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Warragaia rintouli n.gen., n.sp. (Amphipoda: Urohaustoriidae) from New South Wales, Australia.

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ABSTRACT. A new urohaustoriid genus and species, *Warragaia rintouli*, is described from Jervis Bay, south-eastern Australia. *Warragaia rintouli* is the only urohaustoriid which never has spines or apical setae on the dactyl of peraeopod 5, has a vestigial inner ramus on uropods 1 and 2, and a posterodorsal hook on coxa 7.

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KEYWORDS: taxonomy, urohaustoriid amphipod, south-eastern Australia.

Warragaia n.gen.

Urohaustoriids are fossorial amphipods in the superfamily Haustorioidea. Barnard & Drummond (1982) revised the Haustorioidea and erected the family Urohaustoriidae based on collections from Australia.

While studying the life histories of a number of species of amphipods in Jervis Bay, New South Wales, I found a urohaustoriid which could not be assigned to genus. This species has some characters in common with each of three genera described by Barnard & Drummond (1982): *Tottungus*, *Tuldarus* and *Dirimus*.

The diagnosis of *Warragaia* follows the form established by Barnard & Drummond (1982) for urohaustoriids. The length of the whole animal was measured along the mid-dorsal line from the tip of the rostrum to the base of the telson. The method described by Barnard & Drummond (1978) was used for measuring dissected parts. Barnard & Drummond (1982) defined a formula for describing patterns of spines and setae. A modified formula is used herein : E = long or short seta, S = long or short spine.

Material is lodged in the Australian Museum, Sydney, (AM) and the Museum of Victoria, Melbourne, (NMV).

The following abbreviations are used in the figures: A1, 2: antenna 1, 2; G1, 2: gnathopod 1, 2; C3, 4: coxa 3, 4; MD: mandible; MX1, 2: maxilla 1, 2; MP: maxillipeds; P3-7: peraeopod 3-7; T: telson; U1-3: uropod 1-3; l: left; r: right.

Diagnosis. Rostrum weak, but head large and cowl-like. Primary flagellum of antenna 1 elongate, accessory flagellum weak. Outer plate of maxilla 1 with 9 spine teeth. Mandibular incisors truncate; right and left laciniae mobiles dissimilar; 1 spine blade on right mandible, 2 spine blades on left mandible. Maxillae 1 and 2, and maxillipeds lacking baler lobes. Coxae 1 and 2 small, coxa 1 larger than coxa 2. Coxae 3 and 4 large, coxa 3 subequal to coxa 4, posteroventral setae small. Coxa 4 without setae. Gnathopod 2 subchelate. Dactyls of peraeopods 5-7 lacking spines, and subapical and apical setae in both males and females. Article 2 of peraeopod 5 strongly expanded; article 2 of peraeopods 6 and 7 of moderate width. Pleopod 3 smaller than pleopod 2. Epimeron 1 scarcely differentiated; epimera 2 and 3 of similar size, lacking setae. Peduncle of uropods 1 and 2 sparsely setose laterally. Uropod 1 outer ramus with 2-3 plumose apical setae; inner ramus very reduced, fused to peduncle. Uropod 2 outer ramus with 1-2 plumose apical setae; inner ramus very reduced, fused to peduncle. Uropod 3 outer ramus larger than inner ramus, 2-articulate, with 1-2 plumose apical setae. Telson short, entire, wider than long.

Type-species. *Warragaia rintouli* n.sp.

Etymology. *Warragaia* is derived from an aboriginal word, 'warragai', meaning 'plenty of sand'. The gender is feminine.

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Warragaia rintouli n.sp.

Figs 1–3

Type-material. HOLOTYPE, male, 1.76 mm, AM P34773; ALLOTYPE, 1.64 mm, AM P34774; 48 PARATYPES, AM P34775; 1 PARATYPE, NMV J10779: 1 km off Moona Moona Creek, Jervis Bay, New South Wales, Australia, 35°03'S, 150°41'E, airlifted sand and shelly sand, 8 m, P.B. & P.M. Berents, 17 November, 1981.

Additional material. Sixty-two specimens, AM P34776, as for holotype, 18 February, 1983; 9 specimens NMV J10780, as for holotype, 29 April, 1983.

Description. Holotype male, 1.76 mm. *Head* about 0.8 times as long as wide. *Antenna 1*: peduncle 1.3 times as long as flagellum; flagellum 9-articulate, each article bearing aesthetascs; accessory flagellum 3-articulate. *Antenna 2*: articles 4 and 5 of peduncle with mid-dorsal armature dominated by spines, article 4 SESSESSSSSESS, article 5 SSSSESS; flagellum 6-articulate.

Mandible: incisor truncate; right lacinia mobilis narrow, spatulate (may be obscured by curved edges of incisor); left lacinia mobilis triangular with two apical teeth; 1 spine blade on right mandible, 2 spine blades on left mandible; molar triturating; palp 3-articulate, article 1, 0.4 times as long as article 2, articles 2 and 3 subequal, article 3 with 3 awned spines and 3 shorter simple spines. *Maxilla 1*: inner plate linguiform with 1 sub-apical plumose seta; outer plate truncate bearing 9 spine teeth; palp with 3 apical plumose setae. *Maxilla 2*: inner plate ovate with apical setae and submarginal setae; outer plate truncate, with apical setae. *Maxillipeds*: inner plate with medial plumose seta, bearing apical plumose setae and stout spines; outer plate with setal/spine formula E-EESEEESESS-E; palp 4-articulate, inner margin of article 2 densely setose, dactylus slender with 3 setae and apical spine.

Gnathopod 1: simple; coxa extended anteroventrally; article 2 slender; article 5 expanded, posterior margin setose; article 6, 0.6 times as long as article 5, distally setose; dactylus slender with setule. *Gnathopod 2*: subchelate; coxa smaller than coxa 1; article 2 slender, posterior margin with long setae; article 3 bearing long setae with terminal pectination; article 5 elongate, posterior margin sparsely setose; article 6, 0.7 times as long as article 5, palm setose, confluent with posterior margin; dactylus recurved with setule on inner margin.

Peraeopod 3: coxa large, 1.2 times as wide as long, anteroventral corner broadly rounded, posteroventral corner drawn to subacute point; article 5 posterior margin with 3 stout spines, distal margin bearing sharp denticles; article 6 subequal to article 5, with 7 stout spines, distal margin bearing sharp denticles; dactylus slender, 1.4 times as long as article 6, cusp near apex. *Peraeopod 4*: similar size and proportions to peraeopod 3 except coxa quadrate. *Peraeopod 5*: coxa 1.5 times as wide as long; article 2 broadly expanded, almost as wide as long; articles 3–6 with groups of spines; article 5 subequal in length to article 6; dactylus slender, armed with denticles, 0.8 times as long as article 6, plumose setule at M 30, cusp near apex. *Peraeopod 6*: longer and

less spinous than peraeopod 5; coxa 1.4 times as wide as long; article 2 moderately expanded, 0.6 times as wide as long, anterior margin bearing 4 groups of spines; article 4 posterior margin with 2 long plumose setae; articles 4–6 with groups of spines; dactylus slender, setule at M 41, cusp near apex. *Peraeopod 7*: similar size and proportions to peraeopod 6 except coxa with posterodorsal hook; article 2 anterior margin with 3 spines; article 4 without long plumose setae.

Pleopods: peduncles of all pleopods short, wider than long; inner rami shorter than outer rami; pleopod 3 shorter than pleopod 2.

Epimeron 1: scarcely differentiated. *Epimera 2 and 3*: similar in size, lacking setae, postero-ventral margins rounded.

Uropod 1: peduncle with 3 plumose setae laterally; inner ramus very reduced, fused to peduncle, bearing 1 plumose apical seta; outer ramus with 2 plumose apical setae, 2 plumose setae along inner margin. *Uropod 2*: similar to uropod 1 except peduncle without lateral setae. *Uropod 3*: inner ramus with 2 apical plumose setae, inner margin with 3 plumose setae; outer ramus 2-articulate, 1 apical seta. *Telson*: entire, wider than long.

Allotype female, 1.64 mm. Similar to holotype except in following ways: *Antenna 1*: article 1 of peduncle with 3 stout mid-dorsal brush setae; primary flagellum 6-articulate, aesthetasc on articles 5 and 6. *Antenna 2*: formula for facial armature of article 4 SSESSESSSESS, article 5 SSESS. *Maxillipeds*: outer plate with setal/spine formula E-EESEEESESESE. *Peraeopod 7*: article 2 anterior margin with 4 spines. *Uropod 1*: peduncle with 2 plumose setae laterally. *Uropod 3*: inner margin of inner ramus with 2 apical setae; outer ramus bearing 2 apical setae.

Largest male: 1.92 mm. Largest female: 2.32 mm (ovigerous).

Variation. *Antenna 1*: most specimens have 3 stout mid-dorsal brush setae on article 1 of peduncle as described for allotype. *Antenna 2*: the facial armature of article 4 of peduncle varies although spines are dominant. The formulae are characterized by a middle group of 6 or 7 spines followed by ESS (occasionally ESSS). The proximal end varies from ESESSE to SSE. *Maxillipeds*: outer plate may have 4 or 5 spines. *Gnathopod 2*: palm may be more setose in large females. *Peraeopod 3*: article 6 may have 6 or 7 stout spines. *Peraeopods 6 and 7*: dactylus occasionally with setule at cusp. *Uropod 1*: outer ramus bearing 2 or 3 plumose apical setae. *Uropod 2*: outer ramus bearing 1 or 2 plumose apical setae. *Uropod 3*: outer and inner rami with 1 or 2 plumose apical setae. The number of groups of lateral setae on the inner and outer margins is variable.

Etymology. The species is named for Ian Rintoul, 13/12/50–26/3/84.

Remarks. *Warragaia rintouli* belongs to the group of urohaustoriid genera without spines on the dactyl of peraeopod 5 and with a weak accessory flagellum. The other genera in this group are *Dirimus*, *Tottungus* and

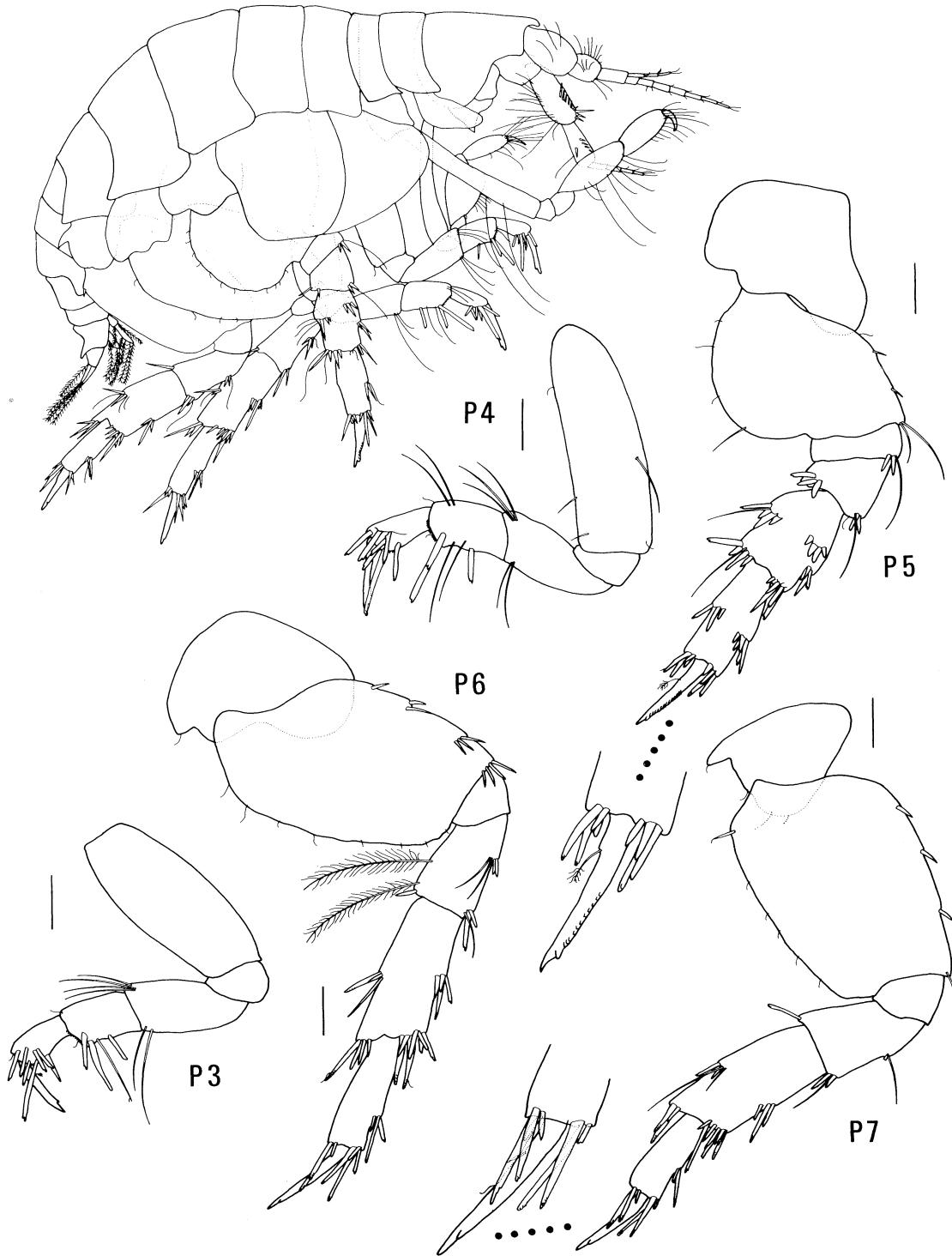


Fig. 1. *Warragaia rintouli* n.gen. n.sp.: whole animal, paratype, female, 1.92 mm; peraeopods, holotype, male, 1.76 mm. Jervis Bay, N.S.W., Australia. Scale represents 0.1 mm.

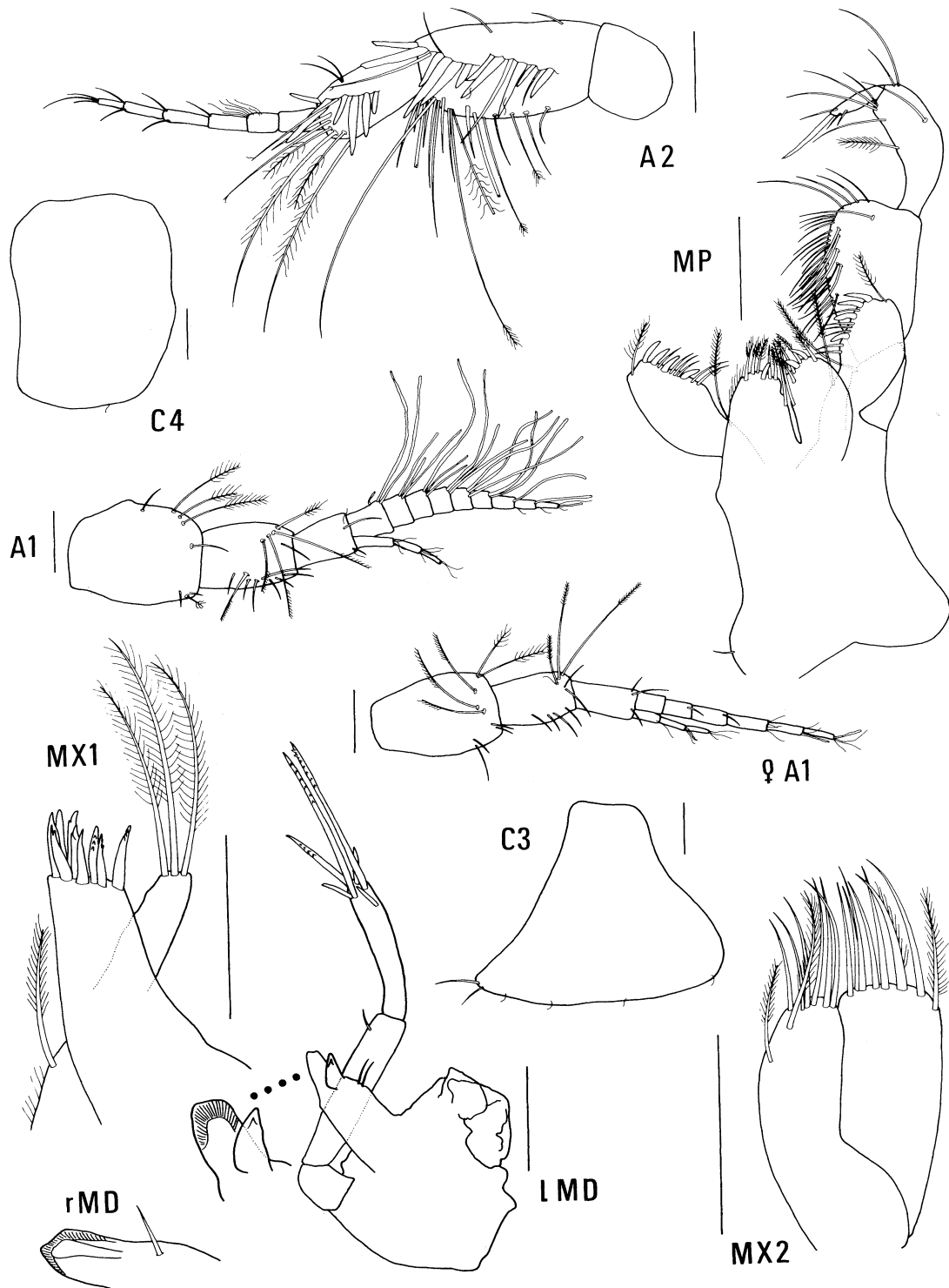


Fig. 2. *Warragaia rintouli* n.gen. n.sp.: holotype, male, 1.76 mm; allotype, 1.64 mm. Jervis Bay, N.S.W., Australia. Scale represents 0.1 mm.

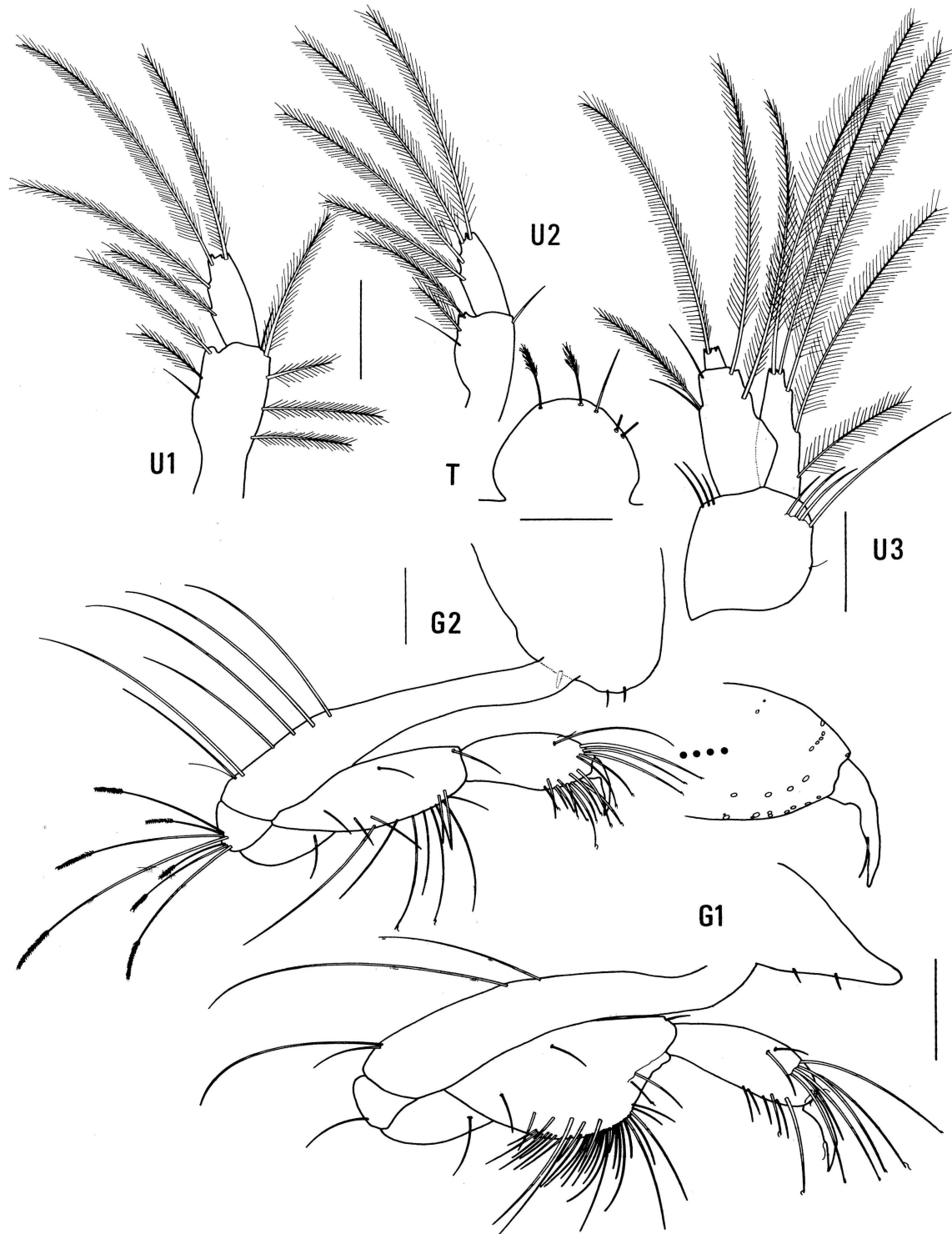


Fig. 3. *Warragaia rintouli* n.gen. n.sp.: holotype, male, 1.76 mm. Jervis Bay, N.S.W., Australia. Scale represents 0.1 mm.

Tuldarus. *Warragaia rintouli* shares other diagnostic characters with each of the above genera and has some unique characters. *Warragaia rintouli* is the only urohaustoriid which never has spines or apical setae on the dactyl of pereopod 5, has a vestigial inner ramus on uropods 1 and 2, and a posterodorsal hook on coxa 7.

Warragaia rintouli and *Dirimus* share the following characters: a large cowl-like head; 9 spines on the outer plate of maxilla 1; 1 spine-blade on the right mandible and 2 spine-blades on the left mandible; pleopod 3 smaller than pleopod 2; epimeron 2 lacking facial setae; epimera 2 and 3 with rounded posteroventral margins.

Warragaia rintouli resembles *Tottungus* in the small coxae 1 and 2 with coxa 1 larger than coxa 2; pleopod 3 smaller than pleopod 2; the reduction in size of the setae on coxae 3 and 4. *Warragaia* and *Tottungus* are the only urohaustoriids with subchelate gnathopod 2 but the palms of the second gnathopods in these genera are different. The palm of *Tottungus* is almost transverse, serrate and not confluent with the posterior margin. The palm of *Warragaia* is subchelate, smooth and confluent with the posterior margin.

Warragaia shares the following characters with *Tuldarus*: lack of baler lobe on maxillae 1 and 2 and maxillipeds; coxa 3 subequal to coxa 4; left lacinia mobilis triangular with 2 teeth.

There are probably many Australian urohaustoriids yet to be discovered and future work may lead to changes in the status of these genera. Barnard & Drummond (1982) have worked predominantly with

collections from Westernport and Port Phillip Bay (Victoria), plus some material from Moreton Bay (Queensland) and the Hunter River district (NSW). The urohaustoriids from the remainder of the Australian coast have not been studied. As more material is examined it will be possible to assess the value of characters which are used in the diagnoses of urohaustoriid genera and species.

Distribution. Jervis Bay, New South Wales (type-locality).

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References

- Barnard, J.L. & M.M. Drummond, 1978. Gammaridean Amphipoda of Australia, Part III: Phoxocephalidae. *Smithsonian Contributions to Zoology* 245: 1-544.
- 1982. Gammaridean Amphipoda of Australia, Part V: Superfamily Haustorioidea. *Smithsonian Contributions to Zoology* 360: 1-148.

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