

**A NEW SPECIES OF MANNINGIA
(CRUSTACEA: STOMATOPODA) FROM IRIAN JAYA,
INDONESIA, WITH REMARKS ON THE GENUS**

Shane T. Ahyong

ABSTRACT. - *Manningia misool*, new species, is described from Irian Jaya, Indonesia. It is the tenth known species of *Manningia*, most closely resembling *M. notialis* from Australia and *M. arabica* from the Persian Gulf. The combination of the pentagonal rostral plate and presence of two dorsal carinae between the accessory median and marginal carinae of the telson will distinguish *M. misool* from all other species of the genus. A key to the species of *Manningia* is included and the status of *Manningia* with respect to *Coronidopsis* is discussed.

KEY WORDS. - *Coronidopsis*, Eurysquillidae, Irian Jaya, *Manningia*, new species.

INTRODUCTION

The eurysquillid stomatopod genus, *Manningia* Serène, 1962, currently includes nine species: *M. amabilis* Holthuis, 1967; *M. andamanensis* Ghosh, 1975; *M. arabica* Manning, 1990; *M. australiensis* Manning, 1970; *M. notialis* Manning, 1966; *M. pilaensis* De Man, 1888; *M. posteli* Manning, 1977; *M. raymondi* Bruce, 1985; and *M. zehntneri* Manning, 1974. Eight of the nine species are confined to the Indo-West Pacific. *Manningia posteli* Manning, 1977, from the eastern Atlantic is the only species of the genus occurring outside the Indo-West Pacific. The present report documents a new species of *Manningia* from Irian Jaya, Indonesia.

All measurements are in millimetres (mm). Terminology and size descriptors follow the conventions of Manning (1969, 1977). Total length (TL) is measured along the midline from the tip of the rostrum to the bases of the submedian teeth. Carapace length is measured along the midline and excludes the rostral plate. The following abbreviations are used: AS abdominal somite; TS thoracic somite; TL total length; CL carapace length. The holotype is deposited in the Australian Museum (AM), Sydney.

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SYSTEMATICS

EURYSQUILLIDAE MANNING, 1977

Manningia Serène, 1962

Manningia misool, new species

(Figs. 1,2)

Material examined. - Holotype. AM P49377, male, west McCleur Gulf, Irian Jaya, Indonesia, near Misool Island and Irian Jaya mainland, dredged, coll. H. Cogger, Dec.1973.

Description. - Size small, total length of adults to 44mm. Dorsal surface smooth, polished.

Eye moderate, not extending beyond antennular peduncle segment 1; cornea asymmetrically bilobed, set very obliquely on stalk (Fig. 1A). Ophthalmic somite anterior margin rounded. Ocular scales narrow, flattened; inclined anteriorly; separate (Fig. 1A).

Antennular peduncle 0.9 CL. Antennular somite dorsal processes very low; rounded. Antennal protopod (Fig. 1B) with 1 ventral papilla; with acute dorsal and anteriorly directed ventral spine. Antennal scale slender length exceeding 4.0 width and 0.6 CL; entire margin setose.

Rostral plate broader than long, pentagonal; apex acute, deflexed ventrally; anterolateral angles obtuse; dorsal surface smooth, lacking dorsal ornamentation (Fig. 1A).

Carapace lateral plates anterior margin faintly concave; anterolateral angles obtuse, rounded; with posterior marginal carinae.

Mandibular palp 3-segmented. Maxillipeds 1-5 with epipod. Maxilliped 5 (Fig. 2A) basal segment unarmed; merus with broad flange on inner margin, distally produced as a rounded lobe.

Raptorial claw (Fig. 1C) dactylus with 4 teeth; outer margin broadly curved; proximal margin with basal notch; carpus with 2 acute teeth directed ventrally; propodus opposable margin evenly pectinate with 3 movable spines proximally; merus outer inferodistal angle unarmed; basis unarmed posteriorly.

Pereiopods 1-3 basal segment (Fig. 2B) with posterior angled lappet; endopod 2-segmented, distal segment slender, elongate, outer and distal margin setose; penes with apical tubercle.

Body depressed. TS 6-8 (Fig. 1D) with low intermediate carinae. TS 5 lateral process obsolete; ventral lobe blunt, low. TS 6-7 lateral process single, broadly rounded. TS 8 sternal keel rounded.

AS 1-4 lacking dorsal carinae; with submarginal sulcus. AS 4,5 (Fig. 1E) with posterolateral spine. AS 5 with unarmed, indistinct intermediate and lateral carinae; with submarginal sulcus and slender posterolateral spine. AS 6 with normal complement of carinae, armed posteriorly; apices of spines long, slender; with small ventrolateral spine and blunt triangular lobe.

Endopod of pleopod 1 (Fig. 2C) in male with petasma (Fig. 2D). Petasma with broad, elongate hook process and slender, flattened tube process; apex of hook process exceeding apex of tube process.

Telson (Fig. 1E) length 1.6 breadth with 3 pairs of primary marginal teeth (submedian, intermediate, lateral). Submedian teeth slender; bases appressed; apices movable. Intermediate teeth slender; slightly curved mesially; elongate; apices extending posteriorly beyond bases of submedian teeth; with 2 broad intermediate denticles. Lateral teeth slender; elongate; lateral denticle broad. Telson dorsal surface with distinct median carina and 5 pairs of longitudinal carinae: accessory median, anterior submedian, intermediate, lateral and marginal. Median carina with indistinct pit proximally; armed posteriorly with long apical spine. Accessory median carinae interrupted, composed of 3-4 posteriorly directed spines. Anterior submedian carina entire, armed posteriorly. Intermediate lateral and marginal carinae entire, unarmed; lateral carina sinuous. Telson ventral surface (Fig. 1F) lacking postanal carina; with recessed, slender spine anterior to intermediate and lateral denticles only.

Uropod (Figs. 1E,G) protopod terminating in 2 slender spines, inner much longer; unarmed dorsally excepting dorsal spine above proximal exopod articulation; with short flattened ventral lobe anterior to endopod articulation; protopod inner margin armed with 7 slender spines. Terminal spines of uropod protopod lacking intervening lobe. Uropod exopod proximal segment unarmed dorsally; outer margin with 8 spiniform movable spines (distalmost broken); distal margin with slender ventral spine. Exopod distal segment elongate; length approximately 3.0 breadth, shorter than proximal segment.

Colour. - Unknown, completely faded in alcohol.

Etymology. - The specific epithet is derived from the type locality, near Misool Island, Irian Jaya and is used as a noun in apposition.

Measurements. - Male holotype TL 44mm; CL 10.6mm; antennal peduncle 9.5mm

Remarks. - *Manningia misool*, new species, most closely resembles *M. arabica* and *M. notialis* in the pentagonal rostral plate and dorsal ornamentation of AS 6. *Manningia misool*, new species, differs from *M. arabica* and from *M. notialis* in bearing separate ocular scales and an acute rostral apex respectively. This new species differs from both *M. arabica* and *M. notialis* in lacking anterior intermediate carinae on the telson and lacking an additional carina between the intermediate and lateral carinae of AS 5.

The unique holotype of *M. misool*, new species, appears to be an adult male as indicated by the well developed penes and absence of any lobe between the terminal spines of the uropodal protopod. The apical tubercle on the penes is present in most gonodactyloids and may prove to be a useful phylogenetic character.

Coronidopsis Hansen, 1926, includes three nominal species: *C. andamanensis* Makarov, *C. bicuspis* Hansen and *C. serenei* Moosa (Manning & Garcia 1982). Species of *Coronidopsis* and *Manningia* are indistinguishable in most characters including eye structure, the number of teeth on the dactylus of the raptorial claw, telson and uropod structure. Manning (1977) discussed speculation that *Manningia* should be synonymised with *Coronidopsis* but defended their separation on the basis of the bispinous rostral plate and spinose ventral surface of the telson in *Coronidopsis*. A further character not mentioned by Manning (1977) is the number

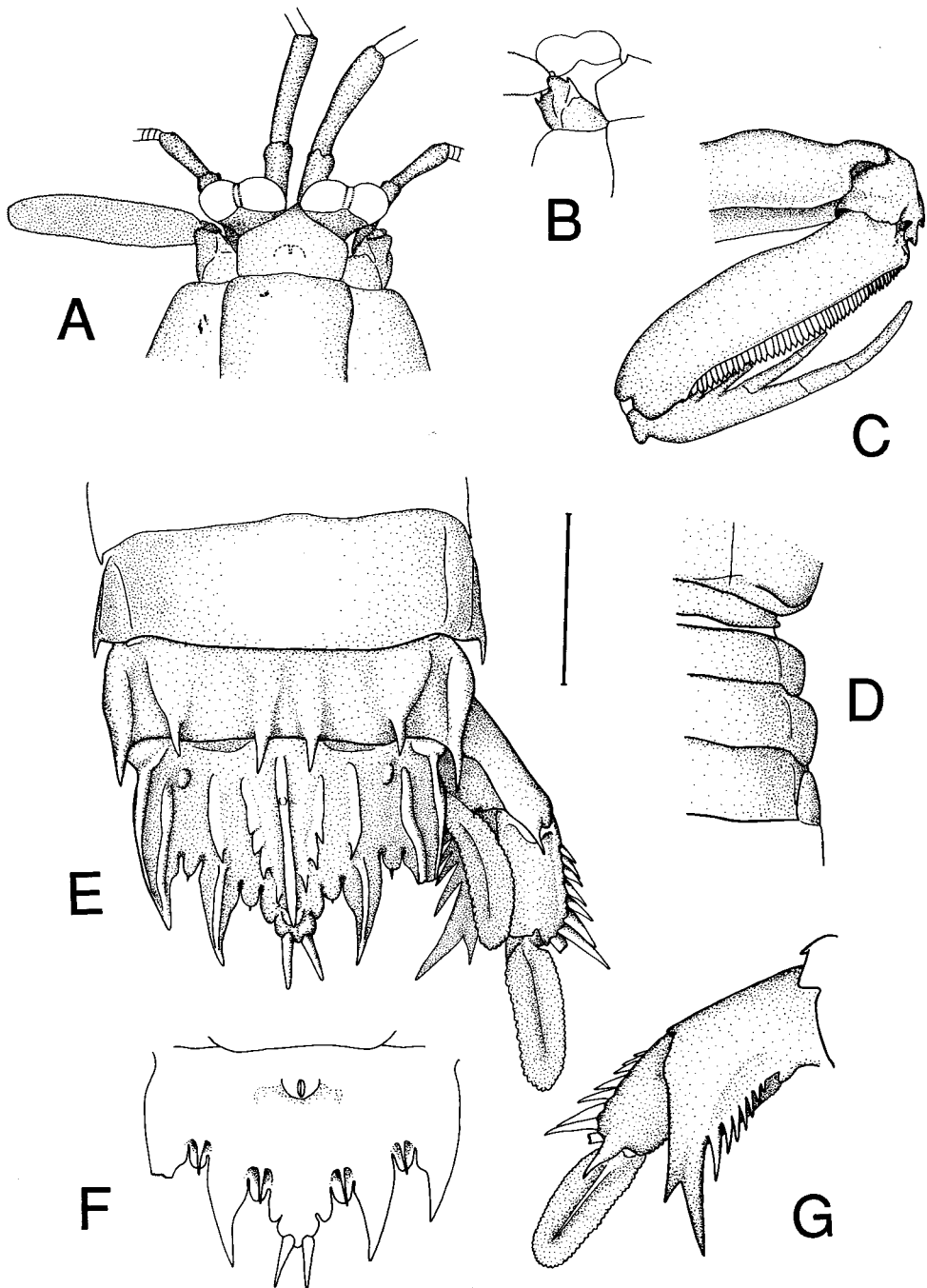


Fig. 1. *Manningia misool*, new species. Holotype male (TL 44mm)(AM P49377). A, cephalon, dorsal view (ocular scales indicated by broken lines); B, left antennal peduncle, oblique dorsal view; C, raptorial claw, right lateral view; D, posterior margin of carapace and exposed thoracic somites, right dorsal view; E, posterior abdominal somites, telson and uropod, dorsal view; F, telson ventral surface; G, right uropod, ventral view. Setae omitted. Scale bar = 5mm.

of dorsal spines on the carpus of the raptorial claw (one in *Coronidopsis*, two in *Manningia*). Bruce (1985), however, described *Manningia raymondi* in which the rostral plate approaches a bilobed condition and in which the ventral surface of the telson is armed with numerous spines. Thus *Manningia* can only be distinguished from *Coronidopsis* on the form of the rostral plate and the number of spines on carpus of the raptorial claw.

Manningia may be divided into four groups based on rostral plate morphology. The first group includes species with a pentagonal rostral plate and includes *M. arabica*, *M. notialis* and *M. misool*, new species. In the second group, the rostral plate bears a long apical spine and includes *M. pilaensis* and *M. posteli*. The third group includes only *M. australiensis* with a cordiform rostral plate. The fourth group includes species with a broad, short rostral plate which may be medially emarginate and includes *M. amabilis*, *M. andamanensis*, *M. raymondi* and *M. zehntneri*. This fourth group includes species most closely resembling *Coronidopsis*.

The diversity of rostral plate forms in *Manningia* suggests that rostral plate form is a poor character supporting the recognition of both *Manningia* and *Coronidopsis*. The bispinous form of the rostral plate in *Coronidopsis* may be no more significant than any of the four other forms in *Manningia*. The number of teeth on the carpus of the raptorial claw is, therefore, the single synapomorphy supporting *Manningia*. If the number of spines on the carpus of the raptorial claw proves variable, however, either *Manningia* should be synonymised with *Coronidopsis* or several genera may need to be recognised for the apparent species groups in *Manningia*. Cladistic analysis will be useful in studying the hierarchical relationships between species of these genera in order to avoid recognising paraphyletic taxa.

Distribution. - Known only from the type locality.

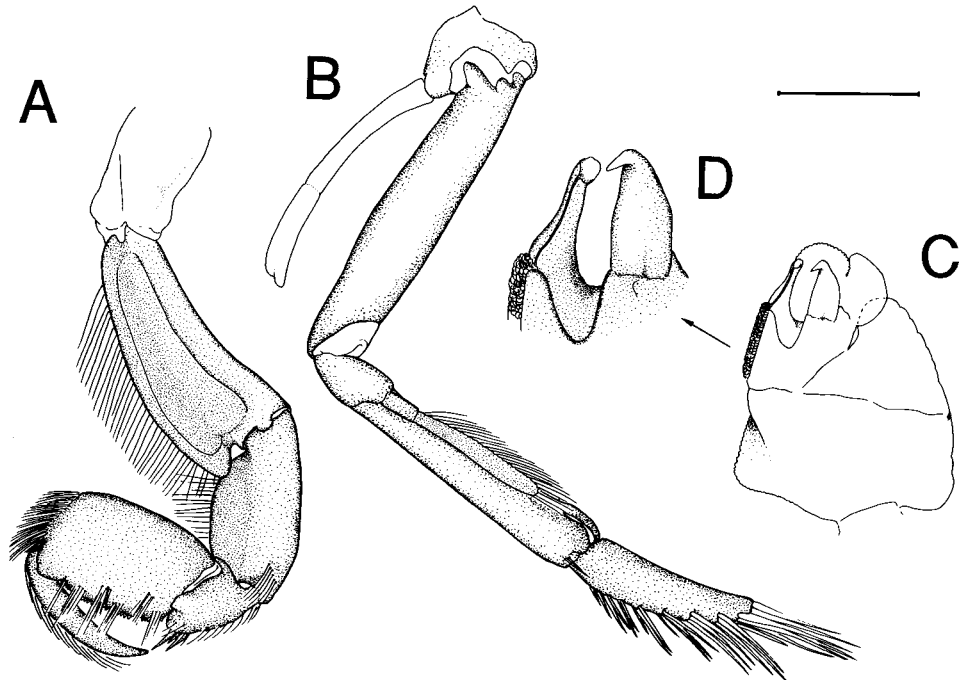


Fig. 2. A, maxilliped 5, right lateral view; B, pereiopod 3, right posterior view; C, male pleopod 1 endopod, right anterior view; D, petasma. C,D setae omitted. Scale bar A-C = 2mm, D = 1mm.

KEY TO THE KNOWN SPECIES OF MANNINGIA

1. Rostral plate with long apical spine, extending beyond cornea 2
- Rostral plate lacking long apical spine (Indo-West Pacific) 3
2. AS 5 with posterolateral spine and unarmed intermediate carina; merus of raptorial claw with outer inferodistal spine *M. pilaensis* (Indo-West Pacific)
- AS 5 lacking posterolateral spine and with armed intermediate carina; merus of raptorial claw unarmed *M. posteli* (Eastern Atlantic)
3. Rostral plate pentagonal, apex sharp 4
- Rostral plate cordiform or broad (anterior margin flattened, rounded or emarginate, appearing bilobed dorsally) 6
4. Telson with 2 dorsal carinae between accessory median and marginal carinae
..... *M. misool*, new species
- Telson with 3 dorsal carinae between accessory median and marginal carinae 5
5. Dorsal carina of lateral tooth (lateral carina) of the telson sinuous, with distinct angle or bend posteriorly; ocular scales fused *M. arabica*
- Dorsal carina of lateral tooth (lateral carina) of the telson straight; ocular scales separate
..... *M. notialis*
6. Rostral plate anterior margin emarginate, appearing bilobed dorsally 7
- Rostral plate anterior margin neither emarginate nor appearing bilobed dorsally 9
7. AS 5 with armed intermediate carina 8
- AS 5 with unarmed intermediate carina *M. andamanensis*
8. Telson with numerous ventral spines in addition to recessed ventral spines below intermediate and lateral denticles; AS 6 with unarmed carina between submedian and intermediate carinae
..... *M. raymondi*
- Telson lacking numerous ventral spines in addition to ventral spines of intermediate and lateral denticles; AS 6 lacking carina between submedian and intermediate carinae ... *M. zehntneri*
9. Rostral plate anteriorly flattened or broadly rounded; AS 6 with unarmed carina between submedian and intermediate carinae; telson with three longitudinal dorsal carinae between accessory median and marginal carinae *M. amabilis*
- Rostral plate cordiform, apex acute; AS 6 lacking carina between submedian and intermediate carinae; telson with one longitudinal and one recurved dorsal carina between accessory median and marginal carinae *M. australiensis*

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LITERATURE CITED

- Bruce, A. J., 1985. *Manningia raymondi* sp. nov., a new eurysquillid stomatopod from the Northern Territory, Australia. *The Beagle*, **2**(1): 17-21.
- De Man, J. G., 1888. Report on the podophthalmous Crustacea of the Mergui Archipelago, collected for the Trustees of the Indian Museum, Calcutta, by John Anderson, F.R.S., Superintendent of the Museum, part V. *J. Linn. Soc. Zool.*, **22**: 241-305.
- Ghosh, H. C., 1975. A new species of *Manningia* (Stomatopoda, Gonodactylidae) from the Andaman Islands. *Crustaceana*, **28**(1): 33-36.
- Hansen, H. J., 1926. The Stomatopoda of the Siboga Expedition. *Siboga Expeditie*, **35**: 1-48.
- Holthuis, L. B., 1967. The stomatopod Crustacea collected by the 1962 and 1965 Israel South Red Sea Expeditions. The Second Israel South Red Expedition, Report No. 1. *Israel J. Zool.*, **6**: 1-45
- Manning, R. B., 1966. Notes on some Australian and New Zealand stomatopod Crustacea, with an account of the species collected by the Fisheries Investigation Ship Endeavour. *Rec. Aust. Mus.*, **27**(4): 79-137.
- Manning, R. B., 1967. Notes on the genus *Manningia* with description of a new species (Crustacea: Stomatopoda). *Proc. U.S. Nat. Mus.*, **122** (3589): 1-13.
- Manning, R. B., 1969. *Stomatopod Crustacea of the western Atlantic*. Studies in Tropical Oceanography No.8: viii+380pp. Miami.
- Manning, R. B., 1970. Two new stomatopod crustaceans from Australia. *Rec. Aust. Mus.*, **28** (4): 77-85.
- Manning, R. B., 1974. A new stomatopod crustacean from Mauritius. *Rev. suisse de Zool.*, **81**(1): 69-72.
- Manning, R. B., 1977. A monograph of the West African Stomatopod Crustacea. *Atlantide Report*, **12**: 25-181.
- Manning, R. B., 1990. Stomatopod Crustacea from the Persian Gulf, with the description of a new *Manningia*. *Steenstrupia*, **16**(6): 93-108.
- Manning, R. B. & R. J. Garcia, 1982. Notes on species of the genus *Coronidopsis* (Crustacea, Stomatopoda, Eurysquillidae). *J. Crust. Biol.*, **2**(4): 593-599.
- Serène, R., 1962. Révision de genre *Pseudosquilla* (Stomatopoda) et définition de genres nouveaux. *Bull. de l'Inst. Océanographique Monaco*, **1241**: 1-27.

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