

AUSTRALIAN MUSEUM SCIENTIFIC PUBLICATIONS

Bousfield, E. L., 1976. A new terrestrial amphipod from Lord Howe Island.
Records of the Australian Museum 30(6): 118–122. [16 January 1976].

doi:10.3853/j.0067-1975.30.1976.398

ISSN 0067-1975

Published by the Australian Museum, Sydney

nature culture **discover**

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6 College Street, Sydney NSW 2010, Australia



A NEW TERRESTRIAL AMPHIPOD FROM LORD HOWE ISLAND

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SUMMARY

Parorchestia gowerensis (Amphipoda: Talitridae) is newly described from the summit of Mt. Gower, Lord Howe Islands, Australia, and supports Stebbing's original concept of the genus *Parorchestia*.

INTRODUCTION

In the course of studies on the terrestrial amphipod fauna of the Australian region, a small collection from the Lord Howe Islands was kindly made available by Dr. J. W. Evans and Miss Elizabeth Pope, of the Australian Museum, Sydney. The material contained a distinctive species, previously undescribed, that is tentatively assigned to the genus *Parorchestia* Stebbing. Although nearly all known species of this group are members of the cryptozoic "leaf-litter" fauna and primarily terrestrial, some occur in association with the nests of marine birds, and in other habitats in close proximity to the sea shore. Smithers *et al* (1974) have commented on the value of small cryptozoic invertebrates in answering scientific questions, especially pertaining to the origin and evolution of isolated biotas. To be of value in this respect, however, much more careful collecting and study of these remarkable crustaceans in their native habitat is needed.

SYSTEMATICS

Genus *Parorchestia* Stebbing 1899; emend Bousfield 1964

Stebbing's original definition of the genus was based on characteristics of the New Zealand leaf-mould species *P. tenuis* (Dana) and *P. sylvicola* (Dana). Several, more recent workers such as Shoemaker (1942), Hurley (1957), Bulycheva (1957), and Barnard (1969) have expanded the definition of *Orchestia* to include the distinctive features used by Stebbing in demarcating *Parorchestia*. However, cognizant of the pressing need for taxonomic refinement of the now unwieldy and unrealistic generic concept of *Orchestia*, containing well over 100 species, the writer (1961, 1964, 1971) has outlined further systematic bases upon which Stebbing's original generic distinction may be upheld. Further revisionary work will be required as new material from the vast complex of Indo Pacific islands comes to hand, and significance of coxal gill and brood plate structure at higher taxonomic levels is ascertained. In the writer's view, the *Parorchestia* complex of leaf-litter hoppers is basically distinct from the true littoral marine facies represented by the generic

type, *Orchestia gammarellus* (Pallas). The continued recognition of *Parorchestia*, would, in the interim, follow Stebbing's original broad definition of the genus that includes both *P. tenuis* and *P. sylvicola* groups of species.

***Parorchestia gowerensis* n. sp.**

figs. 1, 2.

TYPES: Holotype ♀ (ovig.), ♂ allotype, P. 14507, Mt. Gower, Lord Howe Island coll. D. Linklater, among damp moss, February 1957. Three ♀♀ paratypes, P. 14506, same data as for P. 14507. Three topotypes, 2 ♀♀, (P. 10859), 1 ♂ (P. 10860), old collections, Mt. Gower, among damp moss, 2485 ft. a.s.l. (ident. as *O. pickeringi* by K. Sheard); all in the Australian Museum. Holotype slide mount in the National Museum of Natural Sciences, Ottawa.

DESCRIPTION: Female (13 mm). Head and buccal mass deeper than long; eye subrotund, medium-large, black. Antenna 1 slightly exceeding peduncle 4 of antenna 2, flagellum 5-6 segmented. Antenna 2 slender, peduncle 5 distinctly longer than 4, flagellum of 23 segments, longer than peduncle, segments with whorls of short stiff setae.

Upper lip moderately deep, narrow; apex rounded, pilose. Lower lip deep, inner shoulders pilose. Mandible, right incisor 5-dentate, left incisor 6-dentate; right lacinia apically 4-cusped, with five small proximal tubercles, left lacinia 4-cusped. Maxilla 1, palp minutely 2-segmented, set about mid-way along outer margin; outer plate, apical spine-teeth all strongly pectinate. Maxilla 2, outer plate larger, outer margin distally with short stiff setae. Maxilliped, inner plate broadening distally, inner margin and face with 6-8 stout plumose setae; apex with 3 short blunt spine-teeth, inner smallest; outer plate short, apex broadly rounding, with strong submarginal setal row; palp short, very broad, terminal (4th) segment short but distinct, conical.

Gnathopod 1, coxal plate much shorter than 2, rounded below, lightly spinose; inner shelf weakly spinose; segment 5 distinctly longer than 6, lower margin distally expanded or "tumid"; segment 6 slightly widening distally; dactyl short, tip not exceeding vertical palm. Gnathopod 2, coxal plate deep, posterior marginal process short; segment 2 sublinear, slightly broadened anteriorly; segment 3 slightly longer than 4, the latter with posterior marginal blister; segment 5 longer than 6, posterior margin distally broadest; dactyl closely subterminal.

Peraeopods 1 and 2, coxal plates subquadrate, posterior processes short; segment 5 relatively long, nearly equal to 4; dactyls short, simple. Peraeopod 3, coxal plate large and deep, posterior lobe relatively large; segment 2 subovate, posterior margin spinose. Peraeopods 4 and 5 slender, much longer than 3, 5 slightly longer than 4; coxa of peraeopod 4 with large deep posterior lobe; coxa of peraeopod 5 shallowly rounding below; segment 2 nearly as broad as deep, convex posterior margin weakly serrate; dactyls slender, short.

Coxal gills relatively short, sac-like, those of gnathopod 2 and peraeopod 4 not convoluted nor multi-lobate. Brood plates relatively large and broad, distal margins with 9-14 simple setae.

Abdominal side plates 1-3 smooth below, hind corners slightly acute, posterior margins with 1-2 minute setae. Pleopods 1 and 2 slender, subequal, inner ramus with 9-11 segments, much longer than 7-segmented outer ramus; peduncle distally with 4-5 marginal plumose setae; pleopod 3 similar in type but much the shortest, rami with 8 and 5 segments respectively; 2 coupling spines on all peduncles.

Uropod 1, rami subequal, margins laterally spinose; margins of peduncle moderately spinose; inter-ramal spine simple, medium-strong. Uropod 2, rami shorter, stouter, subequal, marginally spinose. Uropod 3, peduncle stout, with sub-apical posterior group of one long and three short spines; ramus shorter, slightly tapering, with three apical spines. Telson broadly spade-shaped, apex slightly cleft, lobes each with apical cluster of short spines, and a larger, dorsal spine proximally.

DESCRIPTION: Male (9.0, 12.5 mm). Antenna 2 slender, geniculate at flagellum, as in ♀. Gnathopod 1, segment 4 with posterior "blister" or tumescence; segment 6 much shorter than 5, tumescent postero-distally; dactyl short, not reaching lower margin of truncate palm. Gnathopod 2, segment 2 slightly expanded posteriorly, margin with a few stout spines; segment 3 with rounded, winglike anterior flange; segment 6 large, subovate, palm oblique, convex, spinose, posterior angle with groove to accommodate tip of slender, curved dactyl; in older males, dactyl may be grossly curved, apparently non-functional in amplexus.

REMARKS: This species is closely related to the group of *Parorchestia marquesana* Shoemaker 1942 and *P. klawei* Bousfield, 1961, in general features of gnathopods, mouthparts, pleopods and uropods, the latter with outer ramus marginally spinose. In *P. gowerensis*, however, the peduncles of the pleopods are distinctive from these in having dual coupling spines and outer marginal plumose setae; and the peraeopods are much more slender and elongate, lacking sexual dimorphism. Although this new species is apparently endemic to the Lord Howe Islands, the probability is high that other species of terrestrial amphipods await discovery in this small but ancient subtropical archipelago.

REFERENCES

- Barnard, J. L., 1969. The families and genera of marine gammaridean Amphipoda. *Bull. U.S. Natn. Mus.* (272): 535pp.
- Bousfield, E. L., 1961. New records of Beach Hoppers (Crustacea: Amphipoda) from the coast of California. *Bull. Natn. Mus. Canada* (172): 1-12, figs.
- Bousfield, E. L., 1964. The Talitridae (Crustacea: Amphipoda) of Campbell Island. *Pacific Ins. Monogr.* 7: 45-57.
- Bousfield, E. L., 1971. Amphipoda of the Bismarck Archipelago and adjacent Indo-Pacific islands (Crustacea). *Steenstrupia* 1: 255-293.
- Bulycheva, A., 1957. The sea fleas of the USSR and adjoining waters (in Russian) No. 65. Keys to the Fauna of the USSR. *Zool. Inst. Acad. Sci. USSR.*: 185pp.
- Hurley, D. E., 1957. Terrestrial and littoral amphipods of the genus *Orchestia*, Family Talitridae. *Trans. R. Soc. N.Z.* 85: 149-199.
- Shoemaker, C. R., 1942. Amphipod Crustaceans collection on the Presidential Cruise of 1938. *Smithson misc.* 101(11): 52pp., figs.
- Smithers, C., D. McAlpine, P. Colman and M. Gray, 1974. Island Invertebrates. *Aust. nat. Hist.* 18: 60-63.

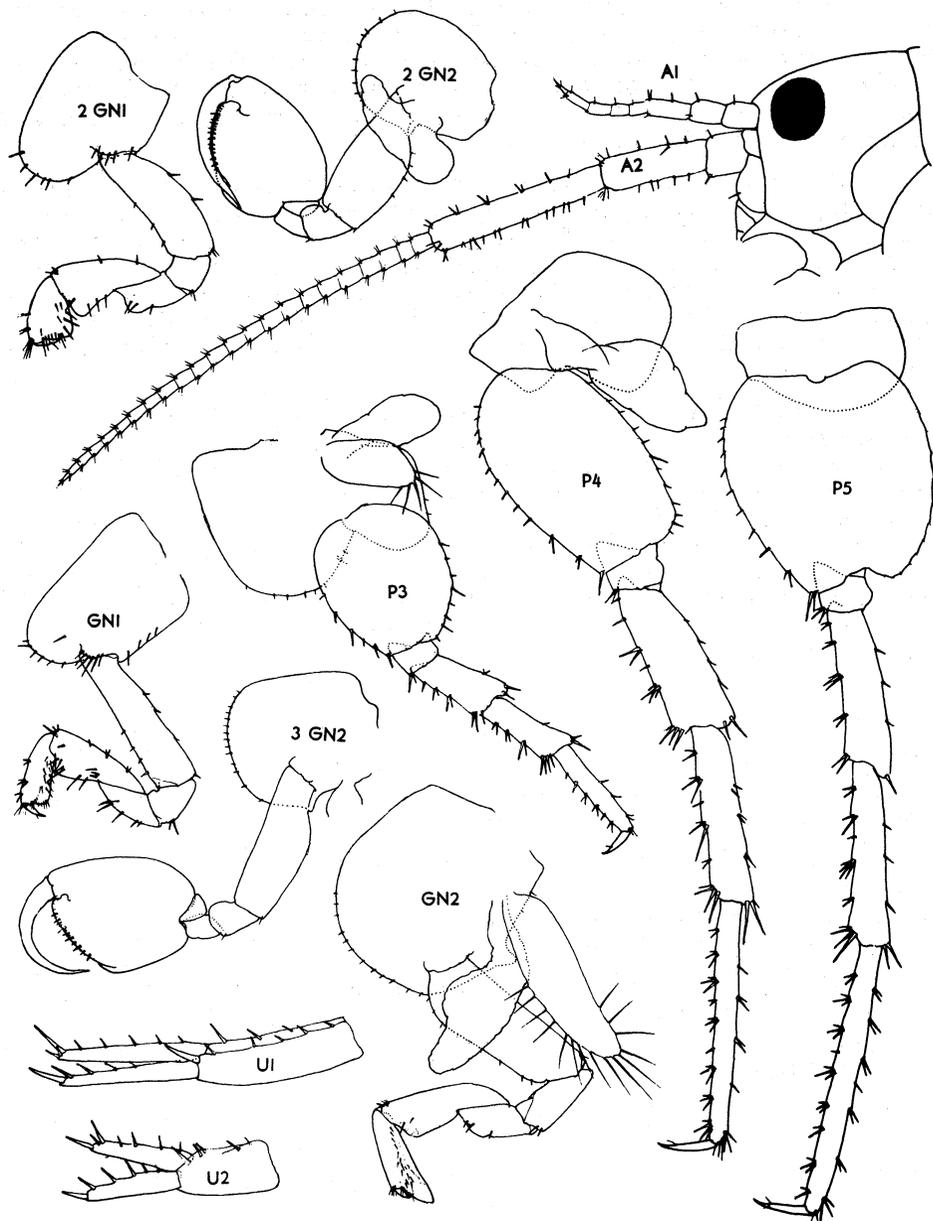


Fig. 1.—*Parorchestia gowerensis* n. sp. Lord Howe Island. 1. Holotype female, 13 mm; 2, 3, topotype males, 9 mm and 12.5 mm. Abbreviations A, antenna; GN, gnathopod; P, peraeopod; U, uropod.

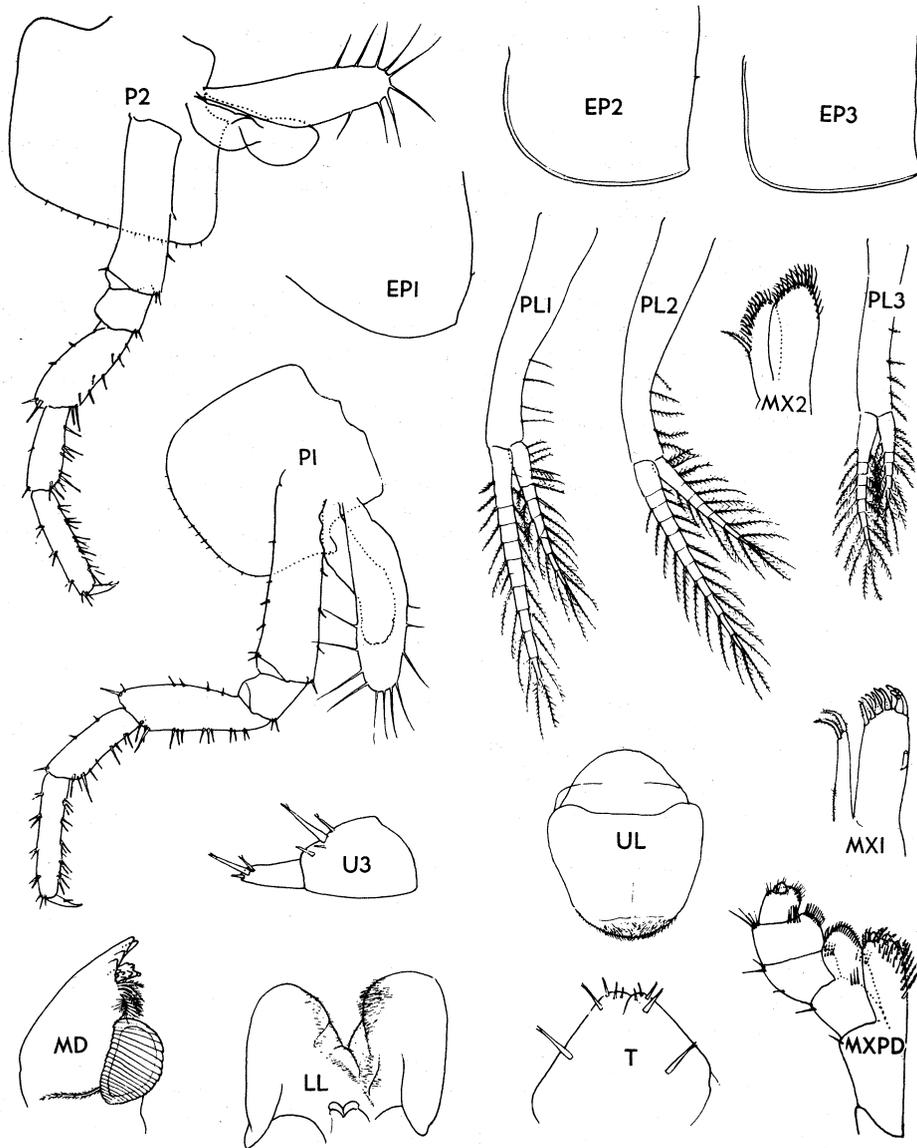


Fig. 2.—*Parorchestia gowerensis* n. sp. Lord Howe Island. 1. Holotype female, 13 mm; 2, toptype male, 9 mm. Abbreviations EP, abdominal side plates; LL, lower lip; MD, mandible; MXPD, maxilliped; MX, maxilla; P, peraeopod; PL, pleopod; T, telson; UL, upper lip; U, uropod.