

New records of the crangonid shrimp genus *Metacrangon* Zarenkov, 1965 (Decapoda: Caridea), from the south of Java, eastern Indian Ocean, with description of a new species

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Abstract. Three species of the crangonid shrimp genus *Metacrangon* Zarenkov, 1965 (Decapoda: Caridea), are reported from the south of Java, Indonesia, on the basis of material collected by the South Java Deep-Sea Biodiversity Expedition 2018 (SJADES 2018): *M. clevai* Komai, 2012, *M. punctata* Komai, 2012, and a new species, *M. latirostris*. No species of the genus has been heretofore recorded from the surveyed area. *Metacrangon latirostris*, new species, is distinctive in the genus by having the rostrum much wider than long and the anterior middorsal spine on the carapace located at the postrostral position. *Metacrangon clevai* and *M. punctata*, both known from Southwest Pacific localities, are first records for the eastern Indian Ocean.

Key words. *Metacrangon clevai*, *latirostris*, *punctata*, Crangonidae, SJADES 2018

INTRODUCTION

Komai (2012) presented a brief overview on the crangonid genus *Metacrangon* Zarenkov, 1965, and revised the taxonomy of species from the Northwest and Southwest Pacific, recognising 41 species from around the world. Since then, two more new species were described from hydrothermal vents on the Okinawa Trough, East China Sea, by Komai et al. (2018). As suggested by T. Komai and his colleagues (Komai & Taylor, 2010; Komai & Ahyong, 2011; Komai, 2012; Komai et al., 2018), this genus is widespread in the world's oceans (except for the polar seas) even though each species is generally highly localised. With regard to the eastern part of the Indian Ocean, only one species, *M. spinidorsalis* Komai & Taylor, 2010, is known from off southwestern Australia.

In this study, we report on three species of *Metacrangon* from material collected by the recent South Java Deep-Sea Biodiversity Expedition 2018 (SJADES 2018), the first concerted deep-sea biological exploration conducted by institutions from Singapore and Indonesia, to study the deep-sea marine fauna in the largely unexplored waters off southern Java in the eastern Indian Ocean. A new species,

M. latirostris, is described. The other two species are *M. clevai* Komai, 2012, and *M. punctata* Komai, 2012, heretofore only known from the Southwest Pacific localities, and herein recorded from the eastern Indian Ocean for the first time.

Material examined is deposited in the Museum Zoologicum Bogoriense, Cibinong, Bogor, Indonesia (MZB); and the Zoological Reference Collection of the Lee Kong Chian Natural History Museum, National University of Singapore (ZRC).

Postorbital carapace length (cl) was measured from the posterior margin of the orbit to the posterodorsal margin of the carapace and is used as an indication of specimen size.

TAXONOMY

Metacrangon latirostris, new species (Figs. 1, 2, 4A)

Material examined. Holotype: female (cl 9.4 mm), SJADES, stn CP 47, S of Java, 07°47.97'S, 107°45.30'E to 07°48.26'S, 107°45.71'E, 530–476 m, 1 April 2018, beam trawl, MZB Cru 5054.

Diagnosis. Rostrum 0.1 times carapace length, falling far short of distal corneal margins, broadly triangular in dorsal view (distinctly wider than long), directed forward, tip blunt. Carapace with anterior middorsal spine moderately large, strongly compressed laterally, postrostral in position (arising at rostral base), reaching midlength of rostrum; posterior middorsal spine arising at 0.6 of carapace length, distinctly more slender than anterior middorsal spine; gastric region with submedian spines; shallow orbital

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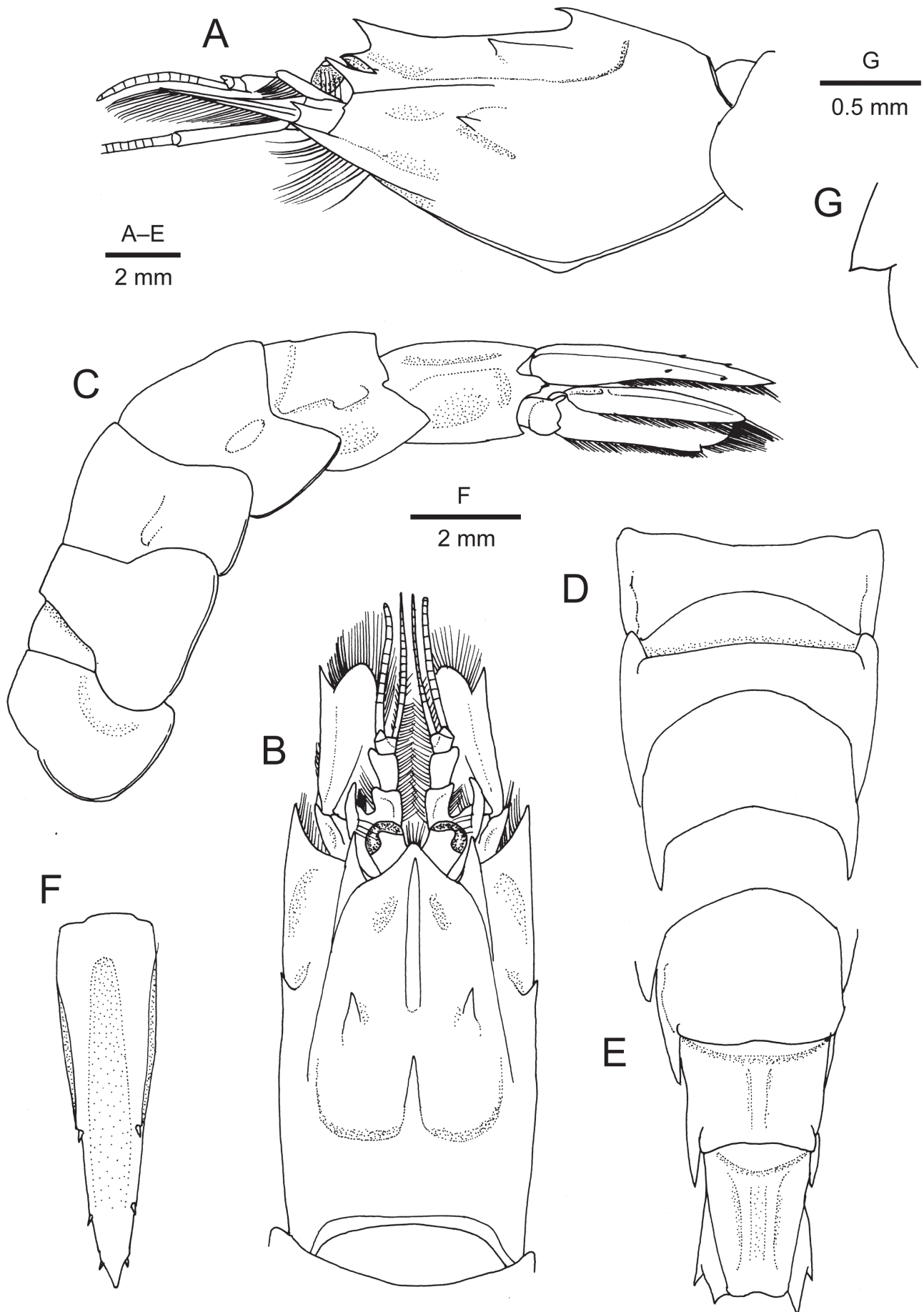


Fig. 1. *Metacrangon latirostris*, new species, holotype, female (cl 9.4 mm), MZB Cru 5054. A, carapace and cephalic appendages, lateral view; B, same, dorsal view; C, pleon, telson, and uropod, left lateral view; D, pleomeres 1–3, dorsal view; E, pleomeres 4–6, dorsal view; F, telson, dorsal view; G, posterolateral spine on left uropodal exopod, dorsal view (setae omitted).

cleft discernible; antennal spine directed forward in dorsal view, weakly ascending in lateral view; branchiostegal spine moderately strong, directed forward in dorsal view. Pleomeres 1–4 without trace of middorsal carina, pleomere 5 with faint middorsal carina; pleura of pleomeres 1–3 without conspicuous tooth or spine marginally; pleomere 6 with rather obsolescent submedian carinae. Telson with posteromedian process moderately produced, subacute. Eyestalk (including cornea) slightly longer than wide; dorsal tubercle relatively small, rounded, papilla-like. Antennular peduncle reaching midlength of antennal scale; article 1 with stylocerite reaching slightly beyond short, blunt distolateral process; article 2 also with short, blunt distolateral process. Antennal scale 0.4 times as long as carapace, 2.2 times as long as wide; lateral margin faintly sinuous; distolateral spine reaching as far as rounded distal lamella. Maxilliped 3 with ultimate article 7.2 times as long as wide. Pereopod 1 palm 3.9 times as long as wide.

Description. Female (holotype). Body (Fig. 1) robustly built as in other congeneric species; integument firm.

Rostrum (Figs. 1A, B, 2A) broadly triangular in dorsal view, distinctly wider than long, directed forward, falling slightly short of antennal spines and falling far short of distal corneal margins, 0.1 times as long as carapace; tip rounded in dorsal view; lateral margins not particularly upturned; ventral surface medially bluntly carinate, with tuft of plumose setae subterminally. Carapace (Figs. 1A, B, 2A) 1.3 times as long as wide, surface covered by very short setae; middorsal carina extending from rostral base to posterior one-fourth, bearing two unequal spines; anterior middorsal spine moderately large, strongly compressed laterally, tooth-like, postfrontal in position (arising at base of rostrum), extending to midlength of rostrum; posterior spine distinctly more slender than anterior spine, cardiac in position (arising at 0.6 of carapace length); no minute denticle present between two middorsal spines; gastric region delimited by low, blunt postorbital carinae and posterior transverse ridges, particularly depressed posterior to rostral base, with pair of moderately small submedian spines arising at midlength of carapace; antennal spine relatively large, directed forward in dorsal view, slightly ascending in lateral view; postorbital angle broadly rounded, orbital cleft distinct; anterolateral margin between antennal and branchiostegal spines slightly concave, with minute denticle inferior to base of antennal spine; branchiostegal spine moderately strong, directed forward in dorsal view, slightly ascending in similar degree to antennal spine in lateral view, just reaching dorsolateral distal angle of antennal basicerite; branchiostegal carina not reaching to level of hepatic spine; hepatic spine moderate in size, accompanied with shallow hepatic groove inferior to its base; branchial carina absent; pterygostomial margin folded beneath branchiostegal spine, with minute pterygostomial spine.

Pleon (Fig. 1B–D) not very sculptured, widest at anterior end of pleomere 1. Pleomeres 1–4 dorsally rounded, without trace of middorsal carina; pleomere 5 with obsolescent

middorsal carina. Tergites of pleomeres 2–5 not elevated along posterior margins. Pleura of anterior three somites rounded, pleuron 4 with posteriorly margin produced but rounded; pleuron 5 with angular posteroventral margin, but without spine. Pleomere 6 with obsolescent, parallel submedian carinae, falling far short of posterodorsal margin; posterodorsal margin produced, weakly bilobed; dorsolateral carina distinct; pleuron shallowly depressed; posterolateral process abruptly terminating in small acute spine. Telson (Fig. 1E) 1.7 times as long as pleomere 6, with 2 pairs of tiny dorsolateral spiniform setae, first pair located posterior to midlength; dorsal surface medially grooved; posteromedian process moderately produced, triangular, subacutely pointed, flanked by 1 pair of minute spiniform setae.

Thoracic sternum widened posteriorly. Sternite 5 with anteriorly directed, slender median spine. Sternites 6–8 each with median keel terminating anteriorly in small spine. Pleonal tergites 1–4 each with ventrally directed median spine becoming shorter posteriorly, tergite 5 with low median carina.

Eyestalk (Figs. 1A, B, 2A) stout, slightly longer than wide, somewhat constricted medially; dorsodistal protrusion not reaching distal corneal margin, bearing small papilla-like tubercle; cornea hemispherical, as wide as eyestalk, corneal width 0.12 of carapace length.

Antennular peduncle (Figs. 1A, B, 2A) moderately stout, slightly reaching midlength of antennal scale. Article 1 with short, blunt distolateral process; stylocerite reaching slightly beyond distolateral process of article 1, terminating in inwardly curved blunt spine, lateral margin evenly convex. Article 2 with short, blunt distolateral process. Article 3 very short. Outer flagellum overreaching distal margin of antennal scale by half length, consisting of 11 or 12 articles; inner flagellum slightly longer than outer flagellum.

Antenna (Figs. 1A, B, 2A) with basicerite having dorsolateral distal angle produced in subacutely pointed process, ventrolateral distal spine exceeding as far as dorsolateral distal process. Antennal scale (scaphocerite) 0.4 times as long as carapace and 2.2 times as long as wide; lateral margin faintly sinuous; distolateral spine relatively slender, just reaching rounded distal margin of lamella. Carapocerite falling slightly short of distal margin of distal lamella of antennal scale.

Maxilliped 3 (Fig. 2B, C) overreaching distal margin of antennal scale by full length of ultimate article, with setation typical of genus (omitted in Fig. 2B, C). Coxa with rounded lateral plate. Antepenultimate article slightly sinuous in dorsal view, with 1 subdistal spiniform seta on ventral surface (Fig. 2D). Penultimate article (= carpus) 3.2 times as long as wide, with 1 long spiniform setae at distomesial angle and dense, stiff grooming setae entirely on mesial face. Ultimate article flattened, spatulate, 7.2 times as long as wide; mesial margin with long spiniform setae in individual or sets of 2 or more, mixed with long stiff setae.

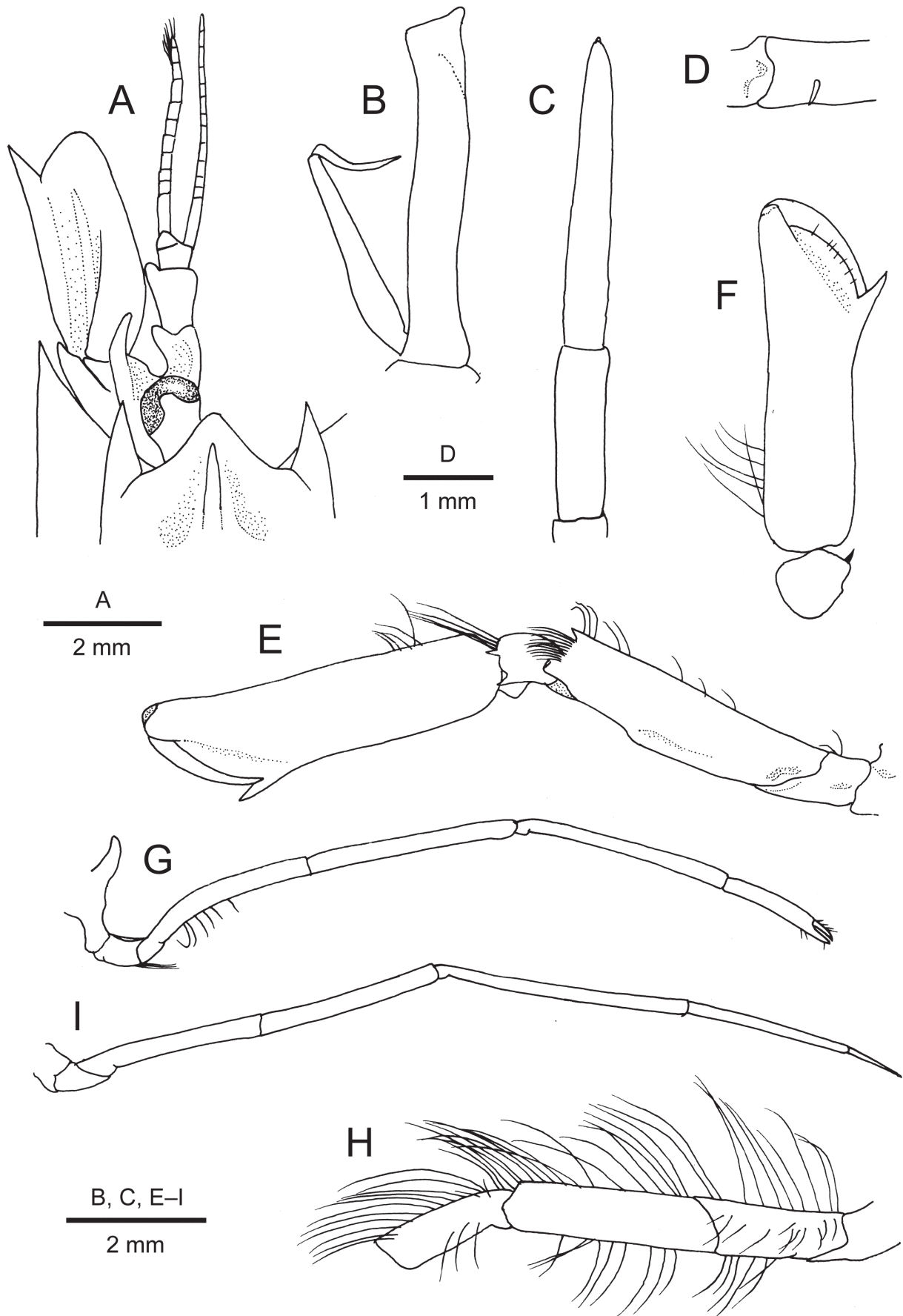


Fig. 2. *Metacrangon latirostris*, new species, holotype, female (cl 9.4 mm), MZB Cru 5054. A, anterior part of carapace and left cephalic appendages, dorsal view (setae omitted); B, left maxilliped 3, exopod, and antepenultimate article, dorsal view (setae omitted); C, same, distal two articles, dorsal view (setae omitted); D, same, distal part of antepenultimate article, ventral view; E, left pereopod 1, lateral view; F, same, chela and carpus, extensor view; G, right pereopod 2, lateral view; I, right pereopod 3, lateral view; H, left pereopod 4, lateral view (propodus and dactylus missing).

Pereopod 1 (Fig. 2E, F) moderately stout. Ischium short, obliquely articulated to merus. Merus armed with small dorsodistal spine; ventral margin faintly sinuous, sharply crested. Carpus short, subglobular, armed with 1 small spine on lateral margin in addition to small ventrolateral distal spine. Palm 3.9 times as long as wide, not markedly widened proximally or distally; lateral margin faintly sinuous, mesial margin nearly straight; carpus with dorsolateral tooth; occlusal margin strongly oblique, gently convex, with submarginal row of sparse setae; fixed finger moderately slender, acuminate. Dactylus gently curved, tip not exceeding base of fixed finger when closed.

Pereopod 2 (Fig. 2G) just reaching distal margin of scaphocerite. Coxa with prominent, sickle-like projection. Ischium arcuate, slightly shorter than merus. Carpus subequal in length to merus. Chela 0.6 times as long as propodus, with elongate palm; dactylus 0.3 times as long as palm.

Pereopod 3 (Fig. 2I) overreaching distal margin of scaphocerite by length of dactylus and 0.3 of propodus; length ratio of ischium to dactylus 3.3 : 3.1 : 4.4 : 2.9 : 1.

Pereopod 4 (Fig. 2H) damaged, only left preserved. Ischium and merus moderately slender, with row of long setae on dorsal margin, shorter setae also on ventral margin. Carpus subcylindrical, also with row of long setae on dorsal margin. Propodus and dactylus missing.

Pereopod 5 missing on either side.

Pleopods without distinguishing features; setose, carrying eggshells after hatching. Uropod with protopod having weakly bilobed posterior margin; endopod falling short of tip of telson; exopod slightly shorter than endopod, with small triangular posterolateral spine (Fig. 1G).

Etymology. The name “*latirostris*” (the Latin “*latus*” = broad + “*rostris*” = rostrum) refers to the characteristic broad rostrum of the new species in the genus.

Colouration in life. Body generally brownish, margins of middorsal spines on carapace white; antennular and antennal peduncles and maxilliped 3 similarly brownish; pereopods paler, semitransparent; pleopods also semitransparent.

Distribution. Known only from south of Java, Indonesia, at depths of 476–530 m.

Remarks. Two informal species groups, viz., “*Metacrangon munita* (Dana, 1852)” species group and “*M. jacqueti* (A. Milne-Edwards, 1881)” species group, have been recognised in *Metacrangon* (cf. Yaldwyn, 1960; Komai, 1997, 2012). *Metacrangon latirostris*, new species, belongs to the “*M. munita*” group for having marginally rounded, unarmed pleura of the pleomeres 1–3 and the moderately strong, not particularly enlarged anterior middorsal spine on the carapace. The new species is unique in the “*M. munita*”

species group in combination of the following characters: (1) the rostrum is distinctly wider than long (Figs. 1A, 2A); and (2) the anterior middorsal spine on the carapace is postrostral in position, with the tip reaching the midlength of the rostrum (Fig. 1A, B). The new species appears close to *M. clevai*, which was also collected by SJADES 2018. Other than the distinguishing characters stated above, *M. latirostris*, new species, can further be separated from *M. clevai* by the presence of paired submedian spines on the gastric region of the carapace and the more posteriorly arising posterior middorsal spine on the carapace (arising at 0.6 of the carapace length rather than at about half length of the carapace). In *M. clevai*, the rostrum is longer than wide to as long as wide; the anterior middorsal spine is located in an epigastric position, falling short of the rostral base; and there are no submedian spines on the gastric region (Fig. 3; Komai, 2012, figs. 16, 18).

***Metacrangon clevai* Komai, 2012**
(Figs. 3, 4B)

Metacrangon clevai Komai, 2012: 34, figs. 16–18, 43 (type locality: Solomon Islands, 1,001–1,012 m).

Material examined. 1 female (cl 7.4 mm), SJADES, stn DW 32, S of Java, 07°42.58'S, 107°34.54'E to 07°42.56'S, 107°35.93'E, 977–805 m, 29 March 2018, dredge, ZRC 2019.1872.

Colouration in life. Body generally maroon; cornea reflective; antennular and antennal peduncles also brownish; maxilliped 3 antepenultimate article brownish, distal two articles paler; pereopod 1 generally pale brown, darker at subdistal part of palm; pereopods 2–5 generally semitransparent, with tinge of brown on ischium and merus of pereopod 4. Pleopods also semitransparent with tinge of brown on protopods.

Distribution. Previously only known from the Solomon Islands and Vanuatu, at depths of 777–1,040 m. Newly recorded from south of Java, Indonesia, at depths of 805–977 m.

Remarks. The present specimen from the south of Java generally agrees with the description of *Metacrangon clevai* in the following diagnostic features (see Komai, 2012): (1) the carapace has two middorsal spines, the anterior one located in an epigastric position; (2) there are no submedian spines on the gastric region of the carapace; and (3) the pleomeres 2–4 possess an obsolescent middorsal carina. Only minor differences are observed between this Java specimen and the type material: (1) the anterior middorsal spine on the carapace is relatively longer and narrower in the present specimen than in the type specimens (Fig. 3A; Komai, 2012: figs. 16B, 18A); and (2) the posterior middorsal spine arises slightly anterior to the midlength in the newly collected specimen (Fig. 3A), whereas in the type specimens, it rises at the midlength or slightly posterior to it (Komai, 2012: figs. 16B, 18A).

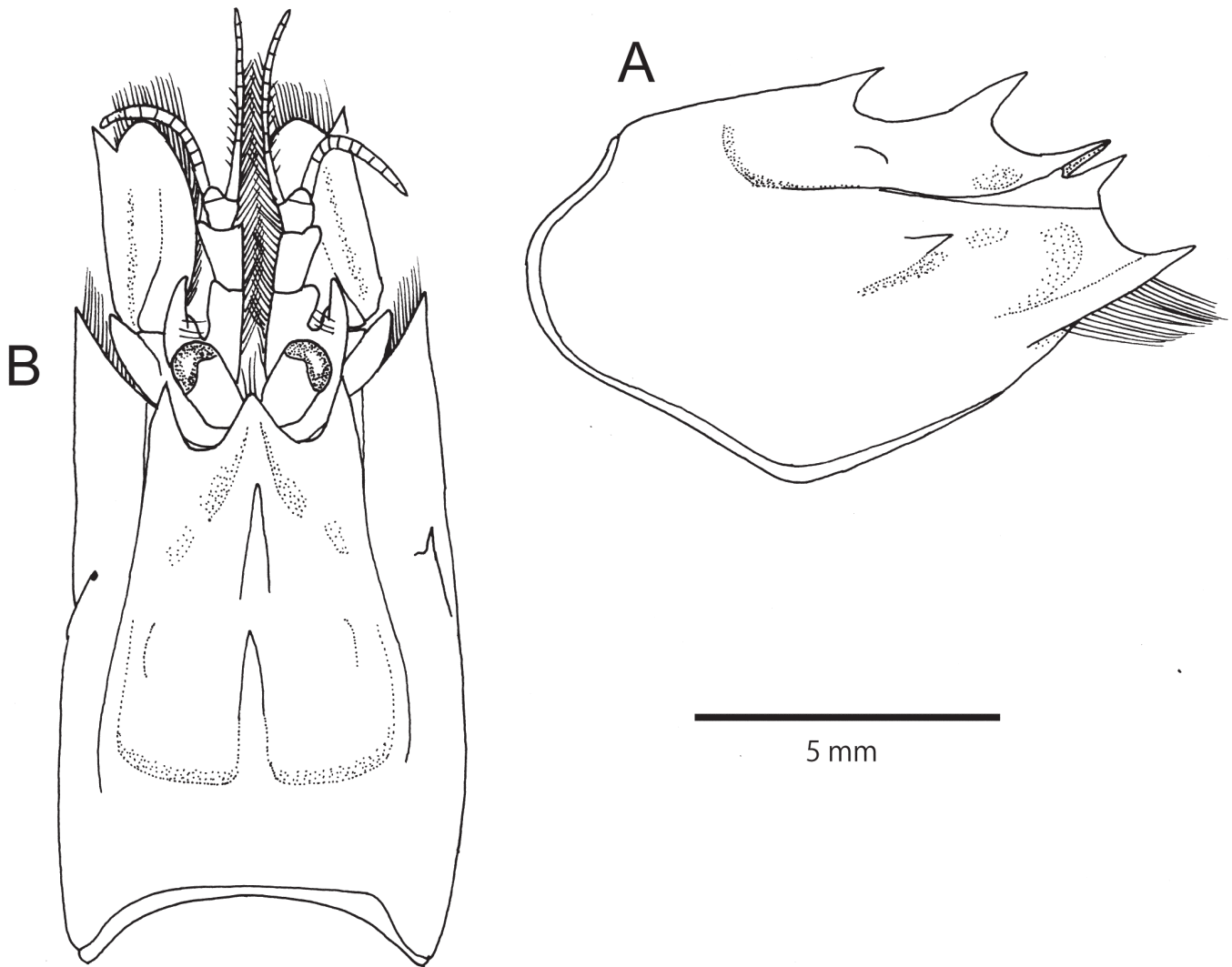


Fig. 3. *Metacrangon clevai* Komai, 2012, female (cl 7.4 mm), ZRC 2019.1872. A, carapace, lateral view; B, carapace and cephalic appendages, dorsal view.

***Metacrangon punctata* Komai, 2012**
(Fig. 4C–E)

Metacrangon punctata Komai, 2012: 17, figs. 5–7, 43 (type locality: Banda Sea, Indonesia, 1,058–1,084 m).

Material examined. SJADES, stn CP 13, S of Java, 06°00.52'S, 104°49.41'E to 06°00.83'S, 104°49.43'E, 1,259–1,268 m, 26 March 2018, beam trawl, 1 ovigerous female (cl 12.9 mm), ZRC 2019.1873; stn CP 18, S of Java, 06°10.76'S, 105°05.59'E to 16°11.59'S, 105°05.74'E, 1,060–1,073 m, 26 March 2018, beam trawl, 1 male (cl 7.4 mm), 1 ovigerous female (cl 12.5 mm), ZRC 2019.1874.

Colouration in life. Body generally whitish; carapace with tinge of purplish brown anterodorsally; pleon mottled with purplish brown markings at least on pleomeres 3–5, pleomere 6 semitransparent; cornea brownish, reflective; antennular and antennal peduncles purplish brown; pereopod 1 whitish, semitransparent; pereopods 4 and 5, pleopods and uropods generally purplish brown (Fig. 4C–E).

Distribution. Previously known from the Banda Sea (Indonesia), Papua New Guinea, Solomon Islands, and New Caledonia, at depths of 670–1,135 m. The present specimens came from the south of Java, Indonesia, at depths of 1,060–1,268 m, extending the geographical range of the species to the eastern Indian Ocean.

Remarks. As Komai (2012) argued, *M. punctata* can be assigned to the “*M. jacqueti*” species group, characterised by the greatly enlarged anterior middorsal spine on the carapace at least partially overhanging the rostrum, the possession of a ventral marginal tooth on each pleonal pleuron 1–3, and the marginally setose dactyli of the pereopods 4 and 5. The southern Java specimens agree well with the type material, particularly in the punctate branchial region of the carapace (Fig. 4C–E), one of the characteristics of *M. punctata*.

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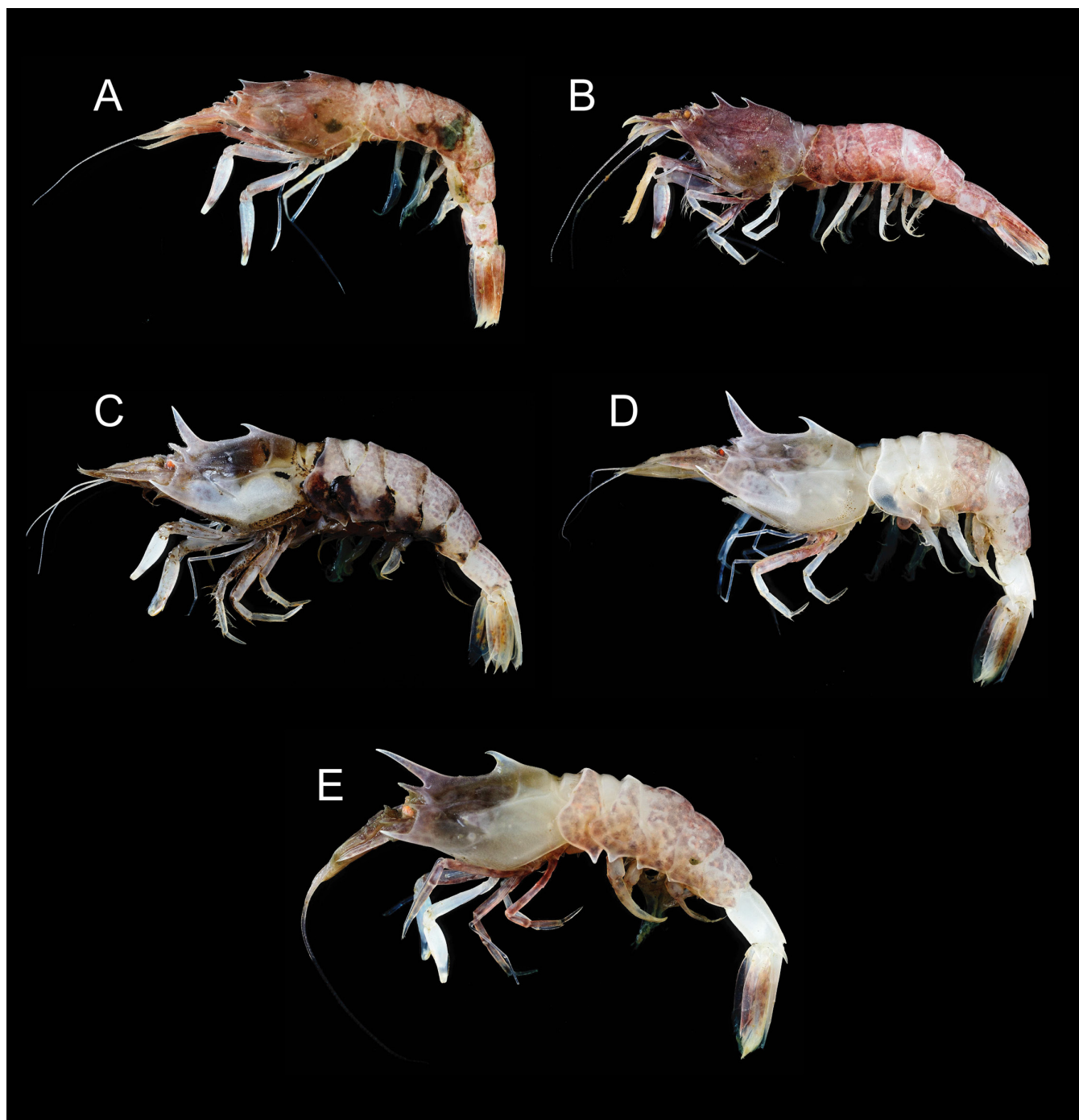


Fig. 4. Habitus in lateral view, showing colouration in life. A, *Metacrangon latirostris*, new species, holotype, female (cl 9.4 mm), MZB Cru 5054; B, *M. clevai* Komai, 2012, female (cl 7.4 mm), ZRC 2019.1872; C, *M. punctata* Komai, 2012, ovigerous female (cl 12.9 mm), ZRC 2019.1873; D, same species, ovigerous female (cl 12.5 mm), ZRC 2019.1874; E, same species, male (cl 7.5 mm), ZRC 2019.1874.

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