



Melphidippidae*

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Abstract

Melphisana madagascarensis Ledoyer, 1984, previously found in Madagascar and New Caledonia is redescribed from the Great Barrier Reef.

Key words: Crustacea, Amphipoda, Melphidippidae, Great Barrier Reef, Australia, taxonomy, *Melphisana madagascarensis*

Introduction

The Melphidippidae are an interesting amphipod taxon. They have an “upside down” body posture, in which the animal’s ventral body side faces upwards, held by the dorsally directed pereopods. In this way these amphipods feed on small suspended food particles that are collected from the water current with the first gnathopods and the antennae (Enequist 1949).

Melphisana madagascarensis was described by Ledoyer (1984) from New Caledonia and (1986) from Madagascar. His Madagascar material became the holotype and the New Caledonia specimen the paratype.

Materials and methods

Material was hand-collected on scuba and is lodged in the Australian Museum, Sydney (AM). The descriptions were generated from a DELTA database (Dallwitz 2005). 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.

Melphidippidae Stebbing, 1899

Melphisana J.L. Barnard, 1962

Melphisana madagascarensis Ledoyer, 1984

(Figs 1, 2)

Melphisana sp. Ledoyer, 1979, 119, fig. 75

Melphisana madagascarensis Ledoyer, 1984: 89, fig. 43. —Ledoyer, 1986: 822, fig. 321.

Material examined. 2 juveniles, AM P78886 (SEL/LZI-2-1); 1 female, 2.75 mm, AM P78882 (SEL/LZI-2-3); 1 male, 2.4 mm, AM P78883 (SEL/LZI-2-3); 2 specimens, AM P78884 (SEL/LZI-2-3); 4 specimens, AM P78887 (SEL/LZI-2-3); 13 unsexed, AM P78885 (SEL/LZI-2-7).

Type locality. Îlot Maître, New Caledonia (~22°20'0"S 166°24'0"E).

Description. Based on female, 2.75 mm, AM P78882 and male, 2.4 mm, AM P78883.

Head. *Head* with short rounded rostrum. *Eyes* large circular, situated on ventrolateral faces of head. *Antenna 1* with short peduncle, elongate first flagellar article, all flagellar articles slender and long. *Mandibular palp* article 3 half the size of 2. *Lower lip* with inner lobes. *Maxilla 1* inner lobe with 6 setae, outer lobe narrow, with 2- articulate palp, much longer than outer lobe.

Pereon. *Gnathopod 1* shorter than 2, coxa short and partly hidden by coxa 2; carpus widest proximally and weakly tapering distally; merus and carpus with long slender setae posteromarginally; propodus about 57 % of carpus length; dactylus long, falcate, pointed. *Gnathopod 2* similar in shape to gnathopod 1, but basis and carpus more slender, and propodus relatively longer to carpus (75%). *Pereopods 3–4* subequal, but coxa 4 wider than 3, carpus to propodus elongate with groups of long slender setae posteromarginally, apex of propodus with long, slender terminal setae, dactylus reduced. *Pereopods 5–7* subequal, coxae with rounded anterior lobe and weakly excavate, oblique ventral margin; basis elongate, narrow, not lobate; merus slender and elongate.

Pleon. *Pleonites 1–3* long. *Pleonite 2* with 3 inconspicuous teeth on posterior dorsal margin. *Pleonite 3* with 3 well developed posterodorsal teeth. *Epimeron 1* rounded posteroventrally. *Epimera 2–3* with pointed posteroventral angle. *Urosomites 1–2* both with strong medial posterior dorsal tooth. *Uropod 1* with long, slender rami, inner ramus longer with terminal article. *Uropod 2* shorter than 1. *Uropod 3* massive, with stout distally expanded peduncle and unequal rami, outer ramus shorter. *Telson* roundly excavate apically, with two pointed lobes.

Habitat. Subtidal, protected beach, rock rubble.

Remarks. This species was described by Ledoyer (1979, 1984, 1986) from Madagascar and New Caledonia and agrees very well with the specimens redescribed herein. However, there seems to be some variation in this species.

In the material from Madagascar the posterior margin of pleonite 1 is smooth in the specimen described by Ledoyer (1979), in the material he illustrated in his 1986 paper there are a pair of small posterolateral pointed processes at this segment. In the New Caledonia material the pleonite 1 margin seems to be smooth (Ledoyer 1984). The Lizard Island specimens studied herein have a pair of inconspicuous rounded protrusion in this position.

Article 3 of the mandibular palp is short in the specimen from Madagascar (Ledoyer 1979) and the Lizard Island material. It is long in the material from Madagascar in the description of Ledoyer (1986) and, most peculiar, both states appear in the illustration of Ledoyer (1984) from New Caledonia.

The basis of pereopod 5 seems to be broader than those of pereopods 6 and 7 in the Madagascar material studied by Ledoyer (1979 and 1986), but not in the New Caledonian material (Ledoyer 1984). The author checked the type material from New Caledonia and Madagascar of Ledoyer, in this pereopod 5 is not much broader than the next pereopods and this was similar in the Lizard Island material studied here.

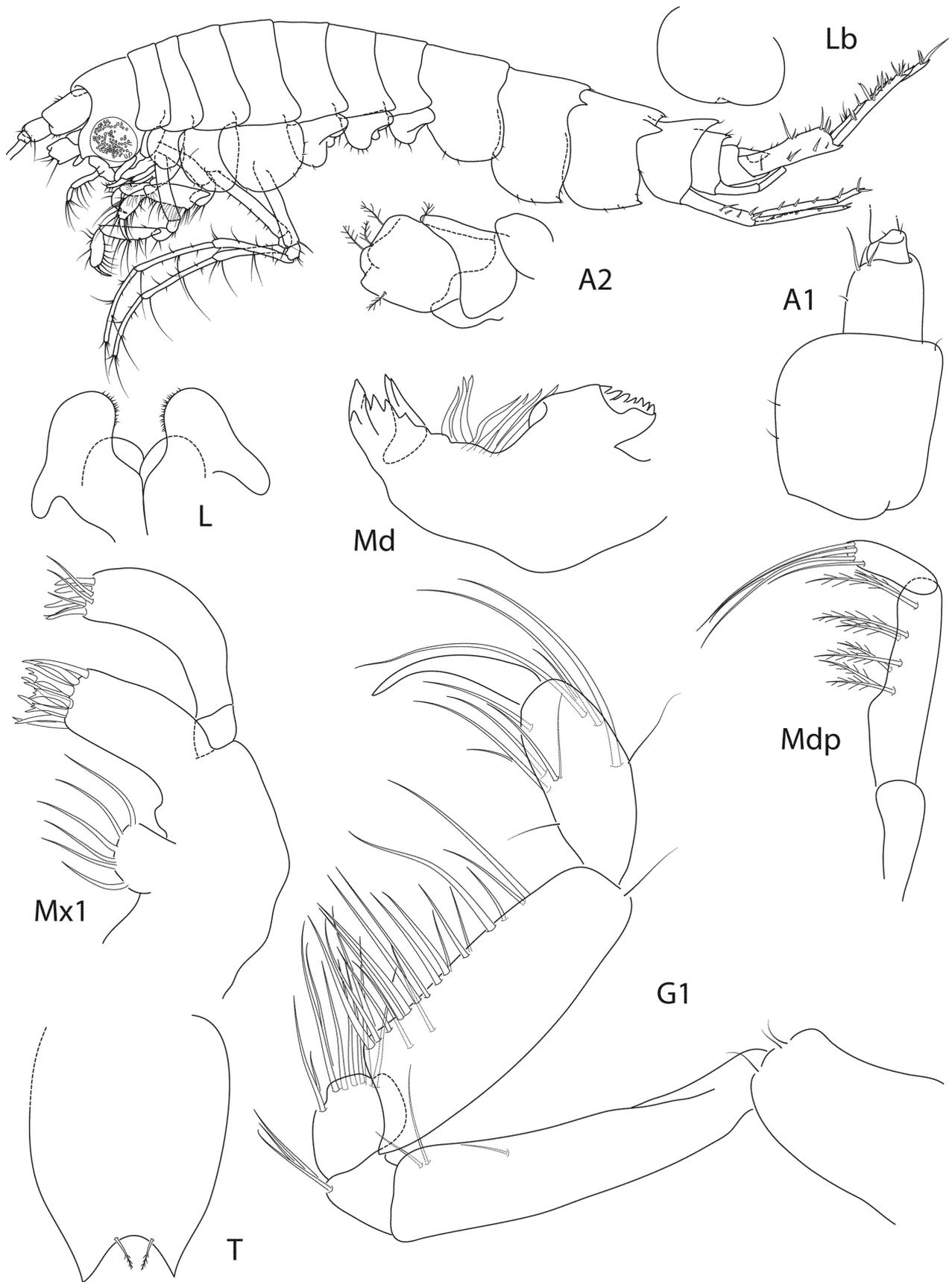


FIGURE 1. *Melphisana madagascarensis* Ledoyer, 1984, female, 2.75 mm, AM P78882, Palfrey Island, Lizard Island, Great Barrier Reef.

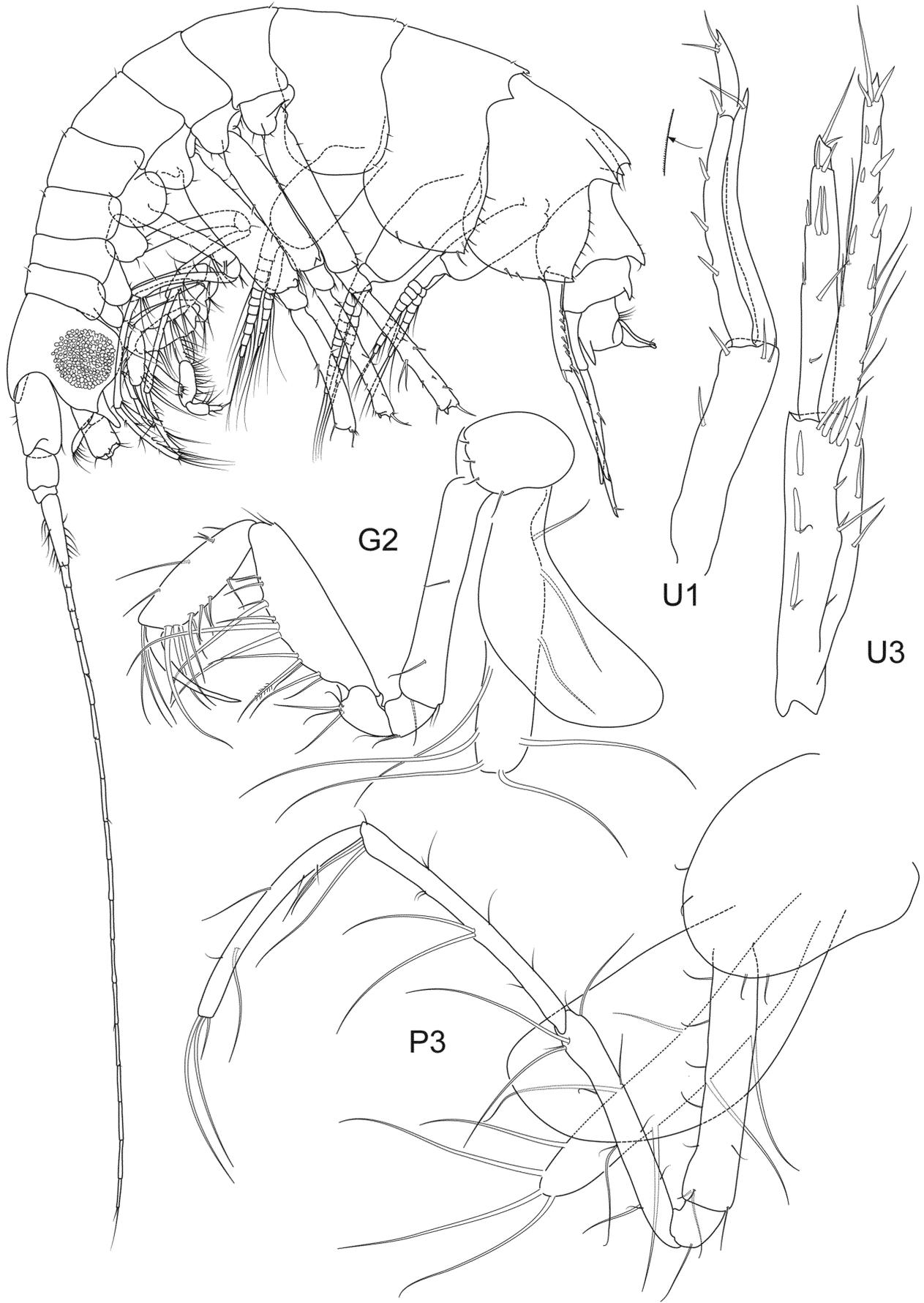


FIGURE 2. *Melphisana madagascarensis* Ledoyer, 1984, female, 2.75 mm, AM P78882, habitus and some parts from male, 2.4 mm, AM P78883, Palfrey Island, Lizard Island, Great Barrier Reef.

So there seem to be no character pattern that would allow us to separate the three populations occurring in Madagascar, New Caledonia and Lizard Island. The only consistent difference between the Madagascar material and the Pacific material seems to be the posteroventral corner of pleonite 3 which is somewhat more pointed in the Madagascar material than in the New Caledonia and Lizard Island specimens.

Distribution. *Australia.* Queensland: Lizard Island (current survey). *Madagascar.* Outer reef of Tuléar lagoon (Ledoyer 1986). *New Caledonia.* Îlot Maître (Ledoyer 1984).

References

- Barnard, J.L. (1962) Benthic marine Amphipoda of Southern California: families Tironidae to Gammaridae. *Pacific Naturalist*, 3, 73–115.
- 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 från Uppsala*, 28, 299–492.
- Ledoyer, M. (1979) Les Gammariens de la pente externe du Grand Recif de Tulear (Madagascar) (Crustacea Amphipoda). *Memorie del Museo Civico di storia Naturale di Verona Sezione Scienze Della Vita, Verona*, 1–150, 91 figs.
- Ledoyer, M. (1984) Les gammariens (Crustacea, Amphipoda) des herbiers de phanérogames marines de Nouvelle Calédonie (région de Nouméa). *Mémoires du Muséum National d'Histoire Naturelle, nouvelle séries, Série A, Zoologie*, 129, 1–113.
- Ledoyer, M. (1986) *Crustacés Amphipodes Gammariens Familles des Haustoriidae à Vitjazianidae.* de l'Orstom Institut français de Recherche Scientifique pour le Développement en Coopération, Paris, 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.
- Stebbing, T.R.R. (1899) Revision of Amphipoda. *Annals and Magazine of Natural History, Series 7*, 4, 205–211.