



Liljeborgiidae*

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Abstract

The new species *Liljeborgia joergpeteri* is described from Lizard Island and Orpheus Island, Great Barrier Reef, Australia. Characteristic for this species is: the pleonite and urosomite dorsal serration formula 3–3–0–0–0; large rounded eyes; an entire upper lip; and the asymmetrical notched telson apices.

Key words: Crustacea, Amphipoda, Liljeborgiidae, Great Barrier Reef, Australia, taxonomy, new species, *Liljeborgia joergpeteri*

Introduction

Only three species of *Liljeborgia* Bate, 1862 are known from Australia: *L. dubia* (Haswell, 1879), *L. aequabilis* (Stebbing, 1888) and *L. polonius* Hughes & Lowry, 2006. In the Great Barrier Reef region lives another species that is new to science. It is described herein.

Not much is known about the biology of *Liljeborgia*. Most species seem to be epifaunal nestlers and detritus feeders (Enequist 1949). Vader (1995) found *L. aequabilis* to be a common associate of hermit crabs in eastern and southern Australia.

Materials and methods

The description was generated from a DELTA database (Dallwitz 2005). Material was hand-collected on scuba or snorkel and is lodged in the Australian Museum, Sydney (AM). A set of colour plates, a list of standard abbreviations and detailed station data is available in Lowry & Myers (2009). Illustrations were made using the methods described in Coleman (2003, 2006). A CD (*Benthic Amphipoda (Crustacea: Peracarida) of the Great Barrier Reef: Interactive Keys*) is available with the book or the keys can be accessed at the crustacea.net website.

Liljeborgiidae Stebbing, 1899

Liljeborgia Bate, 1862

Liljeborgia joergpeteri sp. nov.

(Figs 1, 2)

Type material. Holotype, presumably male, 5.2 mm, AM P70600, 300 m off south-east corner of Palfrey Island, Lizard Island (14°41.71'S 145°27.06'E), coral rubble, rubble patches between coral bommies, washings, 3.7 m, R.T. Springthorpe, J.K. Lowry, C.O. Coleman, 23 February 2005 (QLD 1622). Paratype: unknown sex 'b', 5.6 mm, AM P78865, from the same location.

Additional material examined. 6 unsexed, AM P78866 (JDT/LIZ 3); 2 unsexed, AM P78867 (JDT/LIZ 5); 4 unsexed, AM P78868 (JDT/OPH 1); 1 specimen 'c', presumably male, AM P70857 (QLD 1689); 4 unsexed, AM P78869 (SEL/LZI-1-3); 1 unsexed, AM P78870 (SEL/LZI-2-6); 1 unsexed, AM P78871 (SEL/LZI-4-1).

Type locality. Palfrey Island, Lizard Island, Queensland, Australia (14°41.71'S 145°27.06'E).

Etymology. The species is named for Jörg Peter Berendsen, the author's best friend.

Description. Based on presumably male, holotype, 5.2 mm, and paratype (specimen 'b') from the type locality, 5.6 mm (mandible palp and epimeral posteroventral corners illustrated).

Head. Head lateral cephalic lobe apically subacute. Eyes large and rounded. Mandibular palp article 3 shorter than article 2.

Pereon. Gnathopod 1 coxa produced, rounded, truncate; basis posterior margin setose; dactylus inner margin with 3–4 teeth, apically acute. Gnathopod 2 basis posterior margin with rows of thick setae; propodus palm convex with a submarginal notch; dactylus inner margin with 4–12 teeth, apically acute. Pereopod 3–4 propodus with row of small robust setae, with distal seta similar to proximal setae. Pereopod 5 basis posterior margin serrate. Pereopod 5–6 basis subovoid; dactylus apically attenuated, dactylus elongate. Pereopod 7 basis subovoid; propodus with long fine setae; dactylus elongate.

Pleon. Pleonite/urosomite dorsal serration formula 3–3–0–0–0 (the drawn specimen with only 2 small spines on pleonite 2, other specimens with 3 spines). Epimeron 1–2 with posteroventral tooth. Epimeron 3 with single posteroventral tooth, anterodistal corner with notch. Uropod 1 inner ramus with 6–7 robust setae; outer ramus with 2–3 robust setae. Uropod 2 inner ramus with 6 or more robust setae; outer ramus with 3–4 robust setae. Uropod 3 rami longer than peduncle; inner ramus with 4–6 robust setae; outer ramus with 3–4 robust setae. Telson deeply cleft, lobes with apical margins unequal, outer dominant, with a single pair of robust apical setae.

Variations. Specimen c has poorly developed dorsal teeth, visible only under the compound microscope.

Habitat. Found in coral rubble, 0.3–3.7 m.

Remarks. So far there are three *Liljeborgia* species recorded from Australia: *L. dubia* (Haswell, 1879), *L. aequabilis* (Stebbing, 1888) and *L. polonius* Hughes & Lowry, 2006.

Very distinctive is *L. dubia* in the high number of pleonite/urosomite dorsal spines (formula 5–5–1–1–1), with variations in number of these spines on pleonites 1–2 and urosomites 1–2 (see J.L. Barnard 1962) and the conspicuously serrate pereopod 5–6 basis.

Both other Australian species have the pleonite/urosomite dorsal serration formula of 3–3–0–1–1 and differ in this respect from *L. joergpeteri* sp. nov. which is lacking any dorsal teeth on the urosomites. However, the new species resembles *L. bousfieldi* McKinney, 1979 (not *L. bousfieldi* of Ledoyer 1986, which seems to be a totally different species) in the dorsal serration formula (3–3–0–0–0) and the shape of gnathopod 2. It differs from *L. bousfieldi* in the entire upper lip (vs incised), large rounded eyes (vs small sized reniform eye) and 2–3 distal marginal robust setae on the propodus of pereopods 3 and 4 (vs 4 robust setae), the asymmetrically notched telson apices (vs symmetrical condition) and the notched posteroventral corner of epimeron 3 (vs unnotched).

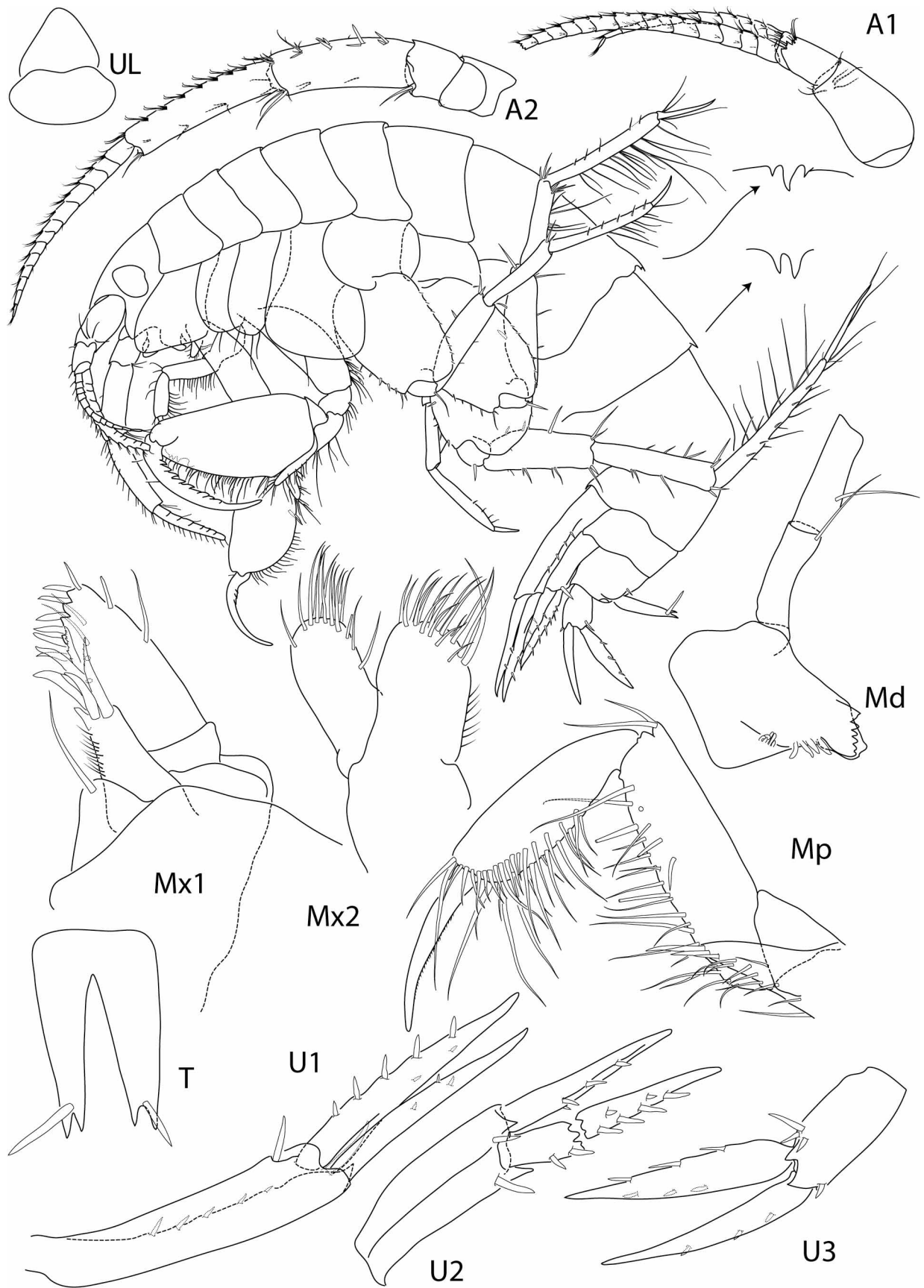


FIGURE 1. *Liljeborgia joergpeteri* sp. nov., holotype, presumably male, 5.2 mm, AM P70600, Palfrey Island, Lizard Island, Great Barrier Reef.

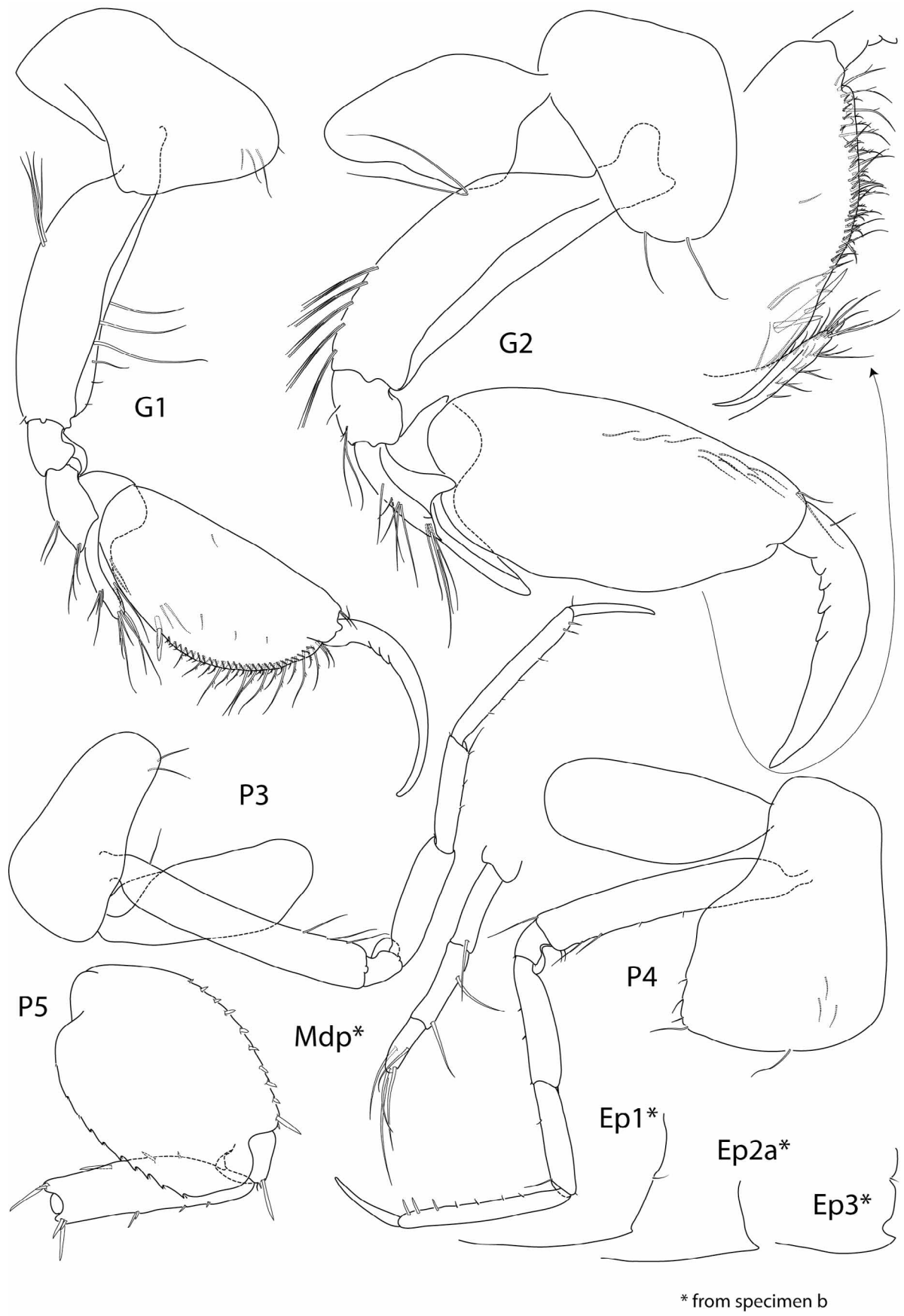


FIGURE 2. *Liljeborgia joergpeteri* **sp. nov.**, holotype, presumably male, 5.2 mm, AM P70600, paratype, unknown sex 'b', 5.6 mm, AM P78865, Palfrey Island, Lizard Island, Great Barrier Reef. Asterisks = illustrated from specimen b.

Liljeborgia heeia J.L. Barnard, 1970, especially the material described from Madagascar by Ledoyer (1972, 1986), which differs in several aspects from Barnard's description, is rather close to the new species: the shape of the propodus of gnathopod 2 is very similar, there is also a submarginal notch in the distal part of the palm (see Ledoyer 1972, plate 62), the eyes are large and rounded, there are 2–3 distal stout setae on the propodus of pereopods 3 and 4 and a notch in the posteroventral corner of epimeral plate 3. However, in the new species, the anteromarginal head lobe is subacute (vs. rounded to truncate), the length of the propodus of gnathopod 1 is 2 x the width (vs. 1.5), the telson lobes are asymmetrically notched with the outer margin dominant (vs. symmetrical condition) and the dactylus of gnathopod 2 is not so strongly curved and less narrowly pointed, compared to Ledoyer's descriptions of *L. heeia*.

Distribution. *Australia.* Queensland: Lizard Island and Orpheus Island (current study).

References

- Barnard, J.L. (1962) Benthic marine Amphipoda of Southern California: 2. Families Tironidae to Gammaridae. *Pacific Naturalist*, 3(2), 73–115.
- Barnard, J.L. (1970) Sublittoral Gammaridea (Amphipoda) of the Hawaiian Islands. *Smithsonian Contributions to Zoology*, 34, 1–286.
- Bate, C.S. (1862) *Catalogue of the specimens of amphipodous Crustacea in the collections of the British Museum*. Taylor and Francis, London, 1–399.
- Coleman, C.O. (2003) "Digital inking": How to make perfect line drawings on computers. *Organism, Diversity and Evolution, Electronic Supplement*, 14, 1–14, <http://senckenberg.de/odes/03-14.htm>
- Coleman, C.O. (2006) Substituting time-consuming pencil drawings in arthropod taxonomy using stacks of digital photographs. *Zootaxa*, 1360, 61–68.
- Dallwitz, M.J. (2005) Overview of the DELTA System. <http://delta-intkey.com/www/overview.htm>
- Enequist, P. (1949) Studies on the soft-bottom amphipods of the Skagerak. *Zoologiska Bidrag fran Uppsala*, 28, 299–492.
- Haswell, W.A. (1879) On some additional new genera and species of amphipodous crustaceans. *Proceedings of the Linnean Society of New South Wales*, 4(3), 319–356.
- Hughes, L.E. & Lowry, J.K. (2006) New species of Amphipoda (Crustacea: Peracarida) from the Solitary Islands, New South Wales, Australia. *Zootaxa*, 1222, 1–52.
- Ledoyer, M. (1972) Amphipodes gammariens vivant dans les alvéoles des constructions organogènes récifales intertidales de la région de Tuléar (Madagascar). *Tethys Supplement* 3, 165–286.
- Ledoyer, M. (1986) Crustacés amphipodes gammariens. Familles des Haustoriidae à Vitjazianidae. *Faune de Madagascar*, 59(2), 599–1112.
- Lowry, J.K. & Myers, A.A. (2009) Foreword. In: Lowry, J.K. & Myers, A.A. (Eds), Benthic Amphipoda of the Great Barrier Reef, Australia. *Zootaxa*, 2260, 17–108.
- McKinney, L.D. (1979) Liljeborgiid amphipods from the Gulf of Mexico and Caribbean Sea. *Bulletin of Marine Science*, 29(2), 140–154.
- Stebbing, T.R.R. (1888) Report on the Amphipoda collected by H.M.S. Challenger during the years 1873-1876. *Report on the Scientific Results of the Voyage of H.M.S. Challenger during the years 1873-76, Zoology* 29, 1–1737, pls 1–210.
- Stebbing, T.R.R. (1899) On the true *Podocerus* and some new genera of amphipods. *Annals and Magazine of Natural History*, 3, 237–241.
- Vader, W. (1995) *Liljeborgia* species (Amphipoda, Liljeborgiidae) as associates of hermit crabs. *Polskie Archiwum Hydrobiologii*, 42(4), 517–525.