



## Cheluridae\*

CHARLES OLIVER COLEMAN<sup>1</sup> & ADINA RENZ<sup>2</sup>

<sup>1</sup> *Humboldt-University, Museum für Naturkunde Berlin, Abteilung Sammlungen, D-10099 Berlin, Germany.*  
(oliver.coleman@mfn-berlin.de)

<sup>2</sup> *University of Konstanz, Department of Biology, Evolutionary Biology, D-78457 Konstanz, Germany.*

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### Abstract

*Tropichelura insulae* (Calman, 1910), a species living in excavations in wooden logs together with limnoriid Isopoda, is redescribed from Lizard Island, Great Barrier Reef Australia. This species has enlarged first gnathopods, three teeth on the posterior margin of pleonite 3 and the peculiar uropods and telson that are characteristic for the family Cheluridae.

**Key words:** Crustacea, Amphipoda, Cheluridae, Great Barrier Reef, Australia, taxonomy, *Tropichelura insulae*

### Introduction

Cheluridae are associated with Isopoda of the genus *Limnoria*. Chelurids are known to enlarge burrows initiated by limnoriids (Thomas 1979). *Tropichelura insulae* (Calman 1910) appears in these excavations together with *Limnoria pfefferi* Stebbing, 1904 and *Limnoria indica* Becker & Kampf, 1958 and are known from the Great Barrier Reef area at Green Island (Cookson 1991). Miller (1924) found *T. insulae* in Samoa in burrows together with *Paralimnoria andrewsi* (Calman, 1910), *Limnoria platycauda* Menzies, 1957 and *Limnoria simulata* Menzies, 1957.

### Materials and methods

All material 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.

## Cheluridae G.J. Allman, 1847

### *Tropichelura* J.L. Barnard, 1959

#### *Tropichelura insulae* (Calman, 1910)

(Figs 1, 2)

*Chelura insulae* Calman, 1910: 182, pl. 5, figs 1–6. —Miller, 1924: 159, pl. 12, figs 1–2. —J.L. Barnard, 1955: 39.

*Tropichelura insulae* J.L. Barnard, 1959: 6, figs 2, 4 C–E. —J.L. Barnard, 1971: 54, fig. 23; —Cookson, 1991: 140. —Thomas, 1979: 867.

Not *Tropichelura insulae*. —Escobar-Briones *et al.*, 2002: 363 (= *T. gomezi* Ortiz, 1976). —Ortiz *et al.*, 2007: 490.

**Material examined.** Male, 5 mm, AM P78978 (SEL/LIZ-2-6); 1 female, 4 mm, AM P78979, (SEL/LIZ-2-6); 1 male, 23 juveniles, 7 subadults, AM P78980 (SEL/LZI-2-6).

**Type locality.** Christmas Island.

**Description.** Based on male, 5 mm, AM P78978.

**Head.** Head with short rostrum and rounded eyes. *Antenna 1* shorter than 2; accessory flagellum uniaarticulate. *Mandible* stout, molar triturate. *Maxillae* 1–2 inner and outer lobes of slender. *Maxillipeds* with slender inner and outer lobes; palp 4-articulate.

**Pereon.** *Gnathopods 1–2 and Pereopods 3–7 coxae* small, wider than long, weakly overlapping. *Gnathopod 1* with massive propodus, palm with 5 subacute or rounded teeth and 4 rounded excavations, dactylus with proximal rounded lobe on inner curvature. *Gnathopod 2* slender basis, merus, carpus and propodus with long plumose setae. *Pereopods 3–4* subequal, basis anterior margin somewhat convexly produced; ischium to dactylus all relatively short. *Pereopods 5–7* merus short and widened; carpus subequal to ischium; propodus with row of spiniform setae on posterior margin; dactylus short, stout and curved. *Pereopod 7* basis subrectangular, without posterior lobe (but see variations).

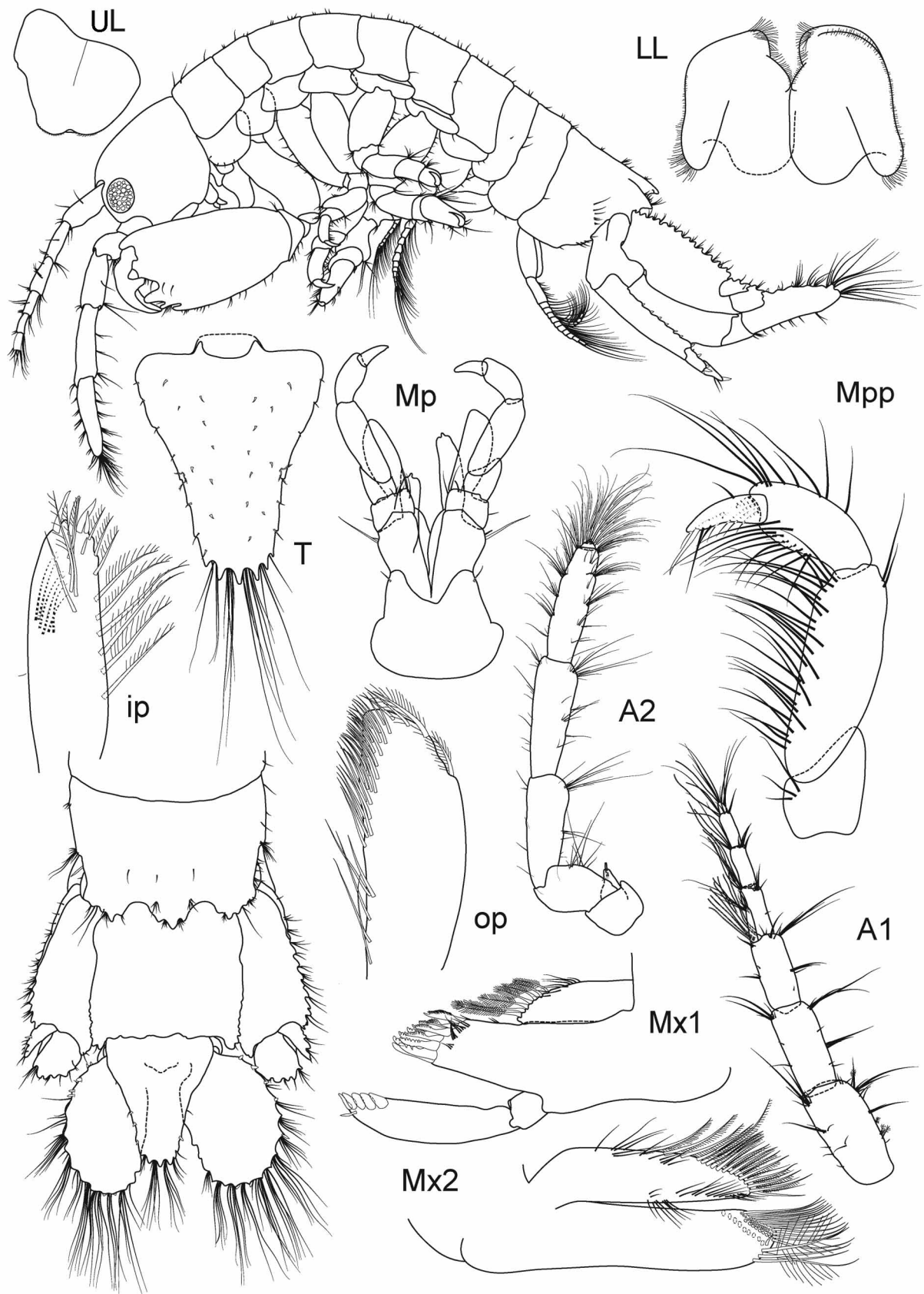
**Pleon.** *Pleonite 1* shortest. *Pleonite 3* dorsally with 3 spines. *Epimeron 1* ventrally rounded. *Epimeron 2* angular posteroventrally. *Urosomites* fused; urosome as long as pleon. *Uropod 1* with long peduncle, rami short, outer ramus slightly shorter than inner. *Uropod 2* with wide expanded peduncle, outer margin crenulate, rami short, widened, outer ramus shorter than inner. *Uropod 3* peduncle short; ramus ovoid, densely bordered with long slender setae. *Telson* longer than wide, tapering distally, with 4 notches and long distal setation.

**Female** (sexually dimorphic characters). Based on female 4 mm, AM P78979. *Gnathopod 1* propodus smaller than in male, palm entire, slightly convex, with pointed defining process.

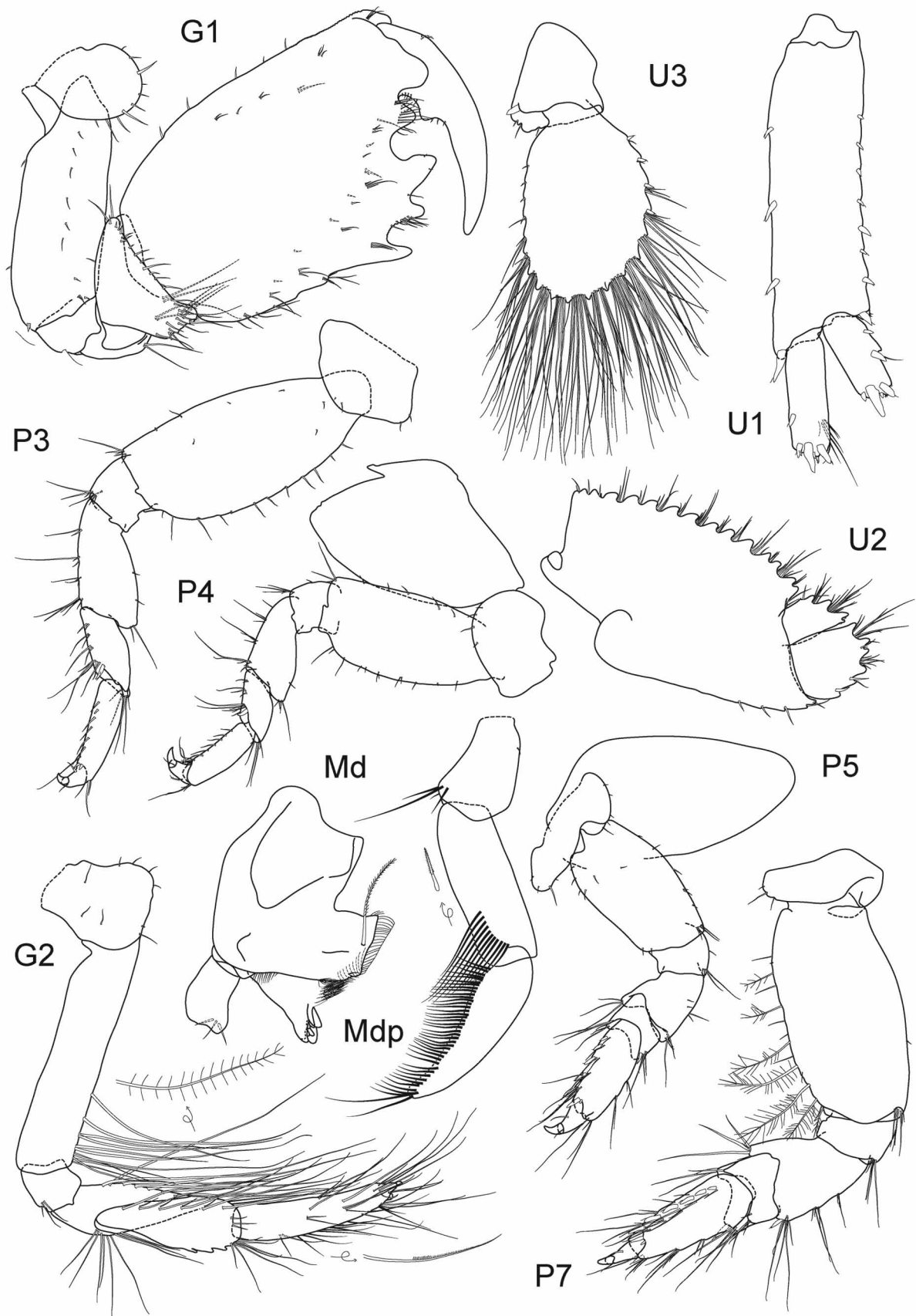
**Variation.** The spines on gnathopod 1 palm are only fully developed in adult males. There is some variation in the width of the basis of pereopod 7: females or subadult males have slender basis and only in the fully developed males is it wide and lobate. The density of the setation on antenna 2 and uropods, especially on the ventral side of uropods 1 and 3, is much higher in the fully developed males.

**Remarks.** Thomas (1979) compared *Tropichelura gomezi* Ortiz, 1976 and *T. insulae* collected in the Caribbean Sea. Both species seem to be rather similar. Within the material of *T. insulae* from the Great Barrier Reef, all specimens from one location, we found a considerable variability in the density of setation, the morphology of the gnathopod 1 palm and the width of the basis of pereopod 7. It is possible that there is only one variable species, *T. insulae*, in the genus.

**Distribution.** Circumtropical. *Australia.* Queensland: Green Island (Cookson 1991), Lizard Island (current survey). *USA. Hawaii:* Honolulu (Miller 1924). *Caroline Islands.* Yap and Palau (J.L. Barnard 1959). *Mariana Islands.* Saipan (J.L. Barnard 1959). *Samoa* (Miller 1924). *Caribbean Sea:* Costa Rica: Limon (J.L. Barnard 1959). Trinidad at Gaspar Grande Island (J.L. Barnard 1959). Puerto Rico at Paraguera (J.L. Barnard 1959). *Gulf of Mexico.* (Escobar-Briones *et al.* 2002). *Indian Ocean:* Christmas Island (Calman 1910).



**FIGURE 1.** *Tropichelura insulae* (Calman, 1910), male, 5 mm, AM P78978, Palfrey Island, Lizard Island, Great Barrier Reef.



**FIGURE 2.** *Tropichelura insulae* (Calman, 1910), male, 5 mm, AM P78978, Palfrey Island, Lizard Island, Great Barrier Reef.

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