2–4 (Poore and Bardsley, 2004), and Holidoteidae have a uniquely structured male pleopod 1 exopod and uropodal rami (Poore, 2003). Schultz (1981) diagnosed his new genus as a member of Arcturidae, but none

of the characters he chose is especially diagnostic except for ‘body much straighter than in most arcturids’. Schultz (1981) included four species. One of these, *Microarcturus laevis* is now *Austroarcturus laevis* (Kensley, 1975), a member of Holidoteidae. Park and Wägele (1995) noted that another, *Arcturus patagonicus* Ohlin, 1901, is clearly geniculate between pereonites 4 and 5, and has a pair of sharp submedian spines on the head. They placed it in *Neoarcturus*, which they thought of as similar to *Rectarcturus*; *Neoarcturus* and some of the species they listed are also in Holidoteidae, but not this one. It and others from their list are now placed in the antarcturid genus *Fissarcturus* Brandt, 1990 (Poore, 2003). Another, *Rectarcturus tatianna* Kussakin and Vasina, 1995, from 6000 m depth in the South Atlantic, is a geniculate species, so is not in this genus as presently defined. Its setiform unguis on pereopods 2–4, short antennal flagellum, male pleopod 2 structure, and paired body tuberculation suggest another species of *Fissarcturus*, but without the prominent posterior pleotelsonic spines.

The two species of *Rectarcturus* are from Argentina. Australian species that can be placed in the family are sufficiently different from *Rectarcturus* and diverse to warrant three new genera. They are diagnosed and four new species described here. The poorly described *Arcturus simplicissimus* Whitelegge, 1904 is allocated to one of the new genera on the basis of the description of a neotype.

The four genera are separated on the basis of differences in overall sculptural patterns, the male pleopod 1 exopod, setation, shape and proportion of the antenna and pereopods 2 and 3. The key uses the most conveniently observed characters; a key based on the structure of the male pleopod 1 exopod would lead to different dichotomies. Whereas in *Rectarcturus* and *Tasmarcturus* gen. nov. the groove on the posterior face of the male pleopod 1 exopod ends obliquely on a truncate distolateral lobe, not extending beyond the distomesial seta-bearing lamina, in *Nowrarcturus* gen. nov. it ends on a conical apical projection, extending beyond the lamina. The male of *Galathearcturus* gen. nov. is unknown, but its only species differs sculpturally from all others.

### Key to genera and species of Rectarcturidae

1. Antenna less than twice dorsal length of (head + pereonite 1); article 4 subspherical, about as long as fused articles (1 + 2); article 5 at least twice as long as article 4; pereopod 2 (dactylus body + unguis) 3 times as long as propodus ..... **2**
- Antenna at least 2.5 times dorsal length of (head + pereonite 1); article 4 cylindrical, at least twice as long as fused articles (1 + 2); article 5 shorter than or at most 1.5 times as long as article 4; pereopod 2 (dactylus body + unguis) shorter or at most 2.5 times as long as propodus ... **5**
2. Head with paired, submedian tubercles, pereonites with smooth, transverse ridges, anterior pleonites barely elevated; antenna article 3 cuboid, as long as deep, without ventrolateral flange (fig. 2) ..... *Galathearcturus antoniae*

- Head, pereonites and anterior pereonites with paired blade-like submedian and sublateral tubercles/carinae, all secondarily tuberculate; antenna article 3 cuboid, as long as or little longer than deep, with ventrolateral teeth (fig. 1b–d) ..... *Tasmarturus* ..... **3**
- 3.** Head ornamentation of strong acute tubercles separated in lateral view; submedian processes on pereonite 3 erect, digitiform, spinulose, especially in female, with prominent secondary process posteriorly (fig. 1d) ..... *Tasmarturus simplicissimus* .....
- Head ornamentation of flat tubercles almost contiguous in lateral view; submedian processes on pereonite 3 longitudinally flattened ..... **4**
- 4.** Head ornamentation rounded anteriorly in lateral view (fig. 1c) ..... *Tasmarturus lewisi* .....
- Head ornamentation prominently square anteriorly in lateral view (fig. 1b) ..... *Tasmarturus erinae* .....
- 5.** Head with paired submedian tubercles, pereonites with smooth transverse ridges (pereonite 3 with second ridge anterior to major one), anterior pleonites barely elevated (fig. 1a) ..... *Nowrarturus jamesi* .....
- Head, pereonites and anterior pleonites with paired blade-like submedian and sublateral tubercles or carinae, smooth or barely secondarily ornamented ..... *Rectarcturus* ..... **6**
- 6.** Sculpture dominated by rows of submedian, sublateral, lateral and supracoxal longitudinal blades ..... *Rectarcturus kophameli* .....
- Sculpture dominated by rows of submedian, sublateral, lateral and supracoxal longitudinal complex tubercles ..... *Rectarcturus tuberculatus* .....

***Galathearcturus* gen. nov.**

Zoobank LSID. <http://zoobank.org/urn:lsid:zoobank.org:act:E79071AD-6121-4517-A9AB-A325E25456BA>

*Type species.* *Galathearcturus antoniae* sp. nov., by monotypy and original designation.

*Diagnosis.* Head with paired submedian tubercles, pereonites with smooth transverse ridges, anterior pleonites barely elevated. Antenna 1.5 times dorsal length of (head + pereonite 1); article 3 cuboid, as long as deep, without ventrolateral flange; article 4 subspherical, about as long as fused articles (1 + 2); article 5 cylindrical, 2.4 times as long as article 4, 5 times as long as wide. Pereopod 2 propodus palm convex, denticulate; (dactylus body + unguis) 3 times as long as propodus; unguis setiform, as long as dactylus body. Pereopod 3 similar to pereopod 2, unguis shorter. Male pleopod 1 exopod unknown. Oostegites 5 a pair of adjacent oval discs.

*Etymology.* From *Galathea*, the ship and expedition that collected the type species, and *Arcturus*, generic stem.

*Composition.* Type species only.

*Distribution.* Southern Qld, Australia.

*Remarks.* The sole species of *Galathearcturus* shares a short antenna and long pereopod 2 dactylus with the three species of *Tasmarturus*, but differs in dorsal sculpture; this species is the least sculptured of all rectarcturid genera. Unfortunately, the male is unknown.

***Galathearcturus antoniae* sp. nov.**

Zoobank LSID. <http://zoobank.org/urn:lsid:zoobank.org:act:C2E736F0-6E2D-4680-A446-C2DD94E8FA2D>

Figures 2, 3

*Material examined.* Holotype. Australia, Qld, off Maroochydore (26°33'S, 153°31'E), 86 m, 5 Nov 1951 (*Galathea* stn 539), ZMUC (ovigerous female, 6.3 mm).

*Description.* Ovigerous female. Pereonites 2–4 swollen, taller and broader than more anterior and posterior segments, smooth between major sculptures, 2.6 times as long as greatest width. Pleotelson 0.3 times total body length.

Head with pair of submedian tubercles on anterior margin, pair of submedian, erect, obliquely transverse blades, followed by pair of submedian, sharp, erect ridges converging posteriorly and divided along their lengths by a shallow, dorsal notch; maxillipedal segment indistinguishable from cephalon; ventrolateral margin smooth, with deep fissure between head and pereonite 1. Pereonite 1 without sculpture; pereonite 2 with obsolete submedian and sublateral bosses; pereonites 3 and 4 with obsolete submedian bosses and prominent sublateral conical tubercles; pereonites 5–7 with sublateral rounded tubercles. Submedian and sublateral tubercles on pereonites 1 and 2 simple; submedian processes on pereonite 3 obsolete. Pereonites 1–7 + maxillipedal segment with supracoxal, rounded-triangular, slightly excavate plates on 2–4, weaker on 5–7. Pereonites without supplementary ridges. Pleonites 1–2 with pair of obsolete submedian ridges; pleonite 3 barely distinguished from pleonite 2; posterior pleotelson with broad sublateral domes, with rounded lateral wings; pleotelson tapering evenly to sharply rounded apex, tapered section 0.5 times as long as wide.

Antennule flagellum with 1 pair plus 1 aesthetascs, article 2 without aesthetascs. Antenna, fused articles (1 + 2) short, stout, with ventrolateral flange; article 5 2.4 times length of article 4; flagellum of 3 articles, 0.7 times length of peduncle article 5.

Pereopod 1 propodus twice as long as wide. Pereopod 2 tuberculate only along flexor margins; dactylus unguis as long as dactylus body. Pereopod 4 with triangular lobe on extensor margin of basis; dactylus body 1.5 times as long as propodus, dactylus unguis setiform, 0.3 times length of dactylus body. Pereopods 5–7 with 2 small tubercles on extensor margins of ischium–carpus. Pereopod 7 dactylus body 0.75 times as long as propodus, unguis stout, 0.3 times length of dactylus body.

Oostegites 1–4 supported by oval coxal plates; oostegites 5 a pair of adjacent oval discs.

Uropodal exopod 0.8 times length of endopod.

*Etymology.* For my granddaughter, Antonia Salter.

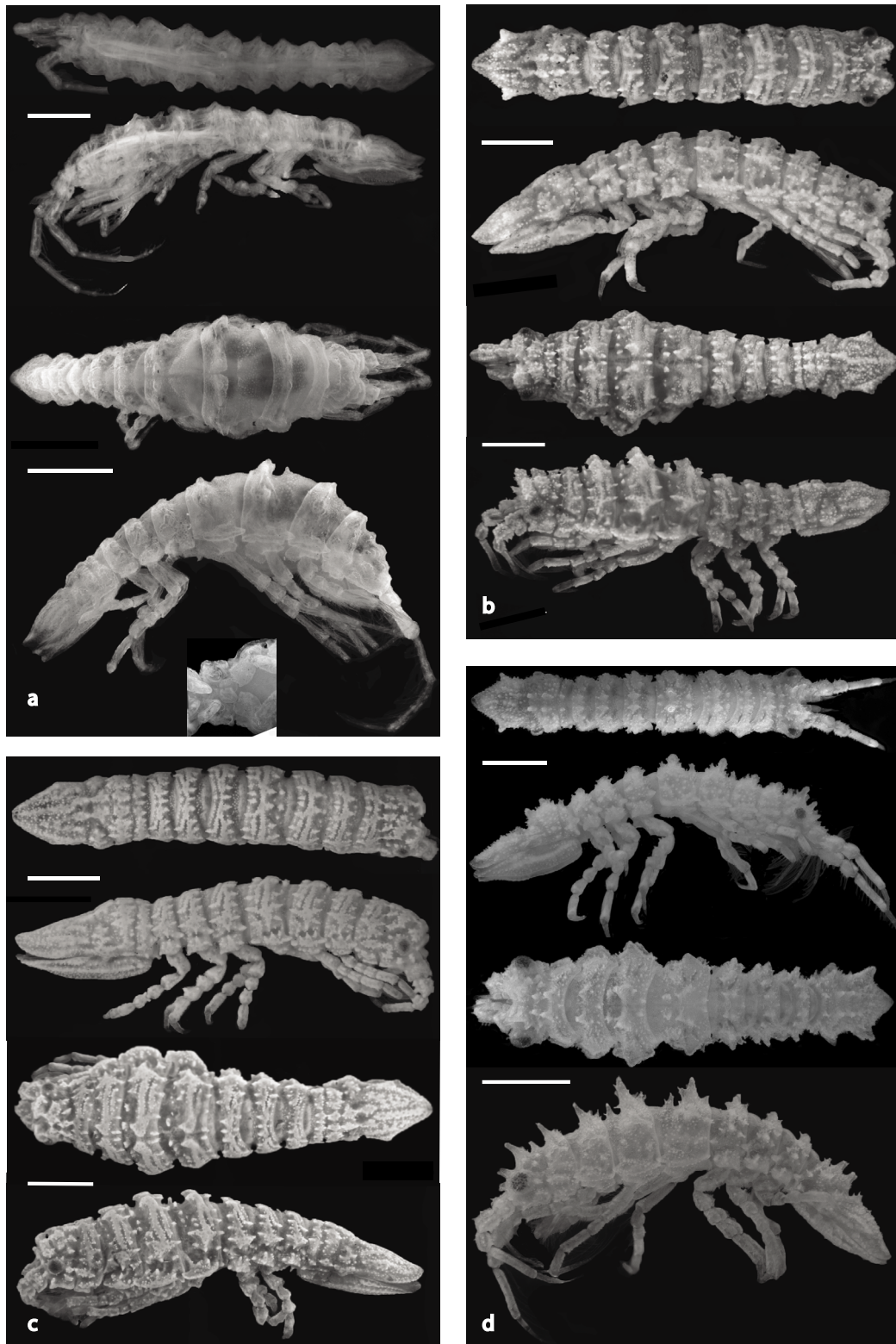


Figure 1. Dorsal and lateral views of four species of Rectarcturidae, males on top, females below. (a) *Nowrarcturus jamesi* sp. nov. (with ventral view of oostegites 3–5), male, NMV J19187; female, NMV J23734. (b) *Tasmarcturus erinae* sp. nov., male, NMV J16686; female, NMV J62082. (c) *Tasmarcturus lewisi* sp. nov., male and female, NMV J23743. (d) *Tasmarcturus simplicissimus* (Whitelegge, 1904), male and female, NMV J8758. Scale bars = 1 mm.

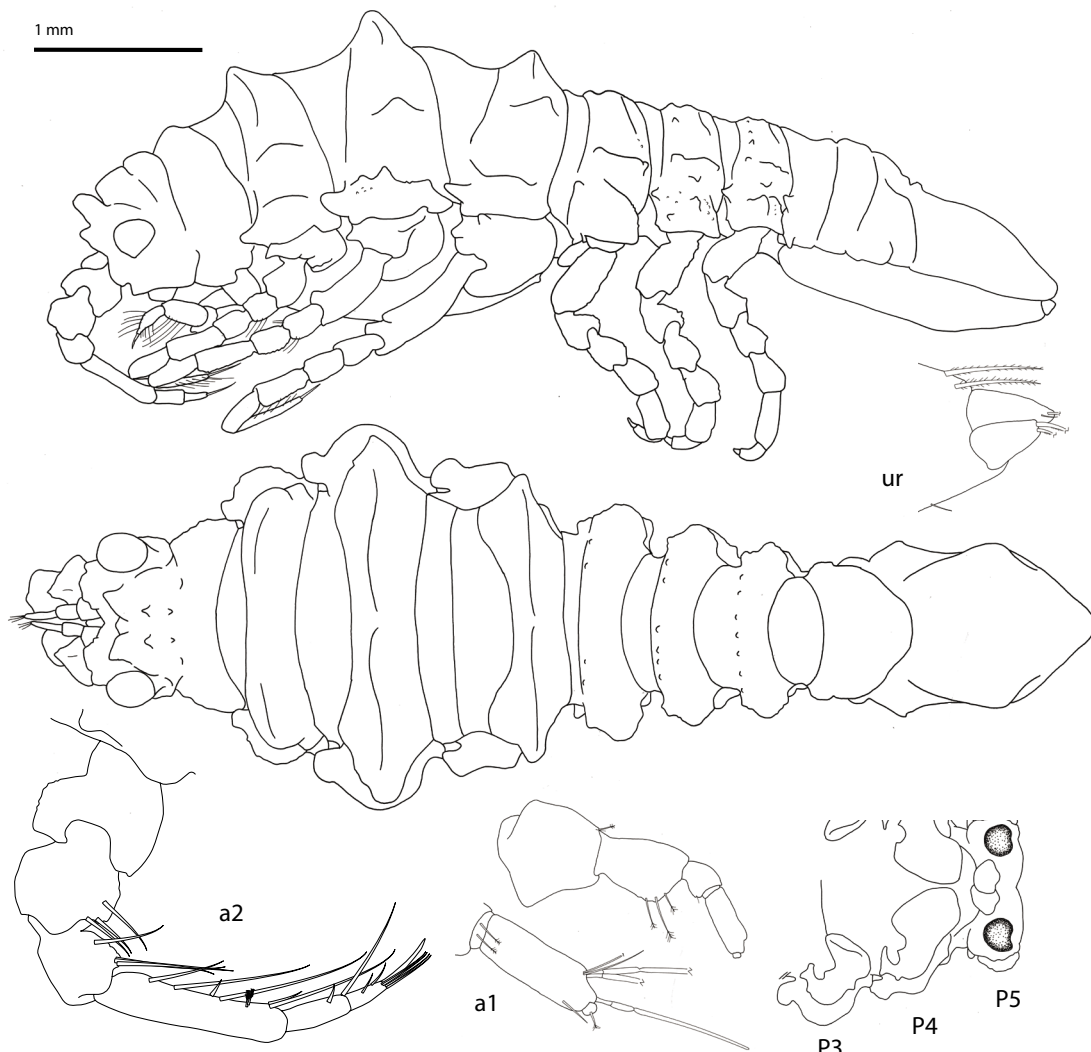


Figure 2. *Galathearcturus antoniae* sp. nov. Female holotype, ZMUC: habitus; a1, a2, antennule, antenna; ur, uropodal rami; P3–P5, oostegites and coxal plates of pereonites 3–5.

**Distribution.** Southern Qld, Australia, 26°S, 86 m depth.

**Remarks.** For similarities see notes for the genus. The only specimen is an ovigerous female; the male is unknown.

***Nowrarcturus* gen. nov.**

Zoobank LSID. <http://zoobank.org/urn:lsid:zoobank.org:act:6D11DFB5-917A-4D1C-8F2A-AAC9969DD029>

**Type species.** *Nowrarcturus jamesi* sp. nov., by monotypy and original designation.

**Diagnosis.** Head with paired submedian tubercles, pereonites with smooth transverse ridges (third with second ridge anterior to major one), anterior pleonites barely elevated. Antenna 2.5 times dorsal length of (head + pereonite 1); article 3 cylindrical, twice as long as deep, without ventrolateral flange; article 4 cylindrical, more than twice as long as fused articles (1 + 2);

article 5 cylindrical, 1.5 times as long as article 4, 5 times as long as wide. Pereopod 2 propodus palm convex, denticulate; (dactylus body + unguis) 2.5 times as long as propodus; unguis setiform, little longer than dactylus body. Pereopod 3 similar to pereopod 2, unguis shorter. Male pleopod 1 exopod groove ending obliquely on conical apical projection, extending beyond distomesial seta-bearing lamina. Male pleopod 1 endopod about three-quarters exopod length. Oostegites 5 a pair of adjacent oval discs.

**Etymology.** From Nowra, a town in NSW near to the type locality of the type species, and *Arcturus*, generic stem.

**Composition.** Type species only.

**Distribution.** Southern NSW, Australia.

**Remarks.** The sole species of *Nowrarcturus* is distinguished by

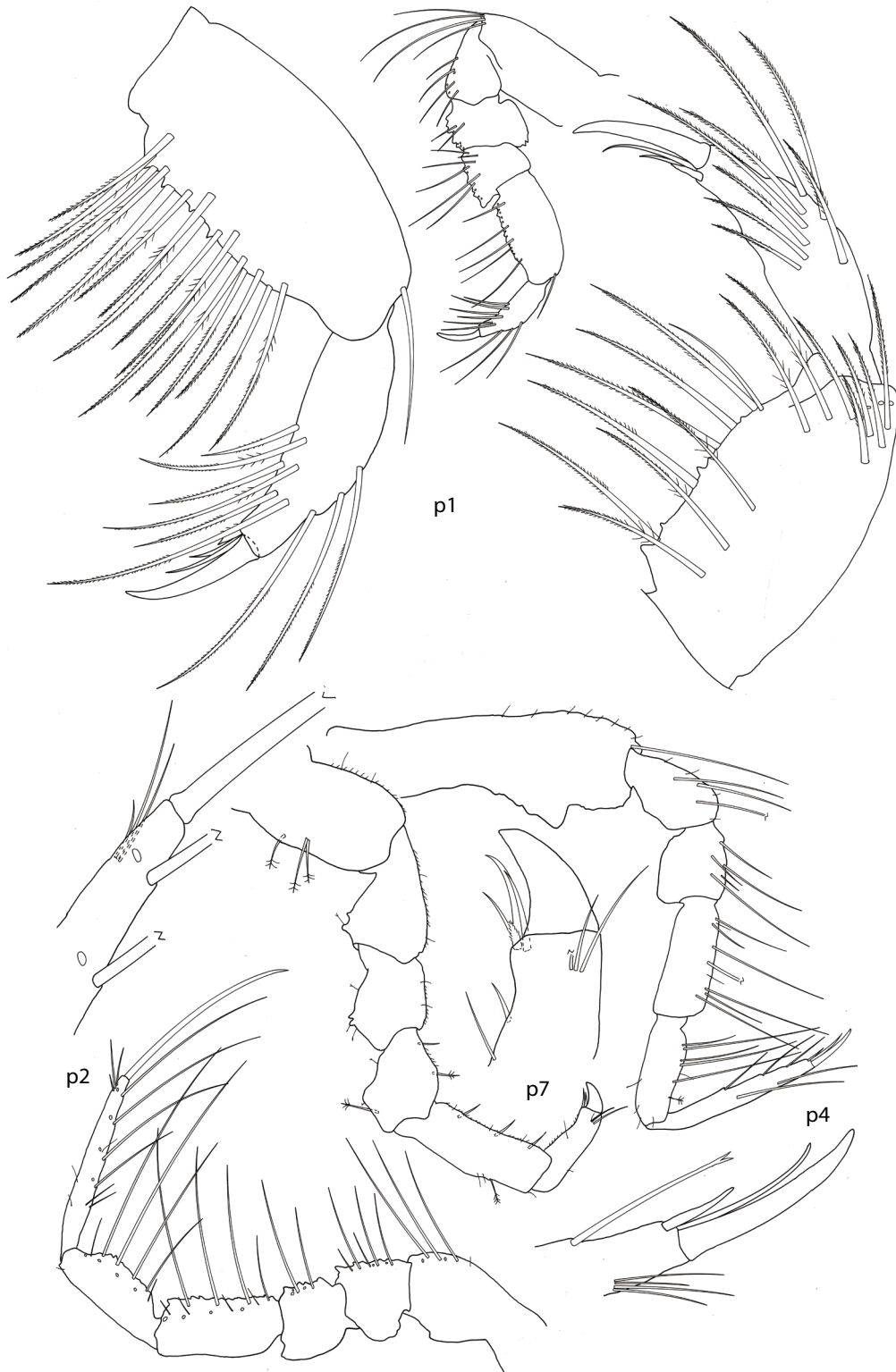


Figure 3. *Galathearcturus antoniae* sp. nov. Female holotype, ZMUC: p1, p2, p4, p7, pereopods 1, 2, 4 and 7, with details of distal articles.

smooth transverse ridges on pereonites 1–4 and the elongate articles of the antennal peduncle. The relationship between the two lobes of the major transverse ridge on pereonite 3 and the pair of smaller lobes opposing it anteriorly, especially evident in females, is unique. This genus is the only rectarcturid in which the groove on the exopod of the male pleopod 1 ends obliquely on a conical apical projection, extending beyond the distomesial seta-bearing lamina.

***Nowrarcturus jamesi* sp. nov.**

Zoobank LSID. <http://zoobank.org/urn:lsid:zoobank.org:act:1C749725-DF07-48BB-8B5A-7364487E1812>

Figures 1a, 4–6

*Material examined.* Holotype. Australia, NSW, 54 km ESE of Nowra (34°52.7'S, 151°15.04'E), 990–996 m, 22 Oct 1988 (stn SLOPE 53), NMV J23444 (male, 6.3 mm).

Paratypes. Collected with holotype. NMV J23734 (ovigerous female, 6.5 mm); NMV J19188 (1 male, 2 females, 1 manca); J19747 (ovigerous female, 6.5 mm).

NSW, off Nowra (34°52.3'S, 151°15.0'E), 1096–1118 m, 15 Jul 1986 (stn SLOPE 7), NMV J19187 (male, 6.0 mm; female, 4.8 mm). (All collected by WHOI epibenthic sled by G.C.B. Poore et al., Museum Victoria.) E of Broken Bay (33°36'S, 152°09'E), 1097 m, 4 Dec 1979 (stn K79-20-07), AM P.32672 (male, 6.0 mm).

*Description.* Male. Of even dimensions throughout length, sparsely and microscopically pustulose between transverse ridges, 3.2 times as long as greatest width. Pleotelson 0.25 times total body length.

Head with 3 pairs of submedian dorsal blunt tubercles: first conical, second broader, third ridge-like, all simple; maxillipedal segment with simple transverse ridge; ventrolateral margin smooth, with anterior triangular projection. Pereonites 1–7 each with pair of submedian and pair of sublateral blunt tubercles on transverse ridge. Submedian and sublateral tubercles on pereonites 1 and 2 secondarily pustulose; submedian processes on pereonite 3 flat transversely, anteriorly curved, meeting as shallow notch. Pereonites 1–7 + maxillipedal segment with supracoxal tubercles, weaker on 5–7. Pereonites 3 and 4 with sharp, bilobed, middorsal, transverse, posteriorly sloped ridge anterior to main ridge (less well defined on 4). Pleonites 1 and 2 with obsolete lateral bosses; pleonite 3 domed middorsally, with rounded marginal lobes; posterior pleotelson evenly domed, with rounded lateral wings; pleotelson tapering evenly to sharply rounded apex, tapered section 0.7 times as long as wide.

Antennule flagellum article 1 with 3 pairs plus 1 aesthetascs, article 2 with 2 aesthetascs. Antenna, fused articles (1 + 2) short, stout, with ventrolateral flange; article 5 1.5 times length of article 4; flagellum of 3 articles, almost as long as peduncle article 5.

Pereopod 1 propodus 2.5 times as long as wide. Pereopod 2 tuberculate, especially basis and flexor margin of carpus; dactylus unguis 1.2 times length of dactylus body. Pereopod 4 dactylus body 1.4 times as long as propodus, unguis setiform, 0.5 times length of dactylus body. Pereopods 5–7 with several small tubercles on extensor margin of basis–carpus. Pereopod 7 dactylus body 0.6 times as long as propodus, unguis stout, 0.5 times length of dactylus body.

Male pleopod 1 exopod 4 times as long as basal width; posterior face with 2 longitudinal erect lobes parallel to groove; lateral margin bearing row of 8 long simple setae proximally, 11 short simple setae distally; distomesial seta-bearing lamina well separated from much longer apex by triangular notch.

Uropodal exopod 0.7 times length of endopod.

Ovigerous female. Pereonites 2–4 swollen, taller and broader than more anterior and posterior segments. Submedian processes on pereonite 3 flat transversely, anteriorly curved, overhanging, meeting as a deep notch, and opposing a pair of more anterior erect submedian tubercles. Oostegites 1–4 supported by oval coxal plates; oostegites 5 a pair of adjacent oval discs.

*Distribution.* Southern NSW, Australia, 34–42°S, 990–1118 m depth.

*Etymology.* For my grandson, James Salter.

*Remarks.* Females of the new species are immediately recognisable by the dorsal sculpture, particularly the characteristic submedian ridges and lobes on pereonite 3. This structure is less well developed in males.

***Rectarcturus* Schultz, 1981**

*Rectarcturus* Schultz, 1981: 67–68. – Park and Wägele, 1995: 69–71.

*Type species.* *Arcturus kophameli* Ohlin, 1901, by original designation.

*Diagnosis.* Head, pereonites and anterior pereonites with paired blade-like submedian and sublateral tubercles or carinae, smooth or barely secondarily ornamented. Antenna 2.5–3 times dorsal length of (head + pereonite 1); article 3 cuboid, as long as deep, without ventrolateral flange; article 4 cylindrical, more than twice as long as fused articles (1 + 2); article 5 cylindrical, 0.7 times length of article 4, 5 times as long as wide. Pereopod 2 propodus palm straight, smooth; (dactylus body + unguis) as long as or little shorter than propodus; unguis setiform, little shorter than dactylus body. Pereopod 3 similar to pereopod 2, unguis shorter. Male pleopod 1 exopod groove ending obliquely on truncate distolateral lobe, not extending beyond distomesial seta-bearing lamina. Male pleopod 1 endopod about as long as exopod length. Oostegites 5 absent.

*Composition.* *Rectarcturus kophameli* (Ohlin, 1901), *R. tuberculatus* Schultz, 1981.

*Distribution.* Argentina.

*Remarks.* *Rectarcturus* comprises two Argentinian species differentiated from those in the three Australian genera. The genus is most similar to *Tasmarrcturus* but lacks the strong secondary ornamentation of the principal pereonal tubercles, has a much longer article 4 on the antenna, has a straight palm on pereopod 1 (all other genera are denticulate), the dactylus and unguis of pereopod 2 are little if at all longer than the propodus (much longer in all other genera), its unguis is shorter than the dactylus body (as long as or longer in others), and oostegites 5 are absent.

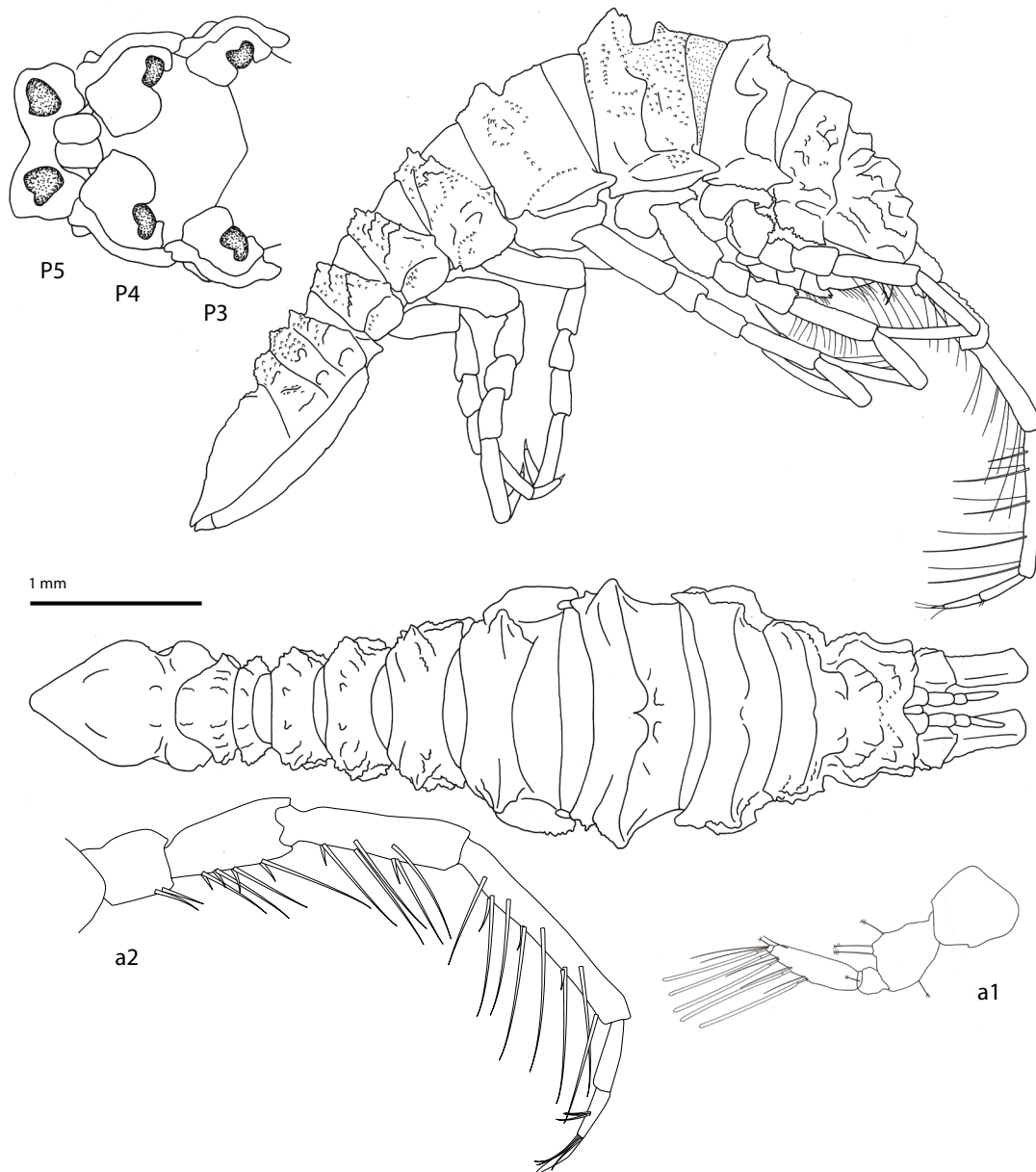


Figure 4. *Nowrarturus jamesi* sp. nov. Female paratype, NMV J23734: habitus; P3–P5, oostegites and coxal plates of pereonites 3–5. Male holotype, NMV J23444: a1, antennule; a2, antenna.

***Rectarcturus kophameli* (Ohlin, 1901)**

*Arcturus kophameli* Ohlin, 1901: 272–273, fig. 5.

*Antarcturus kophameli*. – Stebbing, 1908: 53.

*Microarcturus kophameli*. – Nordenstam, 1933: 128.

*Rectarcturus kophameli*. – Schultz, 1981: 68, fig. 3A–G. – Park and Wägele, 1995: 71–75, figs 9–12. – Poore, 2003: 1843.

*Types*. Northern Argentina, 38°S, 56°W, 52 fm [95 m] depth, holotype, female, 11 mm, lost.

*Material examined*. Argentina, Beagle Channel (55°S, 68°W, 63 m, Nov 1994, A. Brandt (*Victor Hansen* stn 1213), NMV J47040 (two specimens).

*Description*. Male. Pereonites 2–4 swollen, taller and broader than more anterior and posterior segments, sparsely and microscopically pustulose between transverse ridges, 3 times as long as greatest width. Pleotelson 0.3 times total body length. Head with 2 pairs of broad, blunt submedian tubercles, followed by single medial tubercle.

Antennule flagellum article 1 with 3 pairs plus 1 aesthetascs, article 2 with 2 aesthetascs. Antenna, fused articles (1 + 2) short, stout, with ventrolateral flange; article 5 0.5 times length of article 4; flagellum of 3 articles, 0.7 times length of peduncle article 5.



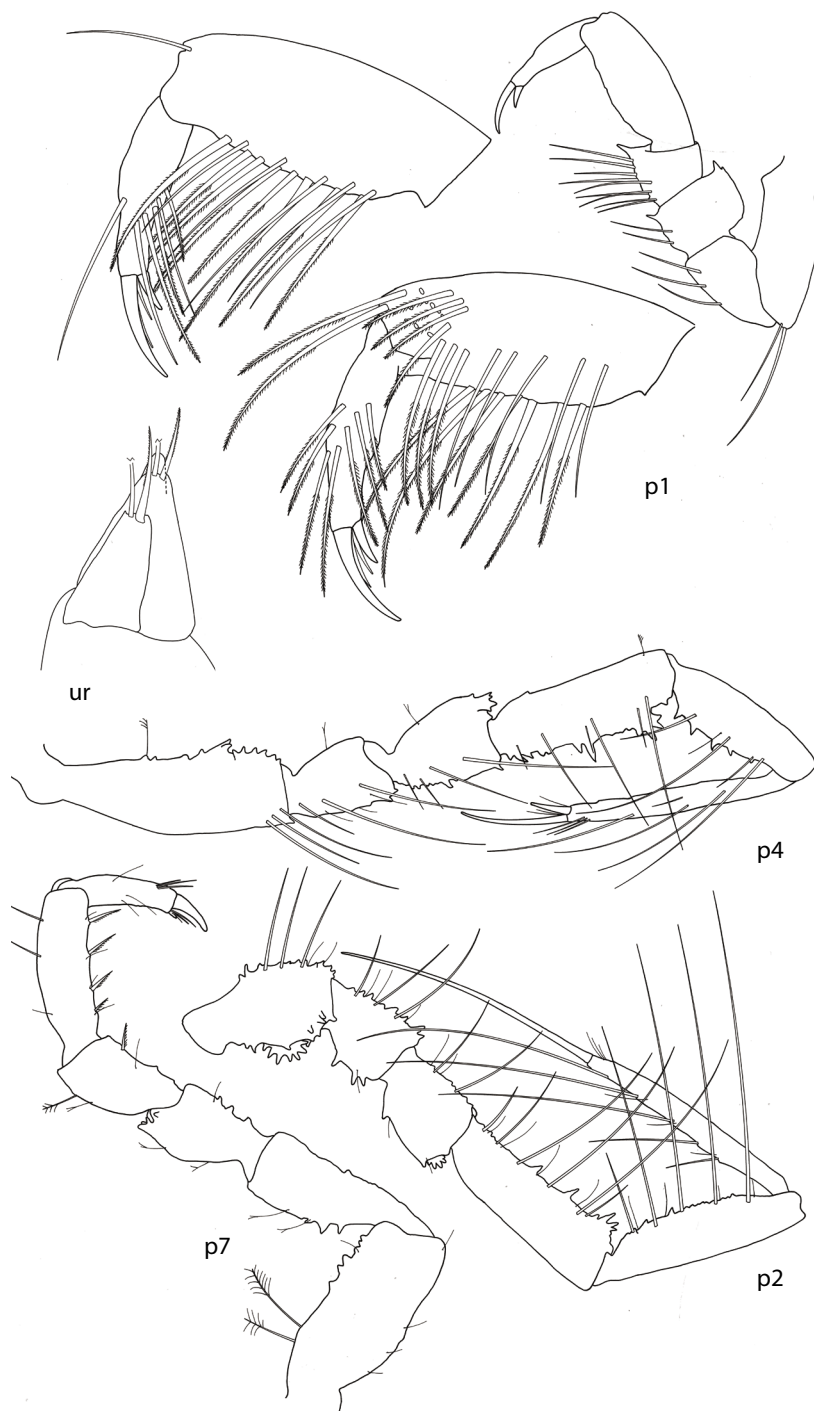


Figure 5. *Nowrarcturus jamesi* sp. nov. Male holotype, NMV J23444: p1, p2, p4, p7, pereopod 1 with details of distal articles, pereopods 2, 4 and 7; ur, uropodal rami.

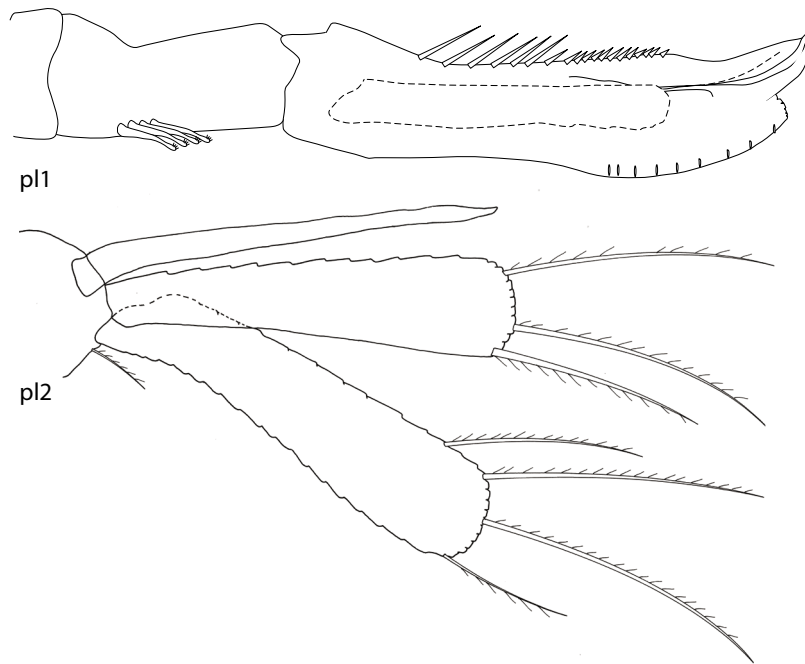


Figure 6. *Nowrarturus jamesi* sp. nov. Male holotype, NMV J23444: pl1, pl2, pleopods 1, 2.

Pereopod 1 propodus 1.9 times as long as wide. Pereopod 2 with tubercle on extensor margin of basis only; dactylus unguis 0.9 times length of dactylus body. Pereopod 4 dactylus body 0.9 times as long as propodus, unguis setiform, 0.4 times length of dactylus body. Pereopods 5–7 without tubercles on extensor margin. Pereopod 7 dactylus body 0.7 times as long as propodus, unguis stout, 0.4 times length of dactylus body.

Male pleopod 1 exopod more than 4 times as long as basal width; posterior face without erect lobes along groove; distomesial seta-bearing lamina well separated from apex by deep triangular notch and equalling it in length.

Uropodal exopod 0.5 times length of endopod.

Ovigerous female. See detailed description by Park and Wägele (1995). Oostegites 5 absent.

*Distribution.* Northern Argentina, 38°S, 95 m (type locality); Straits of Magellan, Argentina, 52°S, 10–12 m depth.

*Remarks.* Ohlin (1901) based his new species on an ovigerous female from off northern Argentina at 95 m depth. Schultz (1981) selected this as the type species of his new genus and redescribed it on the basis of new material, ovigerous females from off Isla de los Estados, southern Argentina, at 84–208 m depth. The holotype appears lost; it could not be found in the major museums in Stockholm, Hamburg or Berlin. Other authors transferred the species to other genera, *Antarcturus* and the *nomen nudum*, *Microarcturus*. The species is characterised by sharp submedian, sublateral and lateral longitudinal ridges on each pereonite, and sublateral ridges on pleonites 1 and 2. The lateral mid-length pleotelson marginal wings are weak. Ohlin commented on the ‘very small hairs’

over the whole body. Park and Wägele (1995) redescribed new material, taken at shallower depths in the Straits of Magellan, Argentina than the type locality. Their observations were confirmed by additional material from the same region (representatives of a larger collection at the Zoological Museum, Hamburg). W. Wägele (pers. comm.) observed the absence of oostegites 5 on the female described by Park and Wägele (1995) and now at Zoologisches Forschungsmuseum Alexander Koenig, Bonn, Germany.

#### *Rectarcturus tuberculatus* Schultz, 1981

*Rectarcturus tuberculatus* Schultz, 1981: 68–70, fig. 4. – Park and Wägele 1995: 75–83, figs 13–18.

*Material examined.* N of South Shetland Is., 57°09'S, 58°58'W – 58°00'S, 58°50'W, 3477–3590 m (*Eltanin* stn 6-363), USNM 181263 (ovigerous female, 9.5 mm).

*Description.* Antennule flagellum article 1 with 3 pairs plus 1 aesthetascs, article 2 with 2 aesthetascs. Antenna, articles 1–2 short, stout, with ventrolateral flange; article 5 0.7 times length of article 4; flagellum of 3 articles, 0.7 times length of peduncle article 5.

Pereopod 1 propodus twice as long as wide. Pereopod 2 with tubercle on extensor margin of basis only; dactylus unguis 0.9 times length of dactylus body. Pereopod 4 dactylus body 0.9 times as long as propodus, unguis setiform, 0.4 times length of dactylus body. Pereopods 5–7 with 2 stout tubercles on extensor margin of basis, 1 each on carpus–propodus.

*Distribution.* South Atlantic. N of South Shetland Is., 57–59°S, 3477–3590 m depth (type locality); Straits of Magellan, Argentina, 52°S, 25–41 m.

*Remarks.* Schultz's (1981) illustration shows pairs of submedian tubercles and several pairs of sublateral tubercles in transverse rows across each pereonite. The pleotelson has midlength lateral marginal wings. I have re-examined his type material at the US National Museum and can add to his brief description: pereopods 2–4 with well-spaced setae as in his figure, oostegites 1–4 with coxal supports, oostegites 5 absent. The species' type locality is at a greater depth than any other in the family, although Park and Wägele's record was at typical depths. Subtle differences between their extensive description and detailed illustrations and those of Schultz may indicate that they had material of another species: the propodi of pereopods 1 and 2 are less elongate than in the type, and the sculpture is more complex.

### *Tasmarcturus* gen. nov.

*Zoobank* *LSID.* <http://zoobank.org/urn:lsid:zoobank.org:act:9F13AC3F-F744-45E2-8868-6E34EFB34072>

*Type species.* *Tasmarcturus lewisi* sp. nov., by original designation.

*Diagnosis.* Head, pereonites and anterior pereonites with paired blade-like submedian and sublateral tubercles or carinae, all secondarily tuberculate. Antenna 1.7–2 times dorsal length of (head + pereonite 1); article 3 cuboid, as long as or little longer than deep, with ventrolateral teeth; article 4 subspherical, about as long as fused articles (1 + 2); article 5 cylindrical, 2–2.5 times as long as article 4, 5 times as long as wide. Pereopod 2 propodus palm convex, denticulate; (dactylus body + unguis) 3 times as long as propodus; unguis setiform, as long as or little longer than dactylus body. Pereopod 3 similar to pereopod 2, unguis shorter. Male pleopod 1 exopod groove ending obliquely on truncate distolateral lobe, not extending beyond distomesial seta-bearing lamina. Male pleopod 1 endopod about as long as exopod length. Oostegites 5 a pair of adjacent oval discs.

*Etymology.* For Abel Tasman (1603–1659), the first European to reach the Australian state, Tasmania, and *Arcturus*, generic stem.

*Composition.* *Tasmarcturus erinae* sp. nov., *T. jamesi* sp. nov., *T. simplicissimus* (Whitelegge, 1904).

*Distribution.* Southern Qld to Bass Strait, eastern Australia.

*Remarks.* *Tasmarcturus* comprises three Australian species, two new and one described as a species of *Arcturus* in 1904. All are common on the southeastern Australian shelf. The genus shares with *Galathearcturus* a compact antenna and elongate dactylus with setiform unguis on pereopods 2–4, but differs in having far more elaborate dorsal sculpture. The termination of the exopodal groove on the male pleopod 1 is similar to that in *Rectarcturus*; the structure is unknown in *Galathearcturus*. Sculpture can be used to differentiate the three species.

### *Tasmarcturus erinae* sp. nov.

*Zoobank* *LSID.* <http://zoobank.org/urn:lsid:zoobank.org:act:2792F44A-A83F-42A3-AFFA-1D5E6DBABC8C>

Figures 1b, 7, 8

*Material examined.* Holotype. Australia, Tas., E of Maria I (42°36'S, 148°10'E), 75 m, 23 Apr 1985 (stn TAS-30), NMV J16686 (male, 6.3 mm).

Paratypes. Collected with holotype, NMV J62082 (ovigerous female, 7.1 mm); NMV J8766 (2 manca, 2.6 mm; ovigerous female, 7.0 mm).

Tasmania, 5 km NE of Mistaken Cape (42°37.0'S, 148°12.3'E), 100 m, 23 Apr 1985 (stn TAS-31), NMV J16685 (2 males). 15 km E of Maria I (42°37'S, 148°20'E), 102 m, 9 Oct 1984 (stn BSS-221), NMV J16681 (manca); NMV J23446 (2 manca, 5 males, 1 ovigerous female). Eastern Bass Strait, 100 km NE of North Point, Flinders I (38°52.36'S, 148°25.12'E), 140 m, 15 Nov 1981 (stn BSS-170), NMV J23447 (12 manca, 7 males, 1 female).

*Description.* Ovigerous female. Pereonites 2–4 swollen, taller and broader than more anterior and posterior segments, with highly spinulose transverse ridges and numerous spinules besides, 3.1 times as long as greatest width. Pleotelson 0.3 times total body length.

Head ornamentation prominently square anteriorly in lateral view, comprising high suprantennal forehead, frontal margin ornamented with pair of transverse ridge-like tubercles, with pair of oblique–transverse ridges separated by medial V-shaped notch, followed by pair of less prominent submedian oblique–longitudinal blade-like ridges, all microtuberculate; maxillipedal segment with double transverse ridge with 2 or 3 pairs of spinules front and back; ventrolateral margin with anterior triangular lobe in front of eye, and deep fissure between head and pereonite 1. Pereonite 1 with transverse ridge (doubled laterally) bearing pairs of anterior and posterior spinules ranging from submedian to sublateral; pereonite 2 with pair of submedian blunt, hatchet-like projections, with transverse ridge (doubled laterally) bearing pairs of anterior and posterior spinules concentrated on sublateral swellings, plus submedian posterior tubercles; pereonites 3 and 4 similar to pereonite 2, pereonite 3 with the most prominent ornamentation, a ridge ending laterally as a sharp projection; pereonites 5–7 each with double transverse ridge bearing 4 pairs of anterior spines and 2 pairs of posterior spines. Submedian and sublateral tubercles on pereonites 1 and 2 secondarily pustulose; submedian processes on pereonite 3 longitudinally flattened. Pereonites 1–7 + maxillipedal segment with supracoxal rounded plates, larger on 3 and 4, weaker on 5–7, all spinulose especially on dorsal surfaces, arranged such that a deep lateral groove exists between end of lateral ridge and supracoxal plate. Pereonites 2–4 each with transverse row of tubercles in front of main ridge, most complex on 3. Pleonites 1 and 2 with 4 pairs of tubercles, the submedian pair larger; pleonite 3 with submedian pair of tubercles, more prominent than on pleonites 1 and 2, and triangular lateral lobes; posterior pleotelson with anterior pair of submedian ridges and a posterior medial ridge, plus sublateral wing-like projections, with 2 pairs of lateral wings, anterior blade-like, posterior triangular; pleotelson tapering evenly to sharply rounded apex, tapered section 0.5 times as long as wide.

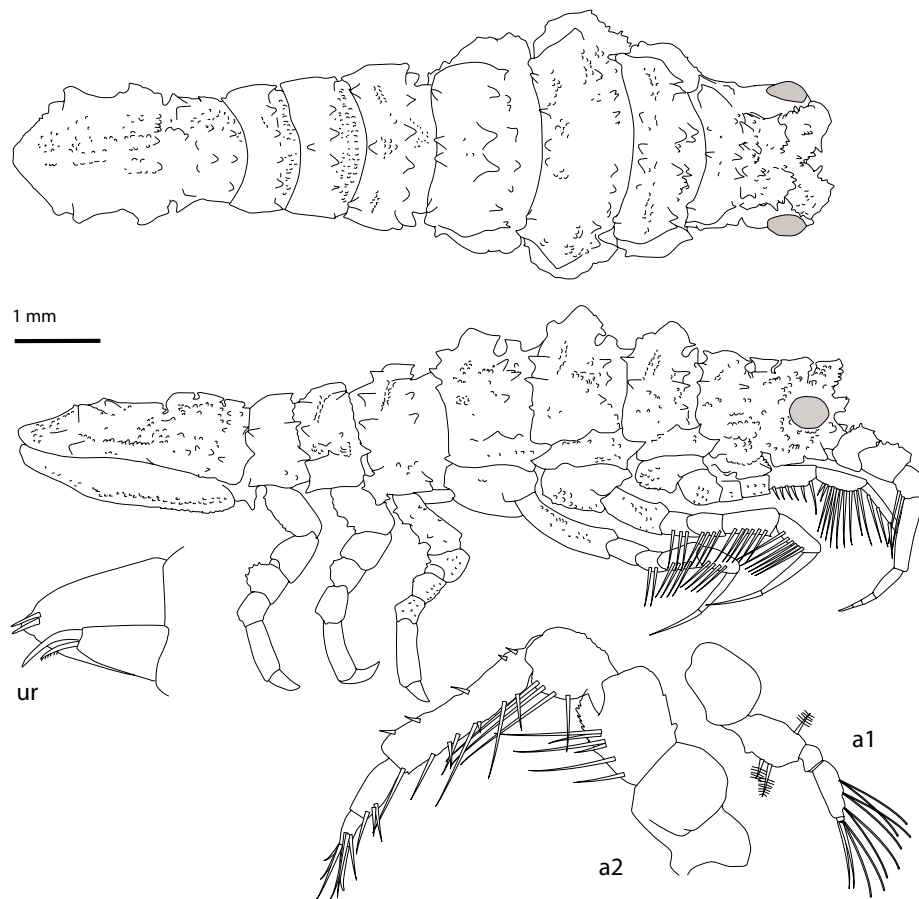


Figure 7. *Tasmarcturus erinae* sp. nov. Female paratype, NMV J62082: habitus; a1, antennule; a2, antenna; ur, uropodal rami.

Antennule flagellum article 1 with 4 pairs of aesthetascs, article 2 with 2 aesthetascs. Antenna, fused articles (1 + 2) short, stout, with ventrolateral flange; article 5 2.3 times as long as article 4; flagellum of 3 articles, 0.7 times length of peduncle article 5.

Pereopod 1 propodus 2.2 times as long as wide. Pereopod 2 tuberculate, especially basis and flexor margin of carpus; dactylus unguis as long as dactylus body. Pereopod 4 dactylus body 1.5 times as long as propodus, unguis setiform, 0.4 times length of dactylus body. Pereopods 5–7 with 2 to several tubercles on extensor margin of basis and ischium, 1 each on carpus and propodus. Pereopod 7 dactylus body 0.6 times as long as propodus, unguis stout, 0.4 times length of dactylus body.

Oostegites 1–4 supported by oval coxal plates; oostegites 5 a pair of adjacent oval discs.

Uropodal exopod 0.6 times length of endopod.

Male. Of even dimensions throughout length, with highly spinulose transverse ridges and numerous spinules besides. Head ornamentation prominently square anteriorly in lateral view, comprising frontal pair of submedian tubercles, followed by pair of prominent, erect, conical sublateral tubercles sitting over eyes but not obscuring in dorsal view, then pair of

sublateral stellate tubercles; maxillipedal segment with 3 pairs of tubercles, all microtuberculate and together forming submedian ridges diverging and sloping upwards anteriorly; ventrolateral margin with anterior triangular lobe in front of eye, and deep fissure between head and pereonite 1. Pereonite 1 with transverse ridge (doubled laterally) bearing 1 medial and 4 pairs of spinules anteriorly and posteriorly, ranging from submedian to sublateral; pereonites 2–4 similar to pereonite 1 except medial spinules absent; pereonites 5–7 each with a single transverse ridge bearing 4 pairs of anterior spines and 2 pairs of posterior spines. Submedian and sublateral tubercles on pereonites 1 and 2 secondarily pustulose. Pereonites 1–7 + maxillipedal segment with supracoxal rounded plates, larger on 3 and 4, weaker on 5–7, all spinulose, especially on dorsal surfaces, arranged such that a deep lateral groove exists between end of lateral ridge and supracoxal plate. Pereonites 3 and 4 each with pair of submedian tubercles anterior to main ridge (larger on 4). Pleonites 1 and 2 with pair of obsolete submedian ridges; pleonite 3 similar to pleonite 2; posterior pleotelson with oblique–conical sublateral projections at midlength, with marginal boss posterior to this, with triangular lateral wings; pleotelson tapering evenly to sharply rounded apex, tapered section 0.6 times as long as wide.



Figure 8. *Tasmarturus erinae* sp. nov. Male holotype, NMV J16686: p1, p2, p4, p7, pereopods 1, 2, 4 and 7; pl1, pleopod 1 with detail of lateral margin; pl2, pleopod 2.

Male pleopod 1 exopod little more than 3 times basal width; exopod posterior face without erect lobes along groove; lateral margin bearing row of 6 multifid setae proximally, 9 stout setae distally; distomesial seta-bearing lamina well separated from apex by deep triangular notch and equalling it in length.

*Etymology.* For my granddaughter, Erin Poore.

*Distribution.* Southeastern Australia, 39–42.5°S, 75–102 m depth.

*Remarks.* *Tasmarturus erinae* and *T. lewisi* are similar but differentiated most easily on the lateral profile of the head; the head has a pair of prominent anterodorsal projections in *T. erinae*. Neither species has the conical tubercles evident in *T. simplicissimus*.

***Tasmarturus lewisi* sp. nov.**

*Zoobank* LSID. <http://zoobank.org/urn:lsid:zoobank.org:act:F3C16B94-1D11-4CC3-8A87-2FF8BA2B2004>

Figures 1c, 9, 10

*Rectarturus* sp. – Poore, 2001: fig 1e.

*Material examined.* Holotype. Australia, Tas., eastern Bass Strait, 25 km NE of Deal I (39°14.48'S, 147°31.30'E), 57 m, 18 Nov 1981 (stn BSS 174), NMV J23745 (male, 6.1 mm).

Paratypes. Collected with holotype, NMV J8768 (9 specimens).

Vic., eastern Bass Strait, 50 km SE of Port Albert (38°54.18'S, 147°13.24'E), 58 m, 18 Nov 1981 (stn BSS 176), NMV J23445 (female, 7.0 mm); NMV J23448 (male, 6.1 mm); NMV J23742 (male, 5.1 mm); NMV J23743 (ovigerous female, 6.6 mm); NMV J8781 (male, 4.3 mm); NMV J8780 (manca, 2.9 mm; 7 males, 4.5–6.0 mm; 4 females, 5.9–7.4 mm).

Other material. Tas., Vic. c. 58 specimens from eastern Tas., throughout Bass Strait, 38–42°S, 143–148°E, 26–140 m depth (see Museum Victoria database <http://collections.museumvictoria.com.au/> for details). (All collected by WHOI epibenthic sled or SM grab by G.C.B. Poore et al., Museum Victoria.)

NSW, S of Worang Point, Twofold Bay (37°03.5'S, 149°56.5'E), 6 m, AM P.36070 (male).

*Description.* Ovigerous female. Pereonites 2–4 swollen, taller and broader than more anterior and posterior segments, with highly spinulose transverse ridges and numerous spinules besides, 2.7 times as long as greatest width. Pleotelson 0.3 times total body length.

Head ornamentation rounded anteriorly in lateral view, comprising pair of transverse submedian ridges on anterior margin, followed by pair of larger transverse ridges, spinulose anteriorly and posteriorly, reaching eyes laterally, then another similar thicker pair flattened dorsally; maxillipedal segment with 5 pairs of spinulose tubercles evenly spaced between submedian and sublateral positions; ventrolateral margin smooth, with deep fissure between head and pereonite 1. Pereonite 1 with transverse ridge (doubled laterally) bearing 2 medial tubercles (anterior and posterior) plus 5 pairs of more or less similarly arranged anterior and posterior spinules ranging from submedian to sublateral; pereonite 2 with transverse ridge (doubled laterally) bearing pair of submedian,

anteriorly directed, flat, triangular projections decorated with spinules, anterior margin of ridge with 3 pairs of sublateral spines, posterior margin with 5 pairs of spinules, 1 lateral spine at end of ridge; pereonite 3 similar to pereonite 2, submedian decoration larger; pereonite 4 similar to pereonite 3, submedian and sublateral pairs of complex spines more developed; pereonites 5–7 each with transverse ridge bearing median, anteriorly directed spinule plus 4 pairs of anterior and 2 pairs of posterior spinules forming prominent sublateral complexes. Submedian and sublateral tubercles on pereonites 1 and 2 secondarily pustulose; submedian processes on pereonite 3 longitudinally flattened. Pereonites 1–7 + maxillipedal segment with supracoxal rounded plates, larger on 3 and 4, weaker on 5–7, all spinulose (especially on dorsal surfaces), arranged such that a deep lateral groove exists between end of lateral ridge and supracoxal plate. Pereonites 2–4 each with transverse row of tubercles in front of main ridge, most complex on 3. Pleonites 1 and 2 spinulose, developed into submedian plates on pleonite 2; pleonite 3 with submedian plates similar to pleonite 2, without sublateral spinules; posterior pleotelson with spinules arranged into a pair of flat submedian ridges and sublateral clusters, with rounded lateral wings; pleotelson tapering evenly to sharply rounded apex, tapered section 0.7 times as long as wide.

Antennule flagellum article 1 with 3 pairs plus 1 aesthetascs, article 2 with 2 aesthetascs. Antenna, fused articles (1 + 2) short, stout, with ventrolateral flange.

Pereopod 1 propodus twice as long as wide. Pereopod 2 tuberculate, especially basis and flexor margin of carpus; dactylus unguis as long as dactylus body. Pereopod 4 and extensor margin of basis; dactylus body 1.2 times as long as propodus, unguis setiform, 0.4 times length of dactylus body. Pereopods 5–7 with 2 to several tubercles on extensor margin of basis and ischium, 1 each on carpus and propodus. Pereopod 7 dactylus body 0.6 times as long as propodus, unguis stout, 0.5 times length of dactylus body.

Oostegites 1–4 supported by oval coxal plates; oostegites 5 a pair of adjacent oval discs.

Uropodal exopod 0.7 times length of endopod.

Male. Of even dimensions throughout length, with highly spinulose, transverse ridges and numerous spinules besides. Head ornamentation rounded anteriorly in lateral view, comprising high suprantennal forehead, frontal margin ornamented with 3 pairs of ridge-like tubercles, with pair of anterior transverse ridges separated by medial notch, almost occluded dorsally, followed by pair of submedian flattened ridges, all microtuberculate; maxillipedal segment with 5 pairs of spinulose tubercles evenly spaced between submedian and sublateral positions; ventrolateral margin smooth, with deep fissure between head and pereonite 1. Pereonite 1 with transverse ridge (doubled laterally) bearing 2 medial tubercles (anterior and posterior) plus 4 pairs of more or less similarly arranged anterior and posterior spinules ranging from submedian to sublateral; pereonite 2 with transverse ridge (doubled laterally) bearing 4 pairs of anterior and 4 pairs of posterior tubercles, irregularly spaced; pereonites 3 and 4 similar to pereonite 2; pereonites 5–7 each with a transverse ridge bearing a median, anteriorly directed spinule plus 5

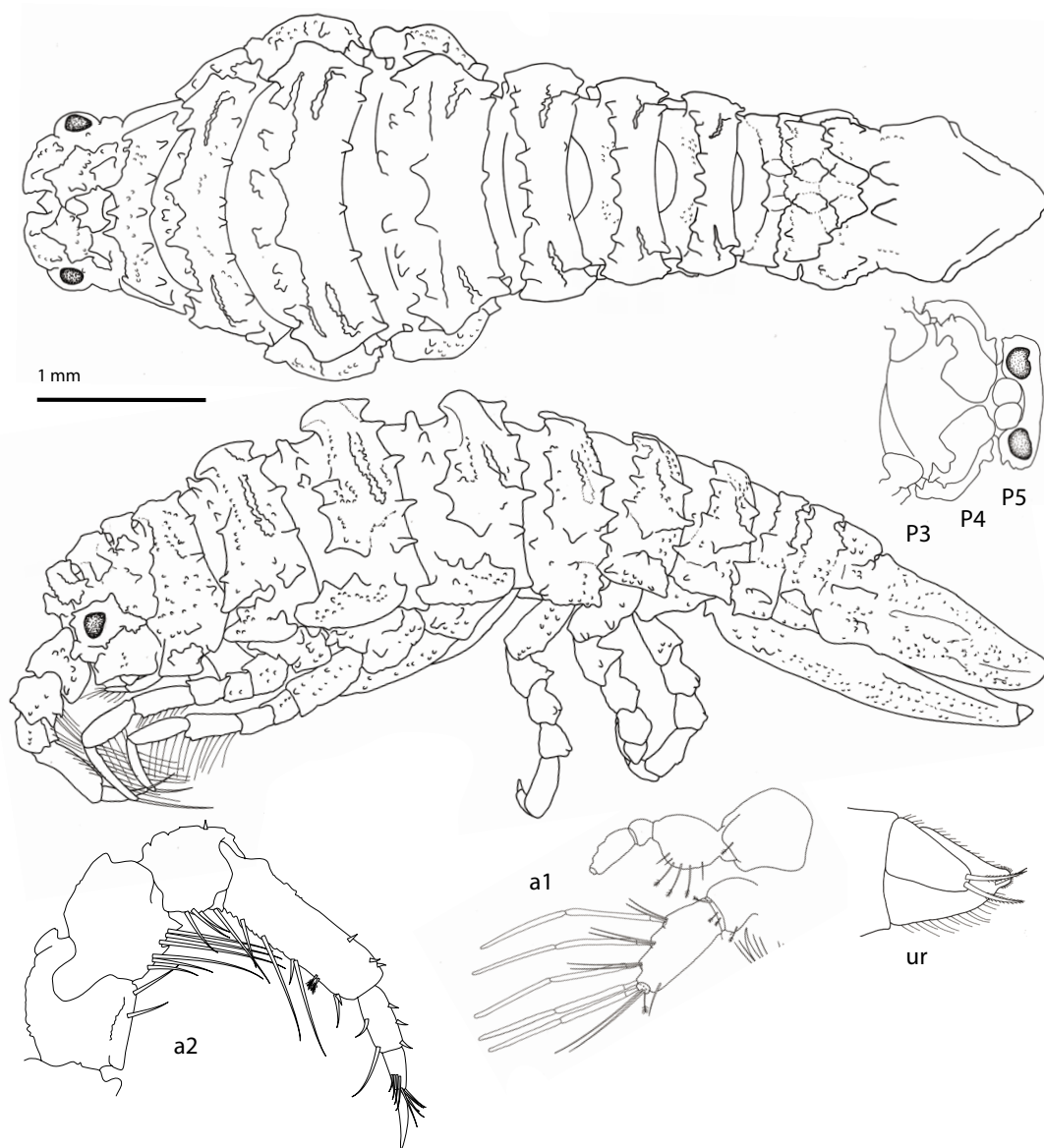


Figure 9. *Tasmarturus lewisi* sp. nov. Female paratype, NMV J23743: habitus; P3–P5, oostegites and coxal plates of pereonites 3–5. Male holotype, NMV J23745: a1, antennule with detail of flagellum; a2, antenna; ur, uropodal rami.

pairs of anterior and 2 pairs of posterior spinules; submedian and sublateral tubercles on pereonites 1 and 2 secondarily pustulose; pereonites 1–7 + maxillipedal segment with supracoal rounded plates, larger on 3 and 4, weaker on 5–7, all spinulose especially on dorsal surfaces, arranged such that a deep lateral groove exists between end of lateral ridge and supracoal plate; pereonites 2–4 each with a transverse row of tubercles in front of main ridge, most complex on 3. Pleonites 1 and 2 with paired flat ridges divided into 1 medial and 2 sublateral plates on pleonite 1, and a pair each of flat submedian tubercles and sublateral tubercles; pleonite 3 with submedian plates similar to pleonite 2, without sublateral spinules;

posterior pleotelson with spinules arranged into a pair of flat submedian ridges and sublateral clusters, with rounded lateral wings; pleotelson tapering evenly to a sharply rounded apex, tapered section 0.7 times as long as wide.

Antenna, article 5 twice as long as article 4; flagellum of 3 articles, 0.7 times length of peduncle article 5.

Male pleopod 1 exopod little more than 3 times basal width; posterior face without erect lobes along groove; lateral margin bearing row of 6 multifid setae proximally, 9 stout setae distally; distomesial seta-bearing lamina well separated from apex by deep triangular notch and well exceeding it in length.

*Etymology.* For my grandson, Lewis Poore.

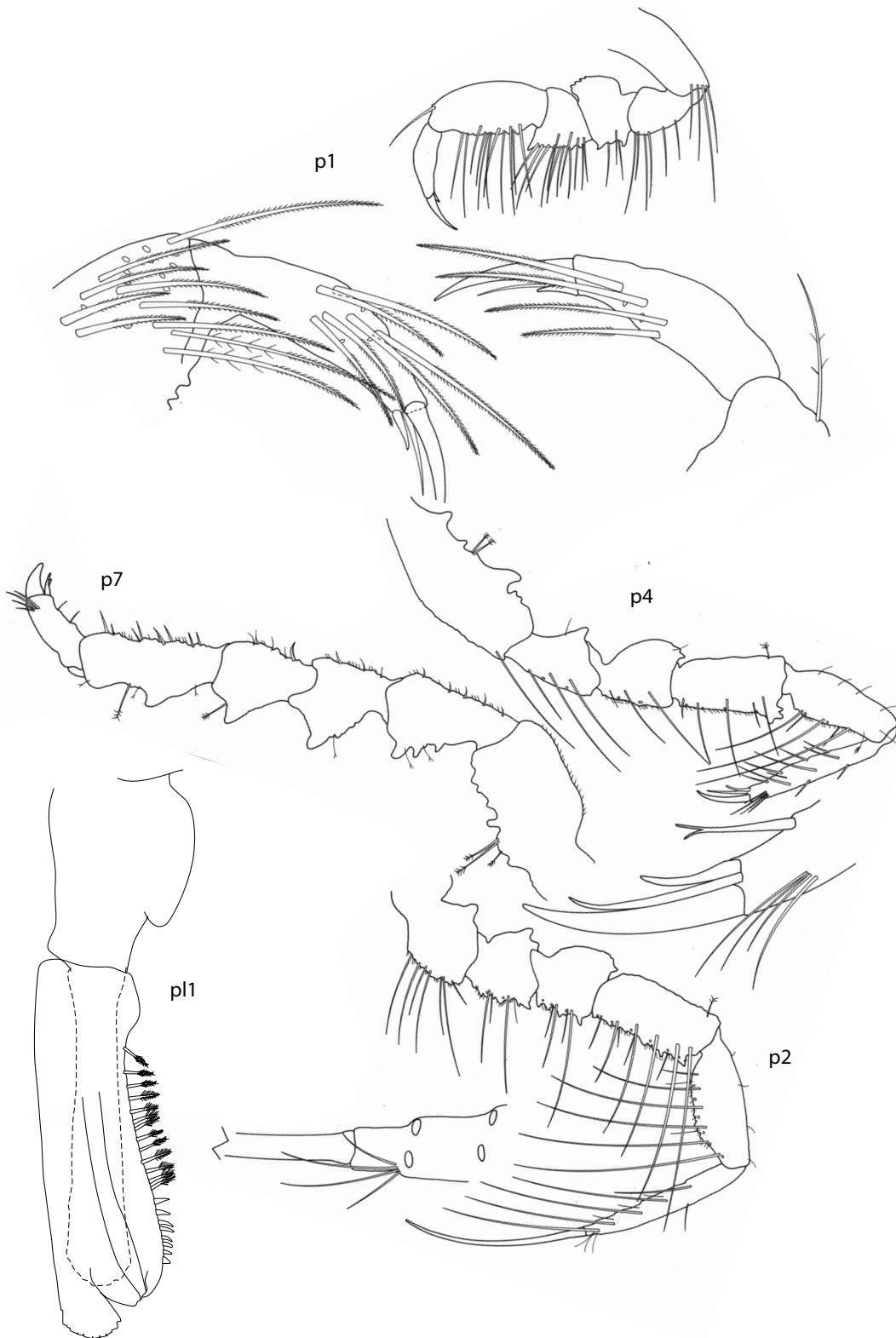


Figure 10. *Tasmarturus lewisi* sp. nov. Male holotype, NMV J23745: p1, p2, p4, p7, pereopods 1, 2, 4 and 7 with details of distal articles; pl1, pleopod 1.



*Distribution.* Southeastern Australia, 37–40°S, 26–140 m depth.

*Remarks.* The head of *Tasmarturus lewisi* has a rounded lateral profile, distinguishing it from the squarish profile of *T. erinae* and the conical tubercles of *T. simplicissimus*. This species is distributed within the latitudinal range of *T. erinae* but occurs over a wider depth range.

***Tasmarturus simplicissimus* (Whitelegge, 1904)**

*Zoobank LSID.* <http://zoobank.org/urn:lsid:zoobank.org:act:DE7CA413-50A1-4F4F-9E95-2264DA513FF7>

Figures 1d, 11, 12

*Arcturus simplicissimus* Whitelegge, 1904: 406–408, fig. 114a–c. – Springthorpe and Lowry, 1994: 132. – Poore et al., 2002: 256.

*Types.* Australia, NSW, off ‘Wata Mooli’ (now Wattamolla, 34°08’S, 151°07’E), 99–106 m (3 syntypes now lost).

*Material examined.* Neotype of *Arcturus simplicissimus* Whitelegge, 1904. Australia, NSW, E of Long Reef (33° 43’S, 151°46’E), 19 Dec 1985, 174 m (stn K85-21-08), AM P.90298 (male, 4.8 mm).

Figured material. Tas., eastern Bass Strait, 100 km NE of North Point, Flinders I, (38°52.36’S, 148°25.12’E), 140 m, 15 Nov 1981, (stn BSS 170), NMV J23735 (male, 6.1 mm); NMV J23741 (ovigerous female, 4.9 mm); NMV J23736 (ovigerous female, 8.8 mm); NMV J8758 (28 individuals, all stages, 3.0–7.3 mm).

Other material. Tas., Vic., NSW, c. 180 specimens from eastern Tas., eastern Bass Strait, eastern NSW; 35–42°S, 60–1096 m depth (see Museum Victoria database <http://collections.museumvictoria.com.au/> for details). (All collected by WHOI epibenthic sled or SM grab by G.C.B. Poore et al., Museum Victoria.)

NSW, NE of Wollongong (34°20’S, 151°18’E), 13 Dec 1978, 161 m (stn K78-27-11), AM P.32669 (manca, 3.8 mm).

Qld. NE of Lady Elliot I. (24°02.7’S, 152°49.4’E), 150 m, 4 Jul 1984 (*Kimbla* stn 3), AM P.35630 (26 specimens), MTQ W34193 (15 specimens).

*Description.* Ovigerous female. Pereonites 2–4 swollen, taller and broader than more anterior and posterior segments, visibly pustulose between ridges and major sculpture, 2.9 times as long as greatest width. Pleotelson 0.3 times total body length.

Head ornamentation of strong tubercles in lateral view, comprising 3 pairs of submedian dorsal tubercles, first conical, second longer and thinner, third broadly conical, plus pair of small sublateral cones, all secondarily tuberculate; maxillipedal segment with microtuberculate transverse ridge with submedian and sublateral tubercles; ventrolateral margin tuberculate, with anterior short spine. Pereonites 1–4 each with pair of submedian and pair of sublateral blunt tubercles on transverse ridge; pereonites 5–7 with 5 pairs of blunt spinulose tubercles on transverse ridge. Submedian and sublateral tubercles on pereonites 1 and 2 simple; submedian processes on pereonite 3 erect, digitiform, spinulose, with prominent secondary process posteriorly. Pereonites 1–7 + maxillipedal segment with supracoxal semicircular plates on 2–4, weaker on 5–7. Pereonites 3 and 4 with pair of short, conical submedian tubercles anterior to major ridge and smaller pair posterior to ridge on 3 only, all secondarily spinulose. Pleonites 1 and 2 elevated, with pairs of submedian and sublateral tubercles; pleonite 3 with pair of submedian

tubercles, with rounded marginal lobes; posterior pleotelson with pair of submedian and 1 medial tubercle, with triangular lateral wings; pleotelson tapering evenly to sharply rounded apex, tapered section 0.7 times as long as wide.

Antennule flagellum article 1 with 3 pairs plus 1 aesthetascs, article 2 with 2 aesthetascs. Antenna, fused articles (1 + 2) short, stout, with ventrolateral flange; article 5 2.7 times as long as article 4; flagellum of 3 articles, 0.7 times length of peduncle article 5.

Pereopod 1 propodus 2.3 times as long as wide. Pereopod 2 tuberculate, especially basis and flexor margin of carpus; dactylus unguis 1.2 times length of dactylus body. Pereopod 4 dactylus body 1.3 times as long as propodus, unguis setiform, 0.3 times length of dactylus body. Pereopods 5–7 with 2 to several tubercles on extensor margin of basis and ischium, 1 each on carpus and propodus. Pereopod 7 dactylus body 0.6 times as long as propodus, unguis stout, 0.5 times length of dactylus body.

Oostegites 1–4 supported by oval coxal plates; oostegites 5 a pair of adjacent oval discs.

Uropodal exopod 0.9 times length of endopod.

Male. Of even dimensions throughout length. Male pleopod 1 exopod little more than 3 times basal width; posterior face without erect lobes along groove; lateral margin bearing row of 13 pectinate setae; distomesial seta-bearing lamina well separated from apex by deep triangular notch and well exceeding it in length.

*Distribution.* Southeastern Australia, 24–42°S, 60–1096 m depth.

*Remarks.* Whitelegge (1904) described the species in detail but provided figures of only the antenna, maxilliped and pereopod 2. His remark that the body is not flexed between pereonites 4 and 5 is consistent with a species of Rectarcturidae. Key features noted by him suggest that this new abundant material can be referred to his species: the surface is covered with tubercles and ridges, is granulose and the granules are ‘subspiniform’, the head has four pairs of conical spines, the pereonites have a transverse ridge with submedian and lateral tubercles that tend to form a longitudinal ridge, and the pleotelson has tubercles on each side of the mesial line. Whitelegge’s illustrations are consistent with the new material, notably the apparently setiform unguis of pereopod 2. His three syntypes are now lost (Springthorpe and Lowry, 1994). His description cannot be reconciled with that of any of the other non-flexed arcturid-like taxa, and a neotype is herein selected from a locality close by. The neotype is a small male, not as heavily sculptured as larger specimens. Whitelegge’s species was included in *incertae sedis* by Poore et al. (2002).

This widespread species occurs over a considerable depth range. The pairs of conical tubercles on the head and the dominant one on pereonite 3 of the male are distinctive.

**Acknowledgements**

Most of the new species were collected during exploratory cruises in Bass Strait and the southeastern Australian slope supported by the former Marine Sciences and Technologies

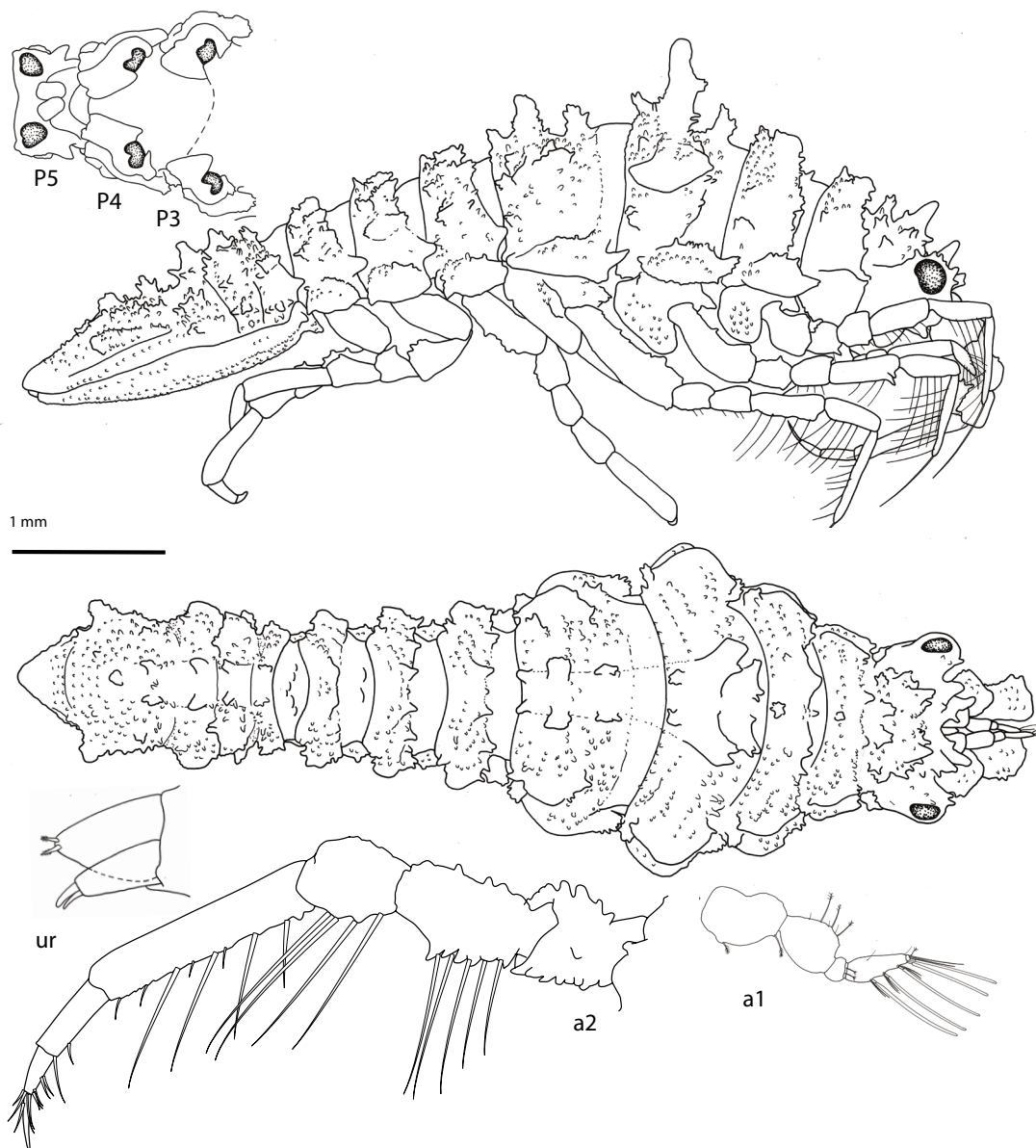


Figure 11. *Tasmarturus simplicissimus* (Whitelegge, 1904). Female, NMV J23736: habitus; P3–P5, oostegites and coxal plates of peronites 3–5. Male, NMV J23735: a1, antennule; a2, antenna; ur, uropodal rami.

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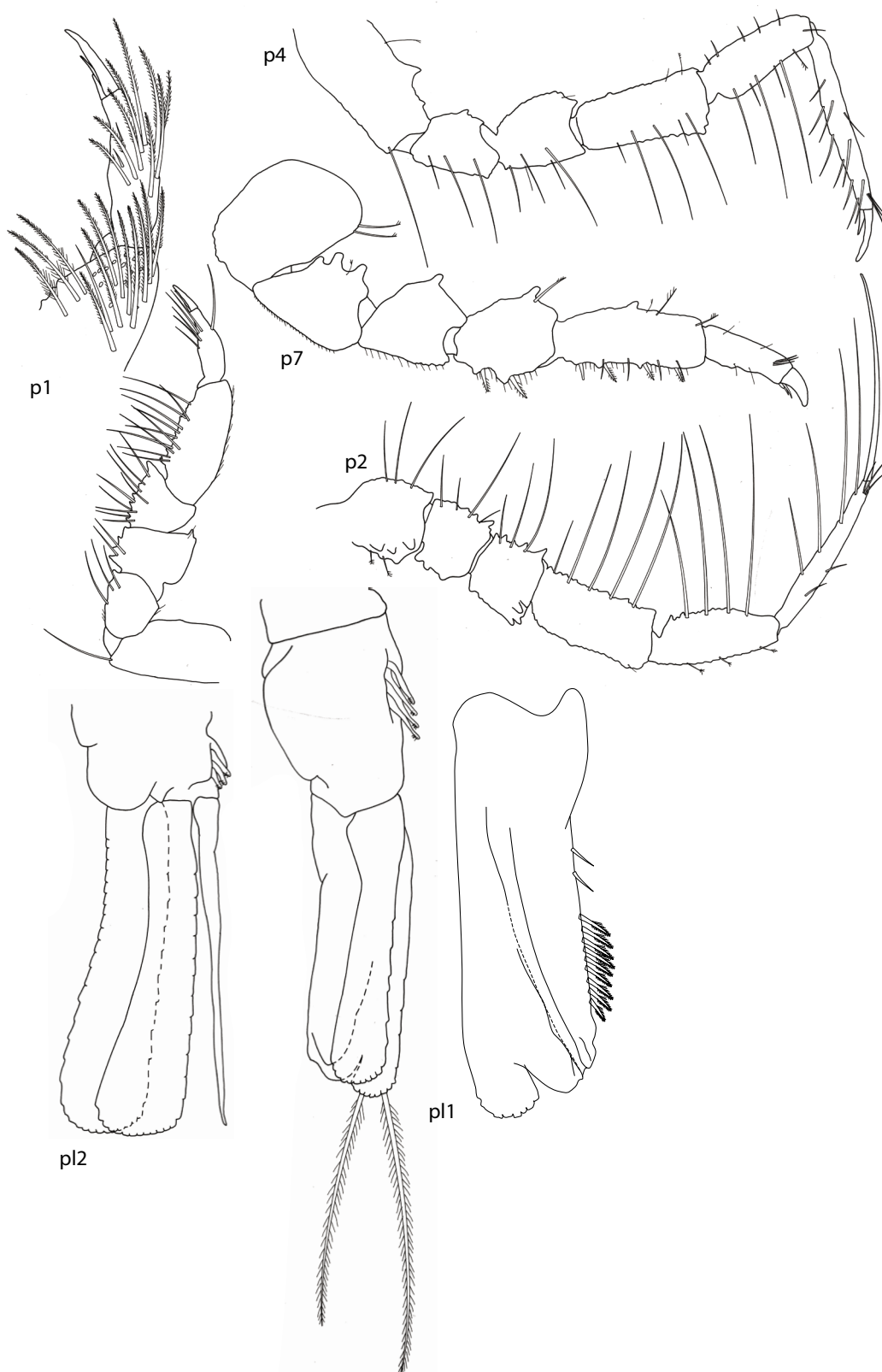


Figure 12. *Tasmarturus simplicissimus* (Whitelegge, 1904). Male, NMV J23735: p1, p2, p4, p7, pereopod 1 with details of distal articles, pereopods 2, 4 and 7; pl1, pleopod 1 with detail of exopod; pl2, pleopod 2.

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